

Preface

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The world's forest cover continues to decrease. In recent years, the world's forests have been affected by over-harvesting, overgrazing, pests and diseases, high global temperatures, floods, droughts, storms, air pollution and forest fires, as well as the economic crises in Asia and other regions. In particular, the forests in Asia have been strongly affected by these phenomena.

Numerous initiatives have suggested reforms of forest policy and the necessity of sustainable management of forests has been widely recognized and encouraged. However, as implementation at the local community level appears to be insufficient, more effective participation and involvement of local people in forest planning and management, as well as in protected area management, should be sought in each area.

The IGES Forest Conservation Project, launched in April 1998, has carried out research activities on forest strategies, including policy analysis and on-site surveys. This interim report 1999 of the Project covers forest issues in countries in Southeast and East Asia. Recognizing that viable forest strategies work best when based on the involvement of local people, this report is addressed to stakeholders in each local community of the relevant countries.

This report of 1999, as well as previous report of 1998, aims to provide the bases for discussions on formulating forest strategies, which will be published in early 2001. The Fourth International IGES Forest Workshop will be held in the middle of December in Tokyo in order to finalize its strategies, and any comments or suggestions on any subject in those reports would be highly welcome. (Please send by post, facsimile or e-mail to the contacts noted below.)

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PRINCIPLE OF PUBLIC PARTICIPATION IN THE MANAGEMENT OF NATURAL RESOURCES AND ITS IMPLEMENTATION

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1. INTRODUCTION

In recent years, instances of human interference in the natural order have been so numerous and exploitation so substantial that there is fear for the depletion of natural resources and the complete modification of their original ecosystems. Over the last decades, people have realized that it is necessary to place more importance on specific species and habitats than on human needs. This trend of change culminated in adopting a number of multilateral agreements on nature protection.

On the other hand, such protectionism has not been welcomed by some countries which need development, particularly developing countries. Because of that, people have come to realize the need to integrate development and protection into a single concept – sustainable use, wise use or sustainable management. There are an increasing number of multilateral agreements in this regard: among them are the *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (the Ramsar Convention), the *International Tropical Timber Agreement (ITTA)* and the *Convention on Biological Diversity (CBD)*.

Experience has shown that sustainable use of natural resources cannot be achieved without involvement by the local people in the management of natural resources as well as by other people who are dependent either economically, socially and culturally upon these natural resources.

This paper reviews the principle of public participation as embodied in the provisions of several multilateral agreements or adopted in decisions, resolutions or recommendations by the meetings of the contracting parties of these agreements. Secondly, this paper also examines guidelines and/or criteria and indicators that can be used to implement the above principle. And finally, two major elements of the principle are discussed: the composition of these participants and the levels at which they can participate. .

2. OVERVIEW OF THE PRINCIPLE OF PUBLIC PARTICIPATION

This section reviews legal statements which include the principle of public participation, either directly, indirectly or implied, as proclaimed by several international instruments, either soft or hard.

2.1 Soft Law Instruments

The *World Charter for Nature* adopted in 1982 by the United Nations General Assembly² affirms in Principle 23 that public participation in decision making and the access to means of redress, must be provided:

All persons, in accordance with their national legislation, shall have the opportunity to participate, individually or with others, in the formulation of decisions of direct concern to their environment, and shall have access to means of redress when their environment has suffered damage or degradation.

It was at the Earth Summit (the U.N. Conference on Environment and Development) in 1992 that the integrating concept of sustainable development was discussed and adopted as a leading principle in the *Rio Declaration on Environment and Development*. Principle 1 admits that “Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and

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² U.N.G.A. Resolution 37/7

productive life in harmony with nature.” With regard to their participation, Principle 10 recognizes that “Environmental issues are best handled with the participation of all concerned citizens, at the relevant level.” It then reaffirms access to information, public participation in decision-making and access to judicial and administrative proceedings, providing that

At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

In addition to Principle 10, other Principles include the participation of different components of the population: women (Principle 20), youth (Principle 21) and indigenous people, their communities and other local communities (Principle 22).

Agenda 21 adopted at the Earth Summit emphasizes and elaborates public participation. The preamble to Chapter 23 explicitly states that:

One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. Furthermore, in the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups, and organizations to participate in environmental impact assessment procedures and to know about and participate in decisions, particularly those that potentially affect the communities in which they live and work. Individuals, groups and organizations should have access to information relevant to environment and development held by national authorities, including information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures.

It is particularly noteworthy that *Agenda 21* underlines the importance of public participation in environmental impact assessment procedures.

2.2 Hard Law Instruments

Following are examples of multilateral treaties which embody, explicitly or implicitly, the principle of public participation in the management of natural resources.

2.2.1 1991 *Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)*

The Convention requires the countries involved to provide the opportunity for public participation in environmental impact assessment procedures. In accordance with Article 4(8), the concerned Parties (Party of origin and affected Party) ensure that the public of the affected Party in the areas likely to be affected should be informed of, and be provided with possibilities for making comments or objections on, the proposed activity, and for the transmittal of these comments or objections to the competent authority of the Party of origin. After environmental impact assessment documentation is prepared by the Party of origin, it is distributed to the public of the affected Party in the areas likely to be affected and the public have the opportunity to make comments on it (Article 4(2)). In a final decision on the proposed activities, the Party origin must take due account of their comments.

World Bank Operational Directive 4.01 on Environmental Assessment also allows for participation of affected groups and local NGOs in environmental impact assessment procedures.

2.2.2 1992 Convention on Biological Diversity (CBD)

Article 8(j) requires Contracting Parties to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity. It also requires them to promote the wider application with the approval and involvement of the holders of such knowledge, innovations and practices.

Article 14(1)(a) allows for public participation, where appropriate, in environmental impact assessment procedures for the proposed projects that are likely to have significant adverse effects on biological diversity.

The Conference of the Parties of the Convention decided to establish an ad hoc open-ended inter-sessional working group to address the implementation of Article 8(j) and related provisions of the Convention. The mandate of this working group shall be, among others:

- To provide advice as a priority on the application and development of legal and other appropriate forms of protection for the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity,
- To provide advice to the Conference of the Parties on measures to strengthen cooperation at the international level among indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity and make proposals for the strengthening of mechanisms that support such cooperation.

2.2.3 1994 International Tropical Timber Agreement (ITTA)

The 1983 *International Tropical Timber Agreement* was initially an international instrument to maintain a stable supply of tropical timbers to consuming countries by producing countries. It was criticized for promoting the deforestation of tropical forests.

It was therefore revised in 1994 in order to maintain, or achieve sustainable management of tropical forests by the year 2000. (See the preamble of the 1994 Agreement) One of the newly adopted objectives of the Agreement is, according to Article 1(d), to enhance the capacity of member states to implement a strategy for achieving exports of tropical timber and timber products from sustainably managed sources by the year 2000.

Hence, Article 1(j), the new provision in the 1994 Agreement, encourages member states to support and develop industrial tropical timber reforestation and forest management activities as well as the rehabilitation of degraded forest land, with due regard for the interests of local communities dependent on forest resources.

Subsequent discussions by member states aiming at achieving mutual goals resulted in the adoption of guidelines, and criteria and indicators for sustainable management of tropical forests which include public participation as a basic principle of management: particularly the 1998 Criteria and Indicators for Sustainable Management of Natural Tropical Forests,³ and the 1999 Manual for the Application of Criteria and Indicators for Sustainable Management of Natural Tropical Forests.⁴ They will be explained in Section 3.

2.2.4 1994 Convention to Combat Desertification

The Convention calls for public participation to combat desertification. Article 3(a) explicitly provides that the Parties shall be guided by the following principles, *inter alia*:

The Parties should ensure that decisions on the design and implementation of programs to

³ PS-7, 1998, Criteria and Indicators for Sustainable Management of Natural Tropical Forests.

⁴ PS-9, 1999, Manual for the Application of Criteria and Indicators for Sustainable Management of Natural Tropical Forests. See also PS-1, 1990, ITTO Guidelines for Sustainable Management of Natural Tropical Forests.

combat desertification and/or mitigate the effects of drought are taken with the participation of populations and local communities.

Article 3(c) also calls for the principle of cooperation among all levels of government, communities, non-governmental organizations and landholders to establish a better understanding of the nature and value of land as well as scarce water resources in affected areas and to work towards their sustainable use.

Countries affected or likely to be affected by desertification are required, where appropriate, to prepare, make public and implement national action programs, as the central element of the strategy to combat desertification and mitigate the effects of drought (see Article 9(1)). In such national action programs, according to Article 10(2), the respective roles of government, local communities and land users are specified. According to Article 10(2)(e), policies are promoted and institutional frameworks are strengthened to develop cooperation and coordination between the donor community, governments at all levels, local populations and community groups. Access by local populations to appropriate information and technology is facilitated.

Developed country Parties are required to provide support to developing ones when the latter elaborate and implement national action programs (Articles 9(2), 13(1)). Such measures of support should include, *inter alia*, increased flexibility in project design, funding and implementation in keeping with the experimental, iterative approach indicated for participatory action at the local community level (Article 13(1)(c)).

The Parties are required to promote capacity-building through the full participation at all levels of local people, particularly at the local level, especially women and youth, with the cooperation of non-governmental and local organizations (Article 19(1)(a)).

2.2.5 The 1998 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Arhus Convention)⁵

This is a landmark multilateral treaty adopted on 25 June, 1998, by the U.N. Economic Commission for Europe: it is the first environmental treaty which requires each Party to guarantee every person's rights of access to information, public participation in decision-making and access to justice in environmental matters, in order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being (see objective of the Convention in Article 1).

Article 2(4) defines "the public" to mean one or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organizations or groups. According to Article 2(5), "the public concerned" means the public affected or likely to be affected by, or have an interest in, the environmental decision-making; NGOs promoting environmental protection and meeting any requirements under national law are deemed to have such an interest. Hence it can be assumed that local people affected or likely to be affected by proposed activities are included in "the public concerned."

The Convention divides phases of public participation into two categories: public participation in decisions on specific activities (Article 6) and public participation concerning plans, programs and policies relating to the environment (Article 7).

With regard to the first category of public participation, public participation is required in regard to decisions on whether to permit industrial, agricultural or construction proposed activities listed in Annex I to the Convention as well as other activities not listed in Annex I which may have a significant impact on the environment (Article 6(1)). The public concerned must be informed in the early stages of an environmental decision-making procedure, and in an adequate, timely and effective manner. This information should include:

(1) the proposed activity and the application on which a decision can be provided, (2) the nature of the possible decision,

⁵ *International Legal Materials*, vol. XXXVIII, 1999, pp.517-533.

- (3) *the public authority responsible for making the decision, and*
- (4) *the envisaged procedure including for example opportunities for the public to participate as well as the time and venue of any envisaged public hearing (Article 6(2)).*

The competent public authorities, during the process of public participation, must give the public concerned access to all information relevant to the decision-making and provide opportunity for examination of same at the time of the public participation procedure (Article 6(6)). The relevant information includes at least:

- (1) a description of the site and the physical and technical characteristics of the proposed activity,
- (2) a description of the significant effects of the proposed activity on the environment,
- (3) a description of the measures envisaged to prevent and/or reduce such effects,
- (4) an outline of the main alternatives studied by the applicants and so on.

The public are allowed to submit, in writing or at a public hearing or enquiry with the applicant, any comments, information, analyses or opinions on the proposed activity (Article 6(7)), which must be taken into account when the Party makes its final decision (Article 6(8)). The public must then be able to access the text of the decision along with the reasons and considerations on which the decision is based (Article 6(9)).

In addition, the public concerned, i.e. those having a sufficient interest or maintaining impairment of a right, must have access to a review procedure before a court of law and/or another independent and impartial body established by law, to challenge the substance and procedural legality of any decision, act or omission subject to the provisions of Article 6 (Article 9(2)). What constitutes sufficient interest or impairment of a right shall be determined in accordance with the requirements of national law.

With regard to the second category of public participation, the Convention calls for public participation in the preparation of environmental plans, programs, laws and regulations (Articles 7,8).

2.3 Hard law instruments having no relevant provisions on the principle of public participation but adopting it at a later stage of their implementation

The Ramsar Convention is a typical example which has no relevant provisions on the principle of public participation but adopted it at a later stage of the implementation of the Convention. According to Article 3(1), the Contracting Parties are required to formulate and implement their planning in order to promote as far as possible the wise use of wetlands in their territory. This 'wise use' provision applies to all wetlands, whether they are included in the Ramsar List or not, as well as their supporting systems within territories of the Contracting Parties. This provision constitutes an obligation of result, leaving each Contracting Party to choose measures they think appropriate to achieve the stated objective.

The precise meaning of " 'wise use' is, however, not clear in the Convention. It was in 1987 that the Conference of the Contracting Parties (COP) clarified the meaning of the term of 'wise use of wetlands'.⁶

"The wise use of wetlands is their sustainable utilization for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem."

Sustainable utilization is defined as "human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations."

Natural properties of the ecosystem are defined as "those physical, biological or chemical

⁶ Recommendation 3.3

components, such as soil, water, plants, animals and nutrients, and the interactions between them.”

This definition is noteworthy because it reflects an emerging concept of intergenerational equity which means that present ecological and socio-economic values of wetlands should be maintained and transferred to future generations. This definition of ‘wise use’ also marks an important stage in the Ramsar Convention’s evolution because it acknowledges the central importance of wetlands for mankind as well as for waterbirds.⁷ The Ramsar Strategic Plan adopted by the COP6 in 1996 affirms that through the wise use concept, the Ramsar Convention has always emphasized that human usage on a sustainable basis is entirely compatible with the listing of the Ramsar sites and wetland conservation in general.

The COP adopted recommendations and resolutions calling for public participation in wetland management as an essential element for implementing the wise use concept.

The 1990 Guidelines for Implementation of the ‘Wise Use Concept’⁸ adopted by COP4 in 1990 first pointed to the need for local people involvement in management of particular wetland sites and the need to take account of their requirements. COP5 in 1993 adopted the 1993 Additional Guidance for the Implementation of the Wise Use Concept⁹ calling for the Contracting Parties to establish, at local the level, procedures to guarantee that local populations are involved in the decision-making process related to wetland use and to provide with sufficient knowledge of planned activities to assure their meaningful participation in the decision-making process.

Local and indigenous people have a particular interest in ensuring that wetlands within their region are managed wisely. Indigenous people have distinct knowledge, experience and aspirations in relation to wetland management. Therefore, the COP6 1996 recommended that Contracting Parties make specific efforts to encourage active and informed participation of local and indigenous people at Ramsar sites and other wetlands and their catchments, and required their direct involvement, through appropriate mechanisms, in wetland management.¹⁰

In 1999, the COP7 adopted a new Resolution on Local Communities and Indigenous People¹¹ in which the Contracting Parties agreed, most importantly, to adopt the Guidelines for Establishing and Strengthening Local Communities’ and Indigenous People’s Participation in the Management of Wetlands contained in the Annex to this Resolution, which are explained more in detail in Section 3.

3. GUIDELINES, CRITERIA AND INDICATORS TO IMPLEMENT THE PRINCIPLE OF PUBLIC PARTICIPATION

The ITTA and the Ramsar Convention are two hard-law international instruments which elaborate the principle of public participation into guidelines and/or criteria and indicators.

3.1 International Tropical Timber Agreement. (ITTA)

The ITTO 1998 Criteria and Indicators for Sustainable Management of Natural Tropical Forests¹² adopted two criteria related to the concept of public and community participation for sustainable forest management:

Criteria 1 listed indicators which reveal community involvement: (1) Indicators on policy and legal framework could be the existence of a framework of laws, policies, and regulations to govern

⁷ Shine, Clare and Cyrille de Klemm, *Wetlands, Water and the Law: Using Law to Advance Wetland Conservation and Wise Use*, IUCN Environmental Policy and Law Paper No. 38, 1999, p.47.

⁸ Annex to Recommendation 4.10

⁹ Annex to Resolution 5.6

¹⁰ Recommendation 6.3 on Involving Local and Indigenous People in the Management of Ramsar Wetlands

¹¹ Resolution 7.8

¹² See supra note 2.

the participation of local communities. (2) Indicators in institutional structures revealing the degree of public participation in forest management, such as in planning, decision making, data collection, monitoring and assessment. The public in this case includes parties, individuals, communities, organizations, etc.

Criteria 7 listed indicators of community participation at economic, social and cultural levels:

- the extent to which tenure and user rights over the forest are documented and recognized
- the extent to which forest planning and management practices and processes consider and recognize legal or customary rights with respect to indigenous people and local communities, forest dwellers and other forest-dependent communities
- the extent of participation by indigenous people and local communities, forest dwellers and other forest-dependent communities in forest-based economic activities
- the number of agreements involving local communities in co-management responsibilities.

3.2 The Ramsar Convention

In 1999, the COP7 adopted a Resolution on Local Communities and Indigenous People which has an annex called Guidelines for Establishing and Strengthening Local Communities' and Indigenous People's Participation in the Management of Wetlands (hereinafter referred to as Guidelines).

These Guidelines were conceived with the premise that local and indigenous people's involvement in wetland management can substantially contribute to effective management practices that further Ramsar's 'wise use' objectives.

These Guidelines are intended to assist Contracting Parties in getting the local and indigenous people involved in wetland management in a manner that furthers the 'wise use' objectives of the Convention.

Evidence from twenty-three commissioned case studies made by the Bureau of the Convention and other experiences in participatory management indicates that the involvement of local and indigenous people's can, if carried out within the full framework of actions encouraged by the Convention, contribute significantly to maintaining or restoring the ecological integrity of wetlands, as well as contributing to community well-being and a more equitable access to resources.

The following is a summary of lessons learned from participatory management case studies.¹³

(1) Incentives for local and indigenous people's involvement and wise use are essential: everyone must benefit in the long term.

a. Local and indigenous people benefit from participatory management arrangements through the maintenance of sustainable livelihoods, including activities such as:

- i. fishing and hunting;
- ii. farming and haying;
- iii. reed harvesting and collection of forest products;
- iv. salt extraction;
- v. recreational uses and ecotourism; and
- vi. water for domestic consumption.

b. Other benefits of participatory management for local and indigenous people include:

- i. maintaining spiritual and cultural values associated with a wetland,
- ii. more equitable access to wetland resources;
- iii. increased local capacity and empowerment;
- iv. reduced conflicts among stakeholders; and

¹³ See Paragraphs. 10-14 of Guidelines.

- v. maintaining ecosystem functions (e.g., flood control, improved water quality, etc.).
 - c. Government agencies benefit from participatory management arrangements through:
 - i. improved ecosystem viability;
 - ii. reduced management costs;
 - iii. assistance with monitoring and surveillance;
 - iv. fewer infringements; and
 - v. enhanced social sustainability and quality of life for communities dependent on wetlands.
 - d. Incentives such as tax concessions, subsidies, conservation easements, special arrangements for licenses, increased market access, financial compensation schemes, increased infrastructure, and development activities can, if appropriately structured, further wise use objectives when directed to local and indigenous stakeholders.
- (2) Trust among stakeholders is essential and must be developed.
- a. Development of trust among stakeholders takes time, effort and attention. Elements that contribute to building trust include:
 - i. a willingness to seek joint objectives cooperatively;
 - ii. mutual effort;
 - iii. mutual respect;
 - iv. open and ongoing communication;
 - v. clear and realistic expectations about process outcomes;
 - vi. satisfactory and timely completion of agreed tasks;
 - vii. following through on commitments; and
 - viii. participation of all sectors of the community.
 - b. Participatory management works best when stakeholders' interests are openly stated.
 - c. Clearly stated terms of reference and objectives assist in the establishment of management partnerships.
 - d. Participatory management processes require strong facilitation that builds trust among stakeholders. Independent brokers with strong leadership skills are most effective (often this is a role for NGOs).
 - e. Appropriate legal or policy frameworks (such as the right to organize, legal recognition of NGOs, conservation easements, etc.) assist in the establishment of participatory management arrangements.
 - f. Forums, study groups, and workshops can be useful means to increase shared understanding of Ramsar principles and the value of resources being conserved or sustainably used.
- (3) Flexibility is required
- a. There is no one level of local and indigenous people's involvement that fits all contexts.
 - b. There is no one approach or recipe that will make the process work in all contexts.
 - c. For participatory management regimes to be successful, it may be necessary to meet basic development needs in the process of pursuing wise use objectives.
 - d. "Learning by doing" approach (i.e., ongoing assessment of process and outcomes) allows for re-orientation as needed.
- (4) Knowledge exchange and capacity building are fundamental.
- a. Government agencies often require capacity building in participatory management approaches, such as those specified below for stakeholders.
 - b. Stakeholders often require capacity building in:

- i. establishing and maintaining appropriate organizations;
 - ii. effective relations with government agencies;
 - iii. negotiating and contributing to decision-making;
 - iv. technical aspects of wetland management and Ramsar's principles;
 - v. monitoring of wetland ecology and identifying changes in ecological character;
 - vi. evaluation of participatory processes; and
 - vii. elaboration and design of project proposals to obtain funding.
- c. Local environmental knowledge can make a significant contribution to wetland management strategies, especially when blended with the best available science.
- d. Engaging local stakeholders in site monitoring and process evaluation makes a valuable and substantive contribution to achieving participatory conservation objectives.
- e. A multidisciplinary approach utilizing biological and social science expertise is vital for establishing participatory management regimes.
- f. Site monitoring can take advantage of a "marginal cost" approach: technical experts may be engaged, and established facilities (such as university laboratories) may be used at minimal cost.
- g. Networking mechanisms such as regular meetings, newsletters, and radio programmes fulfil information exchange and educational purposes.
- h. Basic Ramsar concepts, stewardship principles and ecological values can be conveyed through the educational curriculum of local schools. Wetland Centres can:
- i. catalyse active and informed participation of local and indigenous people;
 - ii. serve as demonstration sites for sustainable wetland management;
 - iii. support formal, informal and non-formal educational programs that involve a wide range of stakeholders;
 - iv. help to bring local and indigenous people's concerns to the attention of decision-makers; and
 - v. provide information and advice on wetlands and their management.

(5) Continuity of resources and effort is important.

- a. Establishing participatory management takes time.
- b. As with any management regime, participatory management may never be fully self-financing.
- c. Financing through donor and/or government channels is important for sustainability.
- d. Appropriate legal and policy frameworks at national and local levels contribute to continuity.
- e. High-level political support, ideally from a number of the appropriate Ministries, is important for maintaining government commitment to participatory management regimes.

When involving local and indigenous people in the participatory process, those who facilitate or coordinate such efforts are required to:¹⁴

- a. Ensure that all stakeholders understand the role of the facilitators/ coordinators.
- b. Regularly verify that all stakeholders agree upon the basic objectives of the initiative.
- c. Raise awareness of wetland conservation and sustainability issues. Involve

¹⁴ See Paragraph 15 of Guidelines.

- local and indigenous people in preparing and running awareness-raising activities.
- d. Ensure the involvement of influential individuals in the community and all sectors of the population, and especially the women and youth of the community.
 - e. Encourage stakeholder ownership of the process and participatory management arrangements, ensuring that no key participants are excluded.
 - f. Involve and strengthen local organizations and traditional structures that represent different stakeholders among local and indigenous people. Assist in the establishment of such organizations if they do not already exist.
 - g. Develop local capacity including organizational and negotiating skills, keeping of records and financial accounts, and conflict management, and provide (as necessary) the meeting place, telephone access, basic equipment, and transportation.
 - h. Ensure that persons acting as facilitators and coordinators are properly trained in participatory assessment and planning techniques and possess the necessary facilitation skills.
 - i. Work with public-sector stakeholders to build capacity for developing and administering participatory management processes.
 - j. Ensure that key parties have a clear understanding of each other's needs, responsibilities and limitations.
 - k. Ensure that local and indigenous people learn participatory assessment and planning techniques so that they can be applied to other community concerns.
 - l. Ensure that all commitments are met.
 - m. Develop a site monitoring and process testing programme using local resources to check progress.
 - n. Ensure that tasks taken up by various stakeholders are within their capabilities.
 - o. Keep funding agencies aware of issues and progress of participatory management approaches.
 - p. Establish networks among communities involved in wetland management and encourage regular contact and sharing of experiences.
 - q. Support the application of traditional knowledge to wetland management including, where possible, the establishment of centres to conserve indigenous and traditional knowledge systems.

The following list is a brief, non-exhaustive checklist of indicators that can assist to measure the extent of local and indigenous people's involvement.¹⁵

(1) Incentives

- a. Local and indigenous people have achieved an economic stake or other interest in the wise use of wetland resources.
- b. The government agency has stated policies supporting participatory management.
- c. **Appropriate legal and financial incentives for participatory management are in place.**
- d. A more equitable sharing of benefits among stakeholders has resulted from the participatory management process.
- e. Stakeholders have expressed satisfaction with their involvement in the process.

(2) Trust

- a. There is a clearly stated and widely known policy or legal document that makes a commitment to involving local and indigenous people.
- b. All key stakeholders (particularly government) acknowledge participatory

¹⁵ See Paragraphs 16-21 of Guidelines.

management as legitimate and desirable.

c. Local and indigenous people are now involved in making substantive decisions affecting the wetland resource use and management.

d. Local organizations to advance participatory management are respected within the community.

e. Representatives of the local and indigenous people are truly representative and accountable to them.

f. There are resource use and participation rules which are appropriate to the local situation.

g. A management agreement exists between stakeholders (oral or written, formal or informal).

h. The management agreement has clearly defined boundaries and membership.

i. The management agreement specifically defines stakeholders' functions, rights and responsibilities.

j. The management agreement has been approved by at least the resource-using stakeholders and key decision-making groups.

k. Parties to the agreement meet their commitments.

l. Non-compliance with approaches, rules, rights, and responsibilities outlined in the management agreement is deemed to be at an acceptable level.

m. Any system of graduated sanctions for infringement of rules has been agreed upon by all key parties.

n. There is evidence that resource management controls are being implemented.

(3) Flexibility

a. There is the potential for collective modification of the rules relating to resource use by those affected.

b. There are "nested" management units (different bodies at different levels).

c. There is evidence that the local and indigenous people can influence the speed and direction of change in relation to the resources with which they are concerned.

d. Facilitators/coordinators practice "learning by doing" and adaptive management.

(4) Knowledge exchange and capacity building

a. There is an awareness among stakeholders of new management approaches, rules, rights, and responsibilities.

b. There is a two-way flow of information and communication between local and indigenous people and relevant government agencies.

c. Information reaches local and indigenous people in a timely and accurate manner, and in a form which is readily understandable.

d. Local and indigenous people participate in site monitoring and in evaluation of the participatory process.

e. There is evidence of respect by key government agencies for local human systems and local ecological knowledge.

f. Stakeholders are demonstrating necessary skills and empowerment (e.g., capacity to make decisions, monitoring skills, etc.).

g. Measurement methods, established by the stakeholders, demonstrate and quantify the degree to which local participation was intended to, and actually has improved or conserved the recognized "functions and values" of the wetland and its wise use.

(5) Continuity

a. There are one or more organizational structures that facilitate local and indigenous people's involvement (e.g., a council, management body, women's group, etc.).

- b. A random sample of local and indigenous people are able to identify the community's role in wetland management, and the individuals who are directly involved can accurately describe the objective of their involvement.
- c. The government agency and its staff have a demonstrated commitment to participatory management, and can accurately describe the objective of local and indigenous people's involvement.
- d. There is an appropriately long-term source of funding for ongoing participation and resource management.
- e. Local and indigenous people have provided in-kind support (time, labour, traditional knowledge and expertise) to implement the participatory management agreement.
- f. Conflict management mechanisms exist, and there is an appeals process in case of conflicts within the management partnership.
- g. There is integration between local wetland management and management of the entire catchment.

4. ELEMENTS OF THE PRINCIPLES OF PUBLIC PARTICIPATION

This section focuses on two major elements of the principles which are considered essential in implementation of public participation: (1) the composition of participants and (2) the level of participation.

4.1. Composition of Participants.

The first element is related to the question who is able to participate. After reviewing relevant international instruments, it became clear that there are four categories of participants: the public in general, the public affected (or concerned), local community (or people) and indigenous people. Four major participants

4.1.1 The public in general

The *World Charter for Nature* stresses that all persons shall have the opportunity to participate in the formulation of decisions and shall have access to means of redress.

Principle 10 of the *Rio Declaration on Environment and Development* provides that each individual shall have appropriate access to information and the opportunity to participate in decision-making processes and have effective access to judicial and administrative proceedings.

According to Article 6(7) of the *Arhus Convention*, the public is allowed to submit, in writing or at a public hearing or enquiry with the applicant, any comments, information, analyses or opinions on the proposed activity.

4.1.2 The public affected or concerned

- Article 4 of the *Espoo Convention* provides that the public in the areas likely to be affected should be informed of, and be provided with possibilities for making comments or objections on the proposed activity, and for the transmittal of these comments or objections to the competent authority of the Party Of Origin. Environmental impact assessment documentation is distributed to the public of the affected Party in the areas likely to be affected by their comments.

- *World Bank Operational Directive 4.01 on Environmental Assessment* allows for participation of affected groups and local NGOs in environmental impact assessment procedures.

- *Article 14(1)(a) of CBD* also allows for public participation in environmental impact assessment procedures for the proposed projects that are likely to have significant adverse effects on biological diversity.

- *Article 6 of the Arhus Convention* provides that the public concerned shall be informed of the proposed activity, final decision, etc. In addition, Article 9 admits that the public concerned having a

sufficient interest or maintaining impairment of a right have access to a review procedure before a court of law to challenge the substantive and procedural legality of any decision, act or omission.

4.1.3 The local community or people

Principle 22 of the *Rio Declaration on Environment and Development* includes participation by indigenous people and their communities and other local communities. Chapter 23 of *Agenda 21* mentions the need for individuals, groups, and organizations who live and work in the communities potentially affected by activities to participate in environmental impact assessment procedures and to know about and participate in decisions.

Article 1(j) of the *1994 revised ITTA* pays due regard to the interests of local communities dependent on forest resources.

Criteria 7 of the *ITTA 1998 Criteria and Indicators for Sustainable Management of Natural Tropical Forests* lists as an indicator participation by indigenous people and local communities, forest dwellers and other forest-dependent communities in forest-based economic activities.

Article 8 of *CBD* on in-situ conservation of biodiversity requires each state to preserve indigenous and local communities' practices and to promote wider application of traditional knowledge, innovations and practices.

Article 3 (a) of the *Convention to Combat Desertification* requires the Parties to ensure that decisions on the design and implementation of programs to combat desertification and/or mitigate the effects of drought are taken with the participation of indigenous populations and local communities. In addition, Article 10(2)(e) provides that access by local populations to appropriate information and technology should be facilitated. With regard to capacity-building, Article 19(1)(a) calls for its promotion through the full participation at all levels of local people, particularly at the local level, especially women and youth, with the cooperation of non- governmental and local organizations.

The COP7 of the *Ramsar Convention* in 1999 adopted a new Resolution on Local Communities and Indigenous People to establish and strengthen their participation in the wetland management.

4.1.4 Indigenous people

Principle 22 of the *Rio Declaration on Environment and Development* stresses the participation by indigenous people and their communities as well as other local communities. Chapter 15 of *Agenda 21* addresses the role of indigenous people and local communities, calling for mechanisms to involve both in ecosystem conservation and management.

Criteria 7 of the *ITTA 1998 Criteria and Indicators for Sustainable Management of Natural Tropical Forests* also lists as one of the indicators of participation by indigenous people as well as local communities, forest dwellers and other forest-dependent communities.

Article 8 of *CBD on in-situ conservation of biodiversity* calls for preservation of indigenous and local communities' practices and promotion of a wider application of traditional knowledge, innovations and practices.

The *COP7 of the Ramsar Convention* adopted a resolution which includes local communities' and indigenous people's participation in the wetland management.

Composition of Participants: Criteria for inclusion in a community.

With regard to the public affected or concerned and local community or people, who are their actual members? This question should be answered by identifying criteria for determining them.

The criteria can be set on the basis of spatial proximity, dependence on resources in question, level of concern for resources in question, or a combination of all these factors.¹⁶ There is a fear that important stakeholders will be excluded if any one of these three factors alone is taken into account. Determination in terms of spatial proximity to the resource in question is the most

¹⁶ McAllister, Sean T., "Community-Based Conservation: Restructuring Institutions to Involve Local Communities in a Meaningful Way," *Colorado J. of International Environmental Law and Policy*, vol.10, no. 1, 1999, p.207,

common, but can be sometimes over-inclusive or exclusive. Landowners who merely own property in the area in question might not be included in the decision-making process. On the other hand, pastoralists who do not settle permanently in the area in question but depend on the area's resources may be included in the process. In this regard, it is noteworthy that paragraph 9 of *Guidelines for Establishing and Strengthening Local Communities' and Indigenous People's Participation in the Management of Wetlands*¹⁷ notes that "local" is a relative term; some stakeholders may live at a distance from the wetland (such as migratory fisherfolk or pastoralists) and still have traditional claims to its resources.

Additional note: indigenous people

It has become clear that international agreements on tropical forests, wetlands and biodiversity emphasize the importance of the participation of indigenous people in the management of natural resources.

In this regard it is worth mentioning two international instruments that protect the rights of indigenous people: the 1989 *ILO Convention No. 169 concerning Indigenous and Tribal Peoples in Independent Countries*¹⁸ and the *Draft U.N. Declaration on the Rights of Indigenous People*.¹⁹

The *ILO Convention No. 169* provides for indigenous people's rights of ownership and possession over the lands which they traditionally occupy. It includes their rights to use the lands to which they have traditionally had access, with particular attention paid to nomadic peoples and shifting cultivators. It also protects the rights of indigenous people to the natural resources of their land and requires that, in cases where the State retains ownership of mineral or subsurface resources, governments should have and maintain procedures whereby the peoples occupying those lands are consulted. Article 7 guarantees participation of indigenous people in decision-making processes. It ensures that indigenous people have the right to decide development priorities affecting their lives and lands. They are entitled to control their own economic, social, and cultural development and participate in plans for national and regional development that may affect them directly. Article 13 adds that governments shall respect the special importance of indigenous people's relationship with their lands, particularly the collective aspects of this relationship.

The *Draft U.N. Declaration on the Rights of Indigenous People (1995)* guarantees the right of indigenous people to "maintain and strengthen their distinctive spiritual and material relationship with the land, territories, waters and coastal seas and other resources which they have traditionally owned or otherwise occupied or used." It states that they have the right to own, develop, control and use these lands and territories, and provides for restitution when those lands have been confiscated, occupied, used or damaged without their free and informed consent. It also provides that indigenous people have the right to the "conservation, restoration and protection of the total environment and the productive capacity of their lands, territories and resources."

4.2 Level of Participation

The foregoing study of existing international instruments reveals that there are three levels of public participation: access to information, participation in decision-making, and access to means of redress. Participation in decision-making includes consultation, representation/voting, making deliberations/comments/objections, and in particular participation in environmental impact assessment procedures. Access to means of redress in an administrative or judicial forum admits as a precondition the right of persons, either individual or collective, to be protected and includes the right of compensated in cases where their rights are infringed.

¹⁷ Annex to Resolution 7.8

¹⁸ See *International Legal Materials*, vol. XXVIII, 1989, pp.1389 et.seq.

¹⁹ Resolution 1994/45, Sub-Commission on Prevention of Discrimination and Protection of Minorities, 46th session, 1994. See *International Legal Materials*, vol. XXXIV, 1995, pp.541 et.seq

4.2.1 Access to information

Principle 10 of the *Rio Declaration on Environment and Development* states that each person shall have access to information concerning the environment. Chapter 2 of *Agenda 21* provides for individuals, groups, and organizations' access to information relevant to environment and development.

The *Espoo Convention* provides that the public affected should be informed of the proposed activity (Article 4(8)). The *Convention to Combat Desertification* calls for the facilitation of access by local populations to appropriate information and technology to combat desertification (Article 10(2)(e)). The *Arhus Convention* states that the public concerned must be informed of any relevant information on the proposed activity and the public must have access to the text of the final decision along with the reasons and considerations on which the decision is based (Article 6).4.2.2 Decision-making.

The *World Charter for Nature* admits that all persons shall have the opportunity to participate in the formulation of decisions of direct concern to their environment. Principle 10 of the *Rio Declaration on Environment and Development*. admits that each person shall have the opportunity to publicly participate in the decision-making processes. Chapter 23 of *Agenda 21* explicitly states that one of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making.

4.2.2.1 Environmental impact assessment procedures

Chapter 23 of *Agenda 21* stresses the need for individuals, groups, and organizations to participate in environmental impact assessment procedures. The *Espoo Convention* guarantees the participation of the public affected in environmental impact assessment procedure. The *World Bank Operational Directive 4.01 on Environmental Assessment* allows for participation of affected groups and local NGOs in environmental impact assessment procedures. *CBD* allows for public participation in environmental impact assessment procedures for the proposed projects (Article 14(1)(a)).

4.2.2.2 Deliberations/comments/objections

The *Espoo Convention* insists that the public affected can make comments on or objections to the proposed activity and also make comments on the environmental impact assessment documentation (Article 4(2)).

The *Arhus Convention* adds that the public are allowed to submit, in writing or at a public hearing or enquiry with the applicant, any comments, information, analyses or opinions on the proposed activity (Article 6).

4.2.3 Access to means of redress

The *World Charter for Nature* admits that all persons shall have access to means of redress when their environment has suffered damage or degradation. Principle 10 of the *Rio Declaration on Environment and Development*. admits that each person shall have effective access to judicial and administrative proceedings. The *Arhus Convention* admits that the public concerned, those having a sufficient interest or maintaining impairment of a right, have access to a review procedure before a court of law and/or other independent bodies to challenge the substantive and procedural legality of any decision, act or omission (Article 9(2)).

CBD calls for respect for the preservation and maintenance of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity (Article 8(j)). Criteria 7 under the *ITTO 1998 Criteria and Indicators for Sustainable Management of Natural Tropical Forests* lists as an indicator of community participation the extent to which forest planning and management practices and processes consider and recognize legal or customary rights with respect to indigenous people and local communities, forest dwellers and other forest-dependent communities. It also lists as an indicator of community participation the number of agreements involving local communities in co-management responsibilities.

It is worthy of note that *Guidelines for Establishing and Strengthening Local Communities' and Indigenous People's Participation in the Management of Wetlands* which was adopted in 1999 by COP7 of the Ramsar Convention are so comprehensive that they include all elements of access to information, participation in decision-making, and access to means of redress. It should also be noted that they define the breadth of the term of 'involvement' as including even a devolution of management authority to local and indigenous people.²⁰

5. CONCLUSION

Public participation is indispensable for the sustainable use and management of natural resources. It is clear that the requirement of public participation has become one of the legal principles in some international instruments. However, the specific contents of the principle depend on the characteristics of the natural resources in question. The composition of the participants and the level of participation are two major elements to be addressed in implementing this principle. Other elements to be addressed much further are, for example, the accountability of local and indigenous communities, the demarcation of rights and responsibilities of local and indigenous communities and people, the costs and benefits of public participation, and stable funding for public participation.²¹

²⁰ Paragraph 6 of Guidelines

²¹ See e.g. McAllister, supra note 15, pp.212-224.

VIETNAM'S DOI MOI POLICY AND FOREST PROTECTION THE POSSIBILITY OF PEOPLE'S PARTICIPATION

NAKANO Ari

This paper aims to contribute to understanding the Socialist Republic of Vietnam's policy of renovation or renewal called the Doi Moi policy within the context of the country's basic political structure, as well as understanding its environmental and forest management policies within the context of the Doi Moi policy itself. Finally, some questions are raised about the participation of local people in forest protection.

1. The fundamental political structure in Doi Moi policy

1.1 The historical background of the Doi Moi policy and its components

After gaining independence from France in 1945 and then the division of the country into North and the South Vietnam in 1954, the Communist Party (formerly the Workers' Party) of North Vietnam (the Democratic Republic of Vietnam) and its government in Hanoi nationalized agricultural lands and large areas of forest, while at the same time collectivizing their agricultural production system.

Since the end of the Vietnam War and national reunification in 1976, the Hanoi government (the present government of the Socialist Republic of Vietnam) attempted to extend the socialist system to the South. However, the nationalization of industry and collectivization in agriculture resulted in food-shortages in the whole region of Vietnam in the late 1970s.

Though Vietnam tried to be independent in the conflict between the Soviet Union and China, the Beijing government took precautions against the reunified Vietnam and the influence of the Soviet Union in the Indochina region. As Chinese political and military pressures increased, Vietnam needed military and economic assistance from the Soviet Union.

The Chinese government supported the Democratic Kampuchea led by the Khmer Rouge, which shared a common border with Vietnam. Supported by military assistance from the China, Khmer Rouge forces attacked the southwest border of Vietnam in the late 1970s. For reasons of national security, the People's Army of Vietnam made an invasion into Democratic Kampuchea in December 1978, and established the pro-Vietnam Government of the People's Republic of Kampuchea in January 1979.

Western countries criticized the Vietnamese invasion and instituted economic punishments against the country. As a result, Vietnam was isolated from international society, and its domestic economy collapsed entirely by the mid-1980s. Assistance from socialist countries decreased at the same time because of economic difficulties of their own.

In December 1986, Vietnam launched the 'Doi Moi,' a policy of renovation with the goal of ending the country's international isolation, and overcoming its critical economic situation. The Hanoi government undertook to normalize relations with former enemies, such as China, the United States and other Western countries, and aimed to promote economic growth and improve the people's lives through the market economy "with national enterprises as the leading sector."

The Doi Moi policy was fundamentally comprised of: 1) the democratization and publication of information; 2) an open-door policy in foreign relations; and 3) the implementation of a market economy "guided by the national sector." So far, the second and third initiatives seem to have been successful. Vietnam normalized relations with China in September 1991, with the United States in July 1995, and formally joined ASEAN in July 1995 and APEC in December 1998. It has also been successful in economic liberalization and attracting foreign investments.

This economic success validated the leadership of the Communist Party, while at the same time the economic crisis in the Soviet Union and East European countries seemed to show that Vietnam had followed "the correct Marxism-Leninism." For Vietnamese revolutionists, Marxism-Leninism was not an idea forced upon the country from the outside (like in East European countries), but their own choice based on historical experience. Furthermore, in the Vietnam War they fought as the front of the socialist block during the Cold War period. This is the reason why they maintained the

socialist structure.

1.2 The political structure under the Doi Moi Constitution

To understand the administrative framework for environmental and forest management and their associated challenges in Vietnam, it is necessary to have an understanding of the position of the Communist Party within the national political system, the relations between the Party and the Government, and the relationships between legislative, administrative and judicial powers.

1.2.1 The Constitutions of 1980 and 1992

The Doi Moi policy was legalized within the present Constitution in 1992, which is called the "Doi Moi Constitution." It was the revised version of the Constitution of 1980, which determined that the Socialist Republic of Vietnam was "a state with proletarian dictatorship." It also determined that the Communist Party was "the only political power leading the State," following "Marxism Leninism."

According to the 1992 Constitution, the Socialist Republic of Vietnam is a state "of the people, by the people, for the people." Vietnam is a state that "the Communist Party leads and the State administrates" with the people as "the master." It's based on the premise that the Communist Party represents the interests of the whole people, and as the leading political party, some say the Communist Party of Vietnam is "the only political power," which follows the thinking of Marxism-Leninism and Ho Chi Minh philosophy. The Ho Chi Minh philosophy was singled out as Vietnam's own ideology after the collapse of the Soviet Union.

The 1992 Constitution had fifty clauses in it that referred to people's rights and duties. People's rights are classified as "political, civil, economic, cultural and social rights," which "belong to the character of the socialist system." Accordingly, individual rights are to be assured only in this system. The 1992 Constitution succeeded the idea in the 1980 Constitution that the people's rights are indivisible with their duties. It states that the people must fulfill their own duties for the State and the society. The Party authorities also emphasized that democracy always goes along with laws, orders and duties. Therefore, people's rights are always limited by duties that are determined by law.

1.2.2 The Communist Party

The Communist Party of Vietnam provides important policy guidance to the government. National party congresses are held every five years to discuss national development policy and planning issues. Recommendations stemming from the party congress are later transmitted to the government. The Central Committee of the Party meets regularly and represents the national congress between sessions. The Politburo is responsible for the overall leadership of the Party.

1.2.3 The Government

The Government's administrative framework at the central level is made up of several core ministries, state agencies, line ministers and other national agencies and committees. The more influential administrative agencies concerned with environmental policy are the Office of the Government, the Ministry of Planning and Investment, the State Bank, the Ministry of Finance, the Ministry of Foreign Affairs and the Ministry of Science-Technology and Environment.

1.2.4 Legislative activities

The highest representative body of the people in Vietnam is the National Assembly, which has the sole authority to enact national legislation, including laws, decrees and resolutions. The National Assembly also has ultimate authority over the Government and the Supreme People's Court, but a large number of Assembly seats are occupied by Party members. It is very difficult for non-Party individuals to stand for general election.

The Constitution stipulates that the National Assembly, the Government and the Supreme People's Court are a "unit in working." This system is called "the unification and division of work" of the three powers, not "the separation" of them. The separation of powers is denied, because it is regarded as a thought of "bourgeoisie democracy." For this reason, judicial power in Vietnam is not independent in effect.

The first steps in implementing policies are legislative activities, including the drafting and passing of laws. Laws are drafted by line ministries and state agencies in conjunction with the Ministry of Justice and related committees of the National Assembly. The Prime Minister is responsible for coordinating and submitting proposed laws to the National Assembly. The Office of the Government, as well as the ministries, supports this role and provides advice to the Prime Minister. Within the Office of the Government, the Department for Science, Education, Social and Cultural Affairs has a senior advisor on environmental issues.

The responsibility for implementing legislation and passing decrees, circulars, by-laws, and administrative guidance is delegated to line ministries, state committees and appropriate provincial bodies (again, in conjunction with the Ministry of Justice).

1.2.5 The framework for elections and the role of the Fatherland Front

Members of the National Assembly stand for election every five years. The National Assembly holds bi-annual sessions and delegates legislative power to its Standing Committee when it is not in session.

In elections of the National Assembly at the central level and the People's Council at the local level, the Vietnam Fatherland Front plays a specific role. It consists of people's organizations such as the labor union, peasant's union, women's union and other groups organized according to occupation. Theoretically, the Communist Party is one of the organizations under the Front, but the Party actually has great influence over the Front.

The candidates of the election need the recommendation of the Fatherland Front and have to be recorded in the list of candidates, which the Front also supervises. Nobody can stand for elections without the recommendation of the Front. It can be said that the election system is actually controlled by the Fatherland Front (the Communist Party).

1.2.6 Local administration

Provincial People's Councils are elected by universal suffrage on a five-year basis. They propose candidates for the Provincial People's Committees to the Prime Minister and the Communist Party. Policies to be implemented on a provincial basis are formulated by the Provincial People's Council, the Provincial People's Committee and the provincial organization of the Communist Party.

The Provincial People's Committee is the highest administrative office at the provincial level. The pattern of elected People's Councils with their administrative function performed by appointed People's Committees is repeated at the district level and again at the commune levels. At each level the People's Committee controls local, specialized services. These services cover diverse areas like industrial development, tourism, family planning, and environment, etc.

For implementing laws and policies the staff of these services report to their respective People's Committees. The Commune People's Committees report to District People's Committees, which, in turn, report to the Provincial People's Committees. Finally, Provincial People's Committees report to the National Government.

1.3 “Socialist democracy” and constructing a “Vietnamese Socialist law-governed state”

After the collapse of the Soviet Union and the loss of the “socialist” model, the Communist Party of Vietnam had to accelerate political and economic renovations so as to restrict the influence from political changes in former socialist countries. A review was conducted of the existing political structure where the Party played a role in the State. As well, the need to establish a new model for the Vietnamese law-governed state was identified.

However, it was really a process of seeking a survival strategy for the communists leading the country. Understandably, the theory justified the dictatorship of the Communist Party, and denied political pluralism with a multi-party system, calling it “bourgeoisie democracy.” Although the Doi Moi policy was successful in foreign relations and the market economy, discussions about the law-governed state did not stimulate political democratization.

There were three key features of the official discussion about constructing a law-governed state in Vietnam.

First, it admitted, in effect, the superiority of the Communist Party over the State. The question

of constructing a law-governed state was always tied with strengthening the role of the Party as the leader of the State.

Secondly, discussions about the renovation of the political system were always based on the principle of the unification of the Party and the State, the unification of legislative, administrative and judicial powers, and the unification of collective bodies and individuals. Because of this principle any ideas of a law-governed state leading to political pluralism were restrained.

Third, in the process of discussion, there was no contradiction between general socialist ideas and specific national conditions. Socialist ideas like “the principle of democratic collectivism” or “socialist legislation” were not confronted with the idea of building a law-governed state based on the cultural and historical conditions of the Vietnamese.

1.4 Summary

In the mid-1980s, the Doi Moi policy was adopted in order to overcome international isolation and the economic crisis with the survival of the country as the primary goal. However, after the Socialist Bloc collapsed between the late 1980s and the beginning of the 1990s, Hanoi leaders used the Doi Moi policy for the survival of the Communist Party. “Political democratization” was discussed and advanced, but it was based on the idea that the Party represented the people. Therefore, “democratization” in Vietnam meant strengthening the leading role of the Party. Today, the functions of the Party, the State, and the legislative, administrative and judicial powers are divided, but at the same time their unification is emphasized as well as the unification of people's rights and duties.

2. Overview of the political framework for forest protection

2.1 The development of state forest management

Up to the early 1990s, Vietnamese forest policy was based on direct state involvement in the management, exploitation, processing and distribution of forest resources in order to achieve rational utilization.

In the late 1950s and early 1960s the Hanoi Government nationalized large areas of land in the midland and upland regions of the Northern area. Forested land with a slope over 25 degrees was designated as state property and put under the management of State Forest Enterprises. Control over the management of forest resources was centralized. The Ministry of Forestry (now the Ministry of Agriculture and Rural Development) required State Forest Enterprises to follow strict silvicultural regulations and to seek the ministry's approval for their annual operation plans.

In 1972, the Hanoi Government instituted a system of ‘forest protection units’ to achieve forest preservation. It was meant to enforce forest protection regulations and guide the exploitation of forest resources.

In the highlands, forest management by the State was a larger attempt to transform the traditional use of rural resources. The highland people formed agricultural producer cooperatives, as did the people in the lowlands. By 1968, ninety percent of agricultural households in the northern mountain areas belonged to cooperatives and they were relatively free from state intervention.

The transformation of social structure and resource use also included massive resettlement programmes. According to the World Bank, from the late 1960s to early 1990s, the Hanoi Government resettled about five million people from the lowland provinces to the uplands. The settlement programmes were designed to increase cultivation, exploit the natural resources and provide groups of ethnic minorities with permanent settlements.

By 1990 the programme included 1.9 million highland people. The Government envisioned the State Forest and Agricultural Enterprises as playing an important role as poles of regional development in the highlands, but this approach to managing rural resources brought about a drastic decline in forest resources.

In 1991 the first National Forest Policy introduced a new framework for forest management. The new policy designated private households to replace State Forest Enterprises in overseeing the forest. With guidance from the state local people appeared to be on their way to becoming true stewards of

the forest. The 1993 Land Law (see 2.2.4) gave local people extensive-use rights over agricultural and forested lands.

In Decree 327/CT (1992) the programme aimed to re-green barren land in the highlands through an integrated rural development approach. It established a ten-year programme for forest protection and development on denuded and barren forest lands. However, Decree 556/TTg (1995), the revised programme of 327, shifted the focus to protecting existing forests and establishing new forests. It effectively limited community participation in forest management.

Governmental funds also increasingly concentrated on forest protection. Since 1993 the programme accounted for a large share of central government transfer payments to provinces and districts - about US\$50 to 70 million per year.

With Decree No. 661/QD-TTg in July 1998, the Government launched the National Programme of Reforestation of five million hectares of land, the "five million hectare" programme, which is expected to achieve its target over a period of 13 years (1998 - 2010).

2.2 Legislative basis for forest protection and the development sector

2.2.1 Constitution of 1992

The present Constitution of 1992 stipulates that, in principle, land and forests are under the ownership of the people (i.e. national property), under unified state management according to the plan and the law. Land cannot be sold. The State rents land to organizations and individuals for prolonged periods, along with specific rights, depending on the purpose and the users.

The recipients of use rights are responsible for the protection, enrichment, rational exploitation and economic use of the land. They may transfer the right to use the land. However, in practice it has been proven that such transfers are complicated, except in the case of inheritance, because the Government does not allow free land sales (i.e. proper and free land markets do not exist).

2.2.2 The Law on Environmental Protection and Decree 175/CP

The Law on Environmental Protection, enacted in 1994, provides a framework for environmental management and protection. It contains specific provisions relating to sectoral activities that are already regulated under other legislation. It also provides for two mechanisms to resolve environmental conflicts - one through the legislative and court structure - the other through a pyramid structure ending with the Prime Minister.

In 1994 the Government issued Decree 175/CP on "Guidance for the Implementation of the Law on Environmental Protection" to provide guidance on the implementation of the Law on Environmental Protection.

2.2.3 The Law on Forest Protection and Development

The Forest Law of 1991 and the respective Forest Resource Protection and Development Act of 1991 both define forest land as either "forested land" or "land without forest but designated for forest plantation." Three categories of forest land are defined along with estimated areas.

According to the forest legislation, protection forest (critical watersheds, wetlands, etc.) accounts for 5.7 million hectares; special use forest (nature reserves, national parks, etc.) is 0.9 million hectares; and production forest (forest production areas) contains 12.4 million hectares.

The first two categories of forest land are allocated and managed by state-run management boards. Production forests are allocated to State Forest Enterprises or private individuals, households or companies. Presently, 25 percent of the total forested land area and 38 percent of the production forest area is under State Forest Enterprises.

2.2.4 The Land Law

The Land Law of 1993 stipulates that land is the property of the people and cannot be sold. The State administers and allocates land on behalf of the people. The law states that long-term use rights should be issued to entities such as individuals, households, groups of households and organizations that can be public or private. Accordingly, Vietnamese and foreign organizations and individuals can rent land but not own it. Their use rights include permission to exchange, transfer, lease, mortgage, and pass on land for inheritance.

Land is allocated only for specified purposes, which can be for agriculture, forestry, and residential or urban use. Decree 2/CP in 1994 specified that the duration of the use rights granted for forestry to non-state entities is 50 years plus the time remaining in the crop rotation in the 50th year.

State entities such as the State Forest Enterprises may receive longer-term rights. Land allocations for forestry are renewable.

2.2.5 The Land Law Amendment

The Land Law Amendment of 1998 stipulates that enterprises allocated land for forestry use may mortgage the assets attached to the land (i.e. the value of the timber). Enterprises can also use their land use rights as capital contributions with other domestic or foreign individuals or companies for joint venture forestry projects. This amendment facilitates the formation of joint venture companies.

However, the Vietnamese partner can use its land use rights as capital contributions only if they have paid the land-use rental fee in advance for the whole period of land use rights (i.e. up to 50 years). For long-term forestry investments like planting valuable, slow-growing timber species such as teak or mahogany this regulation definitely acts as a strong disincentive.

2.3 National and Provincial agencies for environment protection

2.3.1 Ministry of Science, Technology and Environment (MOSTE)

In 1992 the former State Committee for Sciences, previously chaired at the ministerial level, was restructured to form the Ministry of Science, Technology and Environment (MOSTE) in order to reflect the inclusion of environment within its mandate. The Law on Environmental Protection states that MOSTE is responsible to the Government for exercising the function of state management of environmental management.

2.3.2 National Environment Agency (NEA)

In 1994 MOSTE formed the National Environment Agency (NEA) as the environmental arm of the ministry. The duties of NEA include: 1) studying and formulating policies, strategies, bills and legislative documents on environmental protection and sustainable development; 2) inspecting the implementation of laws and regulations on environmental protection; 3) maintaining environmental health; 4) assessing the environmental impacts of projects; 5) controlling pollutants; 6) managing the monitoring system; and 7) guiding public activities on environmental protection.

2.3.3 Department of Science, Technology and Environment (DOSTE) in the ministries

Almost all ministries and state agencies have a department responsible for environmental affairs called the Department of Science, Technology and Environment (DOSTE). It has the role of evaluation, monitoring and control for environmental affairs, although the Departments play only an advisory and information role without final decision-making power regarding projects or investments within a ministry.

2.3.4 Provincial Services of Science, Technology and Environment (SOSTE)

The Law of Environmental Protection states that the Provincial People's Committees shall directly exercise their environmental management functions under the national Government. The Provincial People's Committees established an environmental division called the provincial Services of Science, Technology and Environment (SOSTEs) within the provincial affiliate of MOSTE. However, the environmental mandate of the SOSTEs is new, and they have very few facilities for environmental management in most of provinces.

2.4 Governmental report of the national plan and the forest protection

Let us review briefly the governmental report on some sectors related to forest protection in the national plan in 1998 and 1999.

2.4.1 Agriculture and forestry

The 1999 national plan provided for an increased percentage of funds reserved for agriculture, forestry and fishery in the total investment funds of the economy including those from the State, the people and foreign countries. The State funds were to be concentrated on the building of socio-economic infrastructure in rural areas first, including water conservancy projects, dikes, communication networks, crop strain improvement, agriculture popularization, and support for the development of industry and services to further agriculture, processing and marketing.

The results of the National Assembly's supervision of the law on forest protection and development have resulted in better direction of the implementation of the project to afforest five million hectares.

2.4.2 The land policy

The land policy should bring about conditions to promote the effective use of existing farm and forest lands and the rapid exploitation of waste lands, which still cover a large area. At the same time, favourable conditions must be created for the use of lands for special purposes in keeping with the plan, especially those serving as sited for non-agricultural production and business.

In order to improve the State's management of land and the institutions and procedures for decision-making on land usage rights, including transfers of these rights, and to prevent possible illegal market activities, regulations that reflect reality are needed.

2.4.3 Rural development

The aim of rural development is to deal with the obstacles caused by policies and institutions in order to create a new force to bring about strong and steady socio-economic development in rural areas; to encourage people to enrich themselves along with the drive to eradicate hunger and reduce poverty; and to strengthen unity in the countryside.

Further, rural development is meant to highlight a sense of responsibility, dynamism and creativity in various localities and branches to create opportunities for peasant households, various economic components in the countryside, and all other forces that have a need and opportunity to boldly make investments to develop agriculture, industry, handicrafts and services in rural areas.

All economic forms that promote the development of production, creating employment opportunities and lead to an improvement of rural people's livelihood were to be encouraged. This includes multiplying the models of economic association of peasant households, the forms of cooperative economy and cooperatives, state farms, forest farms, and the farming economy linked to processing and marketing enterprises.

2.4.4 Eradication of hunger and the reduction of poverty

With economic growth in recent years the disparity between rich and poor has been paid more attention by the Government. It announced a slogan, "eradication of hunger and reduction of poverty" and comprehensive strategies concerned with forest development and protection.

In the implementation of the national programmes on employment and the elimination of hunger and reduction of poverty, great attention was to be paid to encourage the development of the labour-consuming industries and units, especially medium and small-size production enterprises to carry out programmes to send labourers to exploit barren hills and waste land.

2.4.5 Investment programmes for ethnic minority groups in mountain areas

In Vietnam, the policy for mountain areas equates to a policy for the minority population. Ethnic minority groups practice a diverse range of swidden cultivation systems with various consequences for the forest. The development and protection of forests is closely related with improving the livelihood of minorities.

It has been emphasized that the State should pay further attention to the elaboration of programmes and plans of investment in mountain areas where ethnic minority groups exist, so as to develop production, gradually stabilize and improve the material and spiritual living conditions of the population.

In the past, the State has taken many steps for socio-economic development in mountain areas inhabited by minority groups. It has undertaken various programmes and projects of investment and initial results have been recorded. The State has also prioritized the promotion of scientific and

technological projects, which further socio-economic development in these areas.

From 1991 to 1997 the Government made investments to carry out a number of programmes and projects with the following initial results :

- Rice yields increased to over 10 tonnes/ha after a programme to affect the transfer of seed technology and carry out intensive cultivation in some communities of the minority people in the North-Western mountain areas, such as in the province of Lai Chau increased to over 10 tonnes/ha.
- Model programmes encouraging the household economy for some minority communities in the Northern mountain areas and for the Khmer ethnic minority area in the Mekong Delta such as An Giang province and Soc Trang province were highly appreciated by local authorities, and were extended to other places.
- In a model to produce hybrid maize seeds in a number of places in the Northern mountain areas, such as Cao Bang province, it resulted in nearly 3,000 tonnes of maize produced annually at a cost equal to only two-thirds of the imported seeds.

Despite these results the National Assembly supervising the policy for mountain areas and ethnic minorities evaluated that the previous programmes of investment in ethnic minority and mountain regions were dispersed, ineffective and accompanied with many negative manifestations.

2.4.6 National defense and the protection of territorial integrity

Forest management is also concerned with national defense and the protection of border areas, because most of the territorial borderlines of Vietnam are in mountain areas, where tens of thousands of wartime bombs and mines still remain.

The national defense programme has the task of population distribution; carrying out the removal of bombs, mines and other obstacles to facilitate the people's settlement and the defense of territorial sovereignty; and planning the formation of economic and economy-cum-national defense regions in a specific strategic orientation.

On the management of the borders and the protection of national sovereignty and territorial integrity, the Government, acting on the recommendations of the Commission on National Defense and Security, made arrangements and recorded initial results in bringing back the population to border areas and promoting the hard core role of the border guards in the building border communes.

2.4.7 Some tasks failed to be undertaken in 1998

There was a shortage of specialists at the grassroots level to guide the peasants in the application of technological progress. The scientific and technical cadres from the Center were present in localities only during the implementation of projects. In many cases, upon their completion, the contingent of scientists withdrew from the locality, leaving no one for further extensive application of the results gained.

2.5 Summary

After the Doi Moi policy was undertaken, new ideas developed: local people themselves should protect the forest, and they should do this if they want to increase their standard of living. However, a lot of official documents reporting the achievements in the protection and development of forests hardly describe the problems associated with people's participation.

Recently, Vietnam also faced contradictions between forest protection on the one hand, and the need to exploit new lands, agricultural and rural development and to improve the livelihood of minorities on the other.

For instance, in the Central highlands recently, thousands of people immigrated "illegally" from the poorer provinces and exploited natural forests in order to plant coffee. The coffee plantations bring many benefits to the highland province, but coffee also needs sufficient water, a lot of fertilizer and care, and two years to produce its first fruits. It is also easily infected by disease. The province has to deal with both environmental and social difficulties caused by this type of exploitation and the increasing number of illegal residents.

Strong centralized guidance is still needed for the policy of forest protection. On the other hand, it seems very difficult for local people to take the initiative in forest protection within the existing political framework.

3. Problems of forest management

We can see the problems of the forest protection policy from two viewpoints: one is of the political system; the other is the political culture of Vietnam.

3.1 Problems of the political system

Until recently Vietnam was under the structure of a centrally planned economy run by a huge bureaucratic mechanism established with mass Party officials. The central government was responsible for setting policies and developing and implementing strategies in all areas, including environmental management.

Thus there were very few non-state organizations participating in environmental management. Even some “non-governmental” organizations were run by Party officials. For these reasons the existing framework for environmental management in this country is almost entirely a governmental institutional framework.

The Communist Party and the Government have maintained a system of “collective mastery” since the 1960s. Due to this system it is not so easy for Vietnamese people or foreign observers to examine who is responsible for policy implementation. Vietnamese citizens and foreigners can get very little information about political decision-making, including environmental policies (i.e. who formulated the plan and is responsible for it).

In administrative institutions there is very little horizontal communication between sections, even within the sections in the same ministry. For instance, there are some institutes responsible for environmental management under a ministry, but each institute has very little knowledge of the others. There are even some cases where they don't know of the existence of other institutes.

Under the extremely centralized administration, people have, in fact, very few legal means to express their opinions to the central authorities. Officials say that they have a system to “adjust” people's opinions at the rural and provincial levels, but it is not clear how the “adjustment” is implemented in the People's Committees at each level.

So far, a lot of laws, decisions, directions, projects and plans for forest management have been established. However, we can find out very little about their actual practice and results. For instance, there is very little information about the implementation of the project on planting five million

hectares of new forests in each of the provinces. The lack of a system for checking the implementation of laws, decisions and directions is one of the problems of political democratization in the country.

Vietnamese national agencies have chronic financial difficulties. In the present tax collection system, the only sources of income for the State are foreign enterprises carrying on business in Vietnam or joint enterprises with foreigners.

During the war Vietnam was accustomed to relying on assistance from socialist countries such as the Soviet Union, China and East European countries. For this reason the government had very few systems for taxing income from domestic private sectors and individuals, and national enterprises were produced without regard to the benefits. These tendencies appear to still remain. Due to the shortage of tax income, public servants receive very low wages and are low on the will to work, and are therefore easily corrupted.

3.2 Problems of political culture

Due to historical experiences in Vietnam such as the long war, a centralized economy and isolation from the outside world, people still have difficulties and few opportunities to access foreign information. And foreigners are also restricted from having regular contact with local people. When foreign individuals or NGOs take initiatives of environmental projects inside the country, they have to spend a long time following the necessary procedures. Some NGOs have abandoned projects in Vietnam, because they had very little freedom in rural areas.

Foreign researchers working in Vietnam easily know that there are a lot of differences between what the officials formally describe and the practical situations. When foreigners formally visit

national institutes and interview party officials, they can only obtain a formal response and official information. It is very difficult to understand the realities (i.e. where the most important problem exists). On the other hand, when foreigners contact officials privately and meet them in places other than their offices, visitors may hear quite different, often opposite opinions and can more easily understand the realities of the situation in a short time.

Though the State continuously establishes laws, decisions, directions, projects and national plans as described above, regular citizens lack understanding of these official frameworks. Due to their experience during the war, people have not much reliance upon the State system. They have very little knowledge about State laws or decisions. In addition, the laws and decisions themselves are often changed. Widespread bureaucracy and corruption also make people distrustful of the State system.

As the extremely centralized political structure was established during the war, the idea of autonomy or self-governance at the provincial level has not developed, while the provincial authorities are often indifferent to centralized decisions. In a province, the officials responsible for forest management don't have much interest in the five million hectare project, for instance.

In a society in which all the powers are concentrated in the Party cadres it is very difficult for citizens to take their own initiative in affairs. When individuals are concerned with forest management of their own accord, officials often restrict it if it doesn't bring them personal benefit.

Forest management extends over a long period of time. However, the Vietnamese people barely have a view of the long-term, because their society has been through political, economic and social confusion for such a long time, and it is still changing rapidly. It is necessary that the people don't pay much attention to the state system, which is also continuously changing, and they don't have many incentives to participate voluntarily in forest protection.

Conclusion

Through historical experience, the political structure of Vietnam has attached importance to the collectivism, centralization, concentration and unification of powers, while the idea of autonomy of the people or individual initiative has not been developed. Despite the open-door nature of the Doi Moi policy for over 10 years, the domestic political system is still closed and the publication of information is not implemented.

Because of the centralized political framework it seems so far that the confrontation between economic exploitation and forest protection does not exist. But in the process of economic development, confrontation may be necessary between the policies of rural development, the eradication of hunger and reduction of poverty, improving the livelihood of the minorities, and the policy of environment protection.

The difficulties of environment protection are not only those of funds or technology but also of the awareness of the Party cadres, state officials and the people. It seems that they lack understanding of the nature of environmental problems. For instance, an official of a Provincial Service of Science, Technology and Environment believes that the "environmental problem" means only urban industrial pollution. Although his province suffers from big floods every year he doesn't see the relation between the flooding and forest destruction.

In Vietnam today many questions are being asked regarding people's participation in forest protection. The political structure itself must be questioned, as well as the role and the status of the Communist Party, the relations between State powers, and between the State and the people, etc. Above all, the reliance of the people on the State must be questioned.

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Forest Science Institute of Vietnam, Ministry of Agriculture and Rural Development
Forest Science Sub-institute of South Vietnam
Forest Inventory and Planning Institute, Ministry of Agriculture and Rural Development
Department for Forestry Development, Ministry of Agriculture and Rural Development
Department for Forest Protection, Ministry of Agriculture and Rural Development
Department of Agricultural and Rural Development Policy, Ministry of Agriculture and Rural Development
Department of Science, Technology and Environment of Thua Thien Hue Province Southeast Asian Research Association, National Center for Social Sciences of Vietnam
Center for Natural Resources and Environmental Studies, Vietnam National University
Japan-Vietnam Technical Cooperation Project Afforestation Technology
Development in the Mekong Delta, Japan International Cooperation Agency
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FOREST POLICY, LAW AND LOCAL PARTICIPATION IN FOREST MANAGEMENT IN CHINA

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Abstract

This paper reviews the current development of Chinese policy and law on forest management. Part 1 briefly describes the current situation of forest resources of China, including major economic and ecological problems caused by loss of forests. Part 2 describes major measures China has taken to cope with her forest problems, including national policy, legislation framework for sustainable forest management, implementation and enforcement of forest law, and public participation of forest management. Concrete cases are described to illustrate the implementation and enforcement of law and public participation in this part. Part 3 provides some conclusions drawn from the discussion of the previous parts.

Key words: forest management, policy, law, public participation, Montreal Process

1 Present Condition of Forest Resources

1.1 National forest coverage

China is a country with a very broad territory. The Chinese land used to be extensively covered by forests. For a long time in Chinese history, the rate of forest cover was higher than 50%.¹ But due to destruction in the past thousands years, the rate of forest cover had dropped to 8.9% in 1949 when People's Republic of China was founded.

The coverage rate has increased to 13.92% in 1993 since 1949.² According to the data of 1997, the area of forest coverage is 133.7 million hectares.³

The rate of forest cover of China is very low compared to the average rate of the world. The world average coverage rate is 32%.⁴ The Chinese rate is only 13.92%. Among the 185 countries of the world, China is the 104th in term of rate of forest cover.⁵

The per capita forest area of China is also very low compared to the world average figure. The world average per capita forest area is 0.94 hectare, while the Chinese one is only 0.11 hectare, only 11.7% of the world average.⁶

1.2 National forest stock

The total amount of national forest stock in 1997 was 10.1 billion cubic meters.⁷ The forest distribution in China is not even. Most of forests are located in the eastern and southeastern parts of China, because rainfall in those areas is greater than in other parts of China. While their areas only account for 49% of Chinese land, their forest stock accounts for 95% of the national total.⁸ The Northeastern Forest Zone and Southwestern Forest Zone are the two largest forest zones in China.

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¹ "China Resources" Editorial Board, China Resources, China Aerospace International Holdings Limited, 1997, p. 96.

² Ibid.

³ Ibid., p. 98.

⁴ Ibid., p. 99

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid., p.99.

They hold 75.4% of the national forest stock.⁹

The per capita forest stock of China is also very low compared to the world average. The world average per capita forest stock is 68.25 cubic meters, while the Chinese one is only 8.6 cubic meters, only 12.6% of the world average.¹⁰

There is no doubt that China is a country that lacks adequate forests for its needs. Therefore, forest conservation is very important to China.

1.3 Problems in Forest Resources

1.3.1 A big gap between supply and demand of timber

Although China had achieved the growth of both forest area and forest stock by the early 1990s, there is still a big gap between the supply and demand of timber. The reason is that the increase of forest area and forest stock is mainly the increase of young forests. They are not suitable for logging. The existing area and stock of mature and over-mature forests are not large enough for maintaining a sustainable yield of timber. They cannot even afford to meet the rather low timber consumption in China.¹¹ The annual deficit of standing forest stock from 1984 to 1988 was 40 million cubic meters,¹² and the deficit of national wood consumption in 1993 was 34 million cubic meters.¹³ Basically, there were two ways that had been applied to fill the gap. The one was to log more of the existing mature and over-mature forests. The other was to import timber. Both ways have negative consequences. The first intensifies the timber deficit problem. The second not only causes a big financial burden, but also increases pressure on the world's forest resources.

1.3.2 Serious ecological consequences of over logging

The loss of forest has caused serious ecological problems.

Soil erosion Yellow River is famous for its muddy water. The soil and sand in the water come from the up and middle reaches of the river. In those areas, forest coverage was constant for thousands of years. In another major river basin of the-Changjiang River (Yangtze River), the soil erosion area has increased from 360 thousand square kilometers in the 1950s to 560 thousands square kilometers in the 1980s. The loss of forest coverage in the upper and middle reaches of the river is one of the main causes of the destructive floods in the middle and lower reaches of the river. In 1998, the flood of Yangtze River took over one thousand human lives.

Desertification Loss of forests causes the expansion of desert in the northern and northwest of China. Each year there are 170 thousand hectares of land becoming desert.¹⁴ Farmland and grassland are damaged by sandstorm disasters. In north western, north and north eastern areas, there are 13.33 million hectares of farmland and 100 million hectares of grassland suffering from sandstorm disasters each year.

Natural disasters Loss of forests causes the increase of natural disasters. In the upstream area of Changjiang River, the frequency of drought and flood has increased dramatically. For example, there used to be a serious drought once every three years in 1950s. But the frequency of drought increased to once every two years in 1960s and eight in ten years in 1970s. There were three flood disasters in this region in 1950s. This increased to five in 1970s.¹⁵ The frequency continued

⁹ Ibid.

¹⁰ Ibid.

¹¹ The per capita annual timber consumption in China is 0.15 cubic meter, while the world average is 0.4 to 1 cubic meter.

¹² "China Resources" Editorial Board, China Resources, China Aerospace International Holdings Limited, 1997, p. 100.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

increasing in 1980s and 1990s. In the middle and lower reaches of Changjiang River, flooding of the river has become a very serious threat to the life and property of the people who live along side the river. In 1998, a serious flood happened in the middle and lower reaches, which took over one thousand human lives.

Loss of Biological Diversity Loss of forests directly results in loss of biodiversity. The Report of Research in China's Biodiversity (1998) prepared by the National Environmental Protection Agency gives a detailed description on the situation of biodiversity and the threats it facing. According to the Program Outline of National Ecological Environment Construction (1998) adopted by the State Council of China, 15-20% of China's fauna and flora are under threat currently, while the world average percentage is 10-15%.¹⁶

2. Policy and Legislation Framework on Sustainable Forest Management

Criteria 7 of Montreal Process suggested a number of indicators reflecting a country's policy, legislation and institutional frameworks for sustainable forest management. This part will discuss the Chinese situation based on some of the indicators contained in the criteria.

2.1 Policy framework for sustainable forest management

In order to solve the crisis of forest resources and achieve the sustainable development of forest resources, the Government of China has made a series of policies, plans and programs on forest resource conservation. In addition to the national policies, plans and programs, there are numerous local policies, plans and programs for implementing the national ones. The following are the major national policies, plans and projects for forest conservation.

Ten Measures on Environment and Development (1992) Immediately after the UN Conference on Environment and Development of June 1992, Chinese Government adopted the strategy of sustainable development by issuing the Ten Measures on Environment and Development in September 1992. The government for the first time officially decided that China should change the current unsustainable mode of economic development and pursue the way of sustainable development. One article of the document provides that afforestation and strengthening land and forest resources is an imperative and long-term task of China.

Action Plan for Environmental Protection of China (1993) The plan was prepared by the National Environmental Protection Agency¹⁷ and the State Planning Commission¹⁸ and approved by the State Council. It specifies the targets for forest conservation and sustainable utilisation for the period between 1991 and 2000. The plan specifies that by the end of this century the area of afforestation should reach 57.16 million hectares, the annual total timber growth should reach 345 million cubic meters (it was 275 million cubic meters in the middle of 1980s), the average annual total timber consumption should be kept under 300 million cubic meters, and the rate of forest cover should reach 15-16%.¹⁹

Agenda 21 of China (1994) China adopted the Agenda 21 of China two years after the UNCED. The Agenda points out that "China's traditions of exploitation and management tend to ignore the multi-functional character of forest resources, while completely overlooking the ecological value.

¹⁶ Wang Xianjin Edi., *A Compete Compilation of Treatises on Legal Protection and Control of Ecological Environment*, Vol. I, Nationality Publish House, 1999, p. 3.

¹⁷ It was changed into State Environmental Protection Administration in 1998.

¹⁸ It was changed into State Development and Planning Commission in 1998.

¹⁹ National Environmental Protection Agency of China, *National Report on the Implementation of Bio-diversity Convention of China*, China Environmental Science Press, Beijing, 1998, p. 20.

This has resulted in the deterioration of forest cover as evidenced by the present sparse forest cover, low production capacity, worsening quality and the spread of pests and forest diseases.”²⁰

The Agenda sets forth a number of objectives for forest conservation. They are, to speed up afforestation; to improve forest quality; to increase total forest coverage to 15-16 percent by the end of the century; to significantly eliminate the timber “deficit” of the whole country by 2000; to adopt effective measures to maintain the ecological value of forests and appraise the resource benefit; to apply advanced technologies and professional skills for managing and utilising forest resources; to set up a national forest monitoring system by the end of this century, which includes local networks, a data monitoring system and geographical information system; and to establishing an assets management system for forests as soon as possible.²¹

For achieving those objectives, areas of activity are provided by the Agenda. The areas are 1) forest resources management; 2) maintaining multiple functions of forest; 3) scientific research and educational training; 4) demonstration projects; and 5) international cooperation.²²

Priority Programme for China’s Agenda 21 China adopted this program for implementing Agenda 21 of China soon after the issuance of the Agenda. The program lists 9 programs and 69 major projects that most needed for implementation of the Agenda. Many of the projects are related to forest conservation.²³

For carrying out the Agenda 21 of China, the Ministry of Forestry²⁴ adopted the Forestry Action Plan for China’s Agenda 21 and the Key Points of the Program for Comprehensive Development of Forests in Mountain Areas.

The Ninth Five-Year Plan of National Economic and Social Development and the Outline of the Long-term Targets up to 2010 (1996) The Ninth Five-Year Plan adopted the strategy of sustainable development for the first time in China’s history of economic and social development plan. In the chapter on land resources conservation and development, the plan puts emphases on protecting and rational use of land, water, forests, grassland, mineral resources and marine resources, improving natural resources price system and user-pay system. The plan sets forth the target of rate of forest cover for year 2000 as 15.5%.

Program Outline of China’s Ecological Environment Construction (1998)²⁵ This plan was adopted by the State Council. It classifies the land territory of China into eight regions for the purpose of ecological restoration and improvement. Forest conservation is a priority task in almost all the regions. The plan plans three stages for ecological construction.²⁶ The first stage is from 1998 to 2010. The goal for this stage is to put under control new man-made soil erosion and stop the trend of the desertification. There should be preliminary achievements in the control and harnessing the regions of upstream areas of Yellow River and Changjiang River and the serious desertified areas by the end of this period. Rate of forest cover should be over 19% by the end of this period. The second stage is from 2011 to 2030. The goal for this stage is to have a remarkable nation-wide improvement of ecological conditions. Rate of forest cover should be over 24% by the end of this period. The third period is from 2031 to 2050. The goal for this period is to basically establish a nation-wide ecological system which can support the sustainable development of Chinese economy and society. By the end of this period, rate of forest cover should be over 26%.

²⁰Chapter 14, Section E, paragraph 14.5, Agenda 21 of China, <http://www.acca21.edu.cn/>

²¹ Ibid., Section E, paragraphs 14.54-56.

²² Ibid., Section E, paragraph 14.57-61.

²³ For the Priority Programme, see <http://esdac.ciesin.org/china/policy/acca21/>.

²⁴ The Forestry Ministry was changed into Forestry Administration under the Ministry of Territory and Resources of P.R. China in 1998.

²⁵ Wang Xianjin Edi., *A Compete Compilation of Treatises on Legal Protection and Control of Ecological Environment*, Vol. I, Nationality Publish House, 1999, p. 5-6.

²⁶ As the author understands, the term “construction” used in the document means restoration and improvement.

Major national afforestation projects There are five national major afforestation projects currently going on in China.

Chinese Government approved three national afforestation projects in 1988. They are Shelter Forest Project of Coast, Plain Farmland Forest Shelter Project and Project of Fast Growth, High Yielding Timber Production Base.

- The Shelter Forest Project of Coast covers 11 coastal provinces and 195 counties.²⁷ It is planned to afforest 3.55 million hectares of coastal land.²⁸
- The Plain Farmland Forest Shelter Project plans to establish farmland forest shelters in 915 counties located in plain areas.²⁹
- The Project of Fast Growth, High Yielding Timber Production Base plans to construct 20 million hectares of fast growth, high yielding timber production base in 30 years so as to relief the pressure of deficit in timber consumption.³⁰

Two more major afforestation projects were approved by Chinese Government in 1989.

- The Shelter Forest System Project of "Three Northern Regions" covers 13 provinces in North, Northwest and North east of China. It covers 4.069 million square kilometres of land which accounts for 42.2% of land territory of China.³¹ It includes plans to afforest 10.75 million hectares of land in the period between 1989 and 2000.³²
- The Shelter Forest Project of Middle and Upper Reaches of Changjiang River requires an increase 6.66 million hectares of forests in the upper and middle reaches of the Yangtze River in its first stage which ends in 2000.³³

Ban of logging primary forests In addition to the above mentioned policies, plans and projects, Chinese Government has decided to stop logging of all primary forests in China in 1998. Serious flood disasters happened in Changjiang River, Songhua River and some other major rivers in 1998. One of the main causes of the flooding was the loss of forests in the upper and middle reaches of those rivers, especially Changjiang River. The main reason for the loss of forests is the long-term logging by state owned forestry industry. Chinese government, forestry industry, and people finally learned a big lesson from the huge losses of life and property caused by the flood disasters in 1998. The State Council decided to comprehensively ban logging of primary forests all over China in the summer of 1998. All the four large state owned logging companies³⁴ declared to firmly stop the logging of primary forests immediately after the decision of the State Council was made.³⁵ Meanwhile, government required and helped reform of Chinese forestry industry. Afforestation was added to the missions of forestry industry as a priority. Logging-the traditional priority-was replaced by afforestation. This change immediately put all the primary forests in safe. Those provinces in which upper and middle reaches of major rivers are located, such as Sichuan, Hubei, Helongjiang, Jiangxi, etc., adopted forest conservation plans after the flood of 1998. They all declared a ban on logging of primary forests and to close maintains for the growth of forests.

2.2 Legislation framework for forest conservation and sustainable management

China has established a rather large legislation framework for forest resources utilization and conservation. The legislation framework mainly consists of following laws and regulations.

²⁷ National Environmental Protection Agency of China, *National Report on the Implementation of Biodiversity Convention of China*, China Environmental Science Press, Beijing, 1998, p. 20.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

³³ Ibid.

³⁴ The four companies are Neimenggu (Inner Mongolia) Forestry Company, Jilin Forestry Company, Longjian Forestry Company and Da Xing'anling Forestry Company.

³⁵ *Chinese Environmental News*, 22 September 1998.

The Constitution of P.R.C. (1982, 1988, 1993, 1999) The Constitution of China laid down the basic principles for forest resources conservation and utilisation. It provides that “[A]ll mineral resources, waters, forests, mountains, grassland, unreclaimed land, beaches, and other natural resources are owned by the state, that is, by the whole people, with the exception of the forest, mountains, grasslands and unreclaimed land and beaches that are owned by collectives in accordance with the law”, and that “[T]he state ensures the rational use of natural resources and protects rare animals and plants. Appropriation or damaging natural resources by any organization or individual by whatever means is prohibited.”³⁶ This provision clarified the natural resources ownership system in China and the fundamental responsibility of the state in natural resources conservation. The Constitution also provides that “[T]he state protects and improves the environment in which people live and the natural environment. It prevents and controls pollution and other public hazards.”³⁷ This provision stipulates the responsibility of state in environmental protection. Those Constitution provisions serve as the fundamental legal basis for environment and resources legislation.

Environmental Protection Law of P.R.C. (1979, 1989) The Environmental Protection Law of P.R.C. provides framework of environmental law in China. It lists 14 environmental factors to be protected by law. ³⁸Forest are one of them. The law provides the basic principles and requirements for environmental protection, such as environmental impact assessment, harmonising economic development and environmental protection, and environmental planning. Those principles and requirements apply to forest utilisation and conservation. The law provides that governments at all levels should protect all areas with representative natural ecological systems, rare and endangered wild species including wild plants and vegetation³⁹ The law provides the basic obligation for the exploiter of natural resources. It provides that the developers of natural resources should take measures to protect the environment when they conduct activities exploring and exploiting natural resources ⁴⁰ The law requires the governments to prevent and control soil erosion and destruction of vegetation.⁴¹ The law requires that urban development protect vegetation.⁴² The law sets forth the governmental institution in environmental protection. The State Environmental Protection Administration is conferred the power to supervise and coordinate all environmental protection work of the executive branch. The Ministry of Forestry⁴³ is conferred the power to regulate forest utilisation and conservation as a leading governmental organ.⁴⁴

Forest Law of P.R.C. (1984, 1998) Forest Law is the only law which provides comprehensively for forest resources utilisation and conservation. The law provides some protective measures for the conservation of forest resources, including logging quota; encouraging afforestation and forest conservation by providing economic support or long-term preferential loan; encouraging comprehensive utilisation of wood and develop and use of alternative materials to wood; forest fostering fee; taxing coal and paper production industries; and establishing a forestry fund.⁴⁵

Other requirements for forest conservation include establishing a forest protection organization by local governments and forest protection agreement by local people; designating forest protection zones and appointing forest protection personnel;⁴⁶ preventing forest fire;⁴⁷ forest pests control;⁴⁸ prohibiting reclaiming farmland, or extracting rock, sand, soil and other substances by ways

³⁶ Article 9, Constitution of P.R.C.

³⁷ Article 26, Constitution of P.R.C.

³⁸ Article 2, Environmental Protection Law of P.R.C.

³⁹ Article 16, Environmental Protection Law of P.R.C.

⁴⁰ Article 19, Environmental Protection Law of P.R.C.

⁴¹ Article 20, Environmental Protection Law of P.R.C.

⁴² Article 23, Environmental Protection Law of P.R.C.

⁴³ Now the Ministry of Territory and Resources.

⁴⁴ Article 7, Environmental Protection Law of P.R.C.

⁴⁵ Article 8, Forest Law of P.R.C.

⁴⁶ Article 19, Forest Law of P.R.C.

⁴⁷ Article 21, Forest Law of P.R.C.

⁴⁸ Article 22, Forest Law of P.R.C.

destructive to forest;⁴⁹ prohibiting chopping firewood and grazing in young forests and forests for special uses;⁵⁰ nature reserves for forests;⁵¹ protecting wildlife in forests;⁵² and afforestation.⁵³

The law provides a basic principle for the logging industry. That is the principle of "consumption of timber forest must lower than growth of timber".⁵⁴ According to this principle, the state adopts annual timber production plan and carries out a strict system of logging permits.

Resolution of the National People's Congress on All-Citizen Voluntary Tree Planting Activities

(1981) The resolution requires that each Chinese citizen who is in the age between 11 and 60 (55 for female), except those who are disabled, should plant 3-5 trees each year or conduct the same amount of labour in fostering young trees or other afforestation tasks without payment. The resolution designated the 12th of March as the National Tree Planting Day.

Related national laws and regulations There are many statutes having provisions related to forest conservation. The State Council and ministries under it have adopted many regulations to implement national forest law. The major related statutes and regulations are the following.

Criminal Code (1982, 1988, 1993) The Criminal Code (1993) for the first time stipulates environmental crimes in China. Article 344, 345 and 346 deal with crimes of destroying forests.⁵⁵ According to those articles, those who violate Forestry Law and engage in illegal or wanton logging and damage valuable trees will be punished by fixed-term imprisonment, or criminal detention. In addition, a fine will be imposed upon them. Those who, for making profit, illegally purchase timber illegally or wantonly cut will be punished by fixed-term imprisonment or criminal detention or control. In addition, a fine will be imposed upon them. Those who engage in illegal and wanton logging of forests or other trees inside state natural protection zones are to be punished in a severe manner. If an organization commits crimes mentioned above, it will be sentenced to a fine, while the leading person with direct responsibility and other personnel directly responsible for such violations are to be punished by fixed-term imprisonment, or criminal detention. A fine will be imposed upon those persons also.

Agriculture Law (1993) Agriculture Law has some provisions related to forest conservation. The law provides that governments at all levels should organise citizens to plant trees, to prevent forest fire, to prevent and control of forest pests, to stop illegal or wanton logging, and to increase the rate of forest cover.

Water and Soil Conservancy Law (1991) The Water and Soil Conservancy Law is very closely related to forest conservation, because almost all soil erosion problems are the results of loss of forests. Therefore, forest conservation is the main way to eliminate and control the problems of soil erosion. The law stipulates many measures for forest conservation, such as afforestation, prohibiting destruction forest for reclaiming farmland, efficient logging and fostering young trees.

Wildlife Protection Law (1988) Wildlife Protection Law provides that the State protects wildlife and their habitats and prohibits illegal hunting and destruction by any organization or individual.⁵⁶ The law authorises the wildlife protection department of local government to order the one who destruct or damage the habitat of protected wildlife to stop the destructive activity and to restore the habitat.⁵⁷

⁴⁹ Article 23, Forest Law of P.R.C.

⁵⁰ Ibid.

⁵¹ Article 24, Forest Law of P.R.C.

⁵² Article 25, Forest Law of P.R.C.

⁵³ Article 28, Forest Law of P.R.C.

⁵⁴ Article 29, Forest Law of P.R.C.

⁵⁵ Article 344,345,346, Criminal Code of P.R.C. (English translation), <http://www.qis.net/chinalaw/prclaw60.htm>.

⁵⁶ Article 8, Wildlife Protection Law of P.R.C.

⁵⁷ Article 34, Wildlife Protection Law of P.R.C.

Meanwhile, a fine will be imposed upon the individual or the organization that committed such destruction.⁵⁸

Provisions on carrying out all-citizen voluntary tree planting activities (1982) The Provisions was promulgated by the State Council for implementing the Resolution of the National People's Congress on All Citizens' Voluntary Tree Planting Activities (1981).

Regulations on forest conservation To implement national laws on forest utilisation and conservation, the State Council and ministries under it promulgated many regulations. The major ones are the following.

Provisions on logging and forest renewal (1987) These provisions were issued by the Forestry Ministry. It detailed provisions on the methods of logging and forest renewal. Its purpose was to implement Forestry Law and achieve efficient logging and timely forest renewal, and restore and enhance forest resources.

Regulations on prevention of forest fire (1988) This regulation was promulgated by the State Council. It has detailed provisions on prevention and control of forest fire.

Regulations on prevention and control of forest pests (1989) This regulation was promulgated by the State Council. It has detailed provisions on prevention and control of forest pests.

Local laws and regulations In addition to the above mentioned national law and regulations, there are numerous local laws and regulations on forest conservation. Each province of China has its forest conservation law or regulations. Those laws or regulations are promulgated by either local People's Congresses or local governments.

2.3 Some key indicators

2.3.1 Property rights

According to Constitution of P.R.C., land is owned by either the state or the collectives. Citizens enjoy right to use land. The right to use land is transferable. No one can sell land ownership, but only right to use land.

According to Land Management Law of P.R.C., land owned by collectives can be contracted to members of the collectives to use for purposes of agricultural planting, forestry, stock farming and fishery.⁵⁹ The term of the contract is 30 years. The state-owned land can be contracted by individuals for the purposes of agricultural planting, forestry, stock farming and fishery too.⁶⁰

According to Land Management Law of P.R.C., the one who contracted land for purposes of agricultural planting, forestry, stock farming and fishery has a duty to protect the contracted land and use the land according to the purposes set forth by the contract.⁶¹ According to Forest Law, the right to use forestland is transferable, subjecting the condition that forestland cannot be converted to land for other purposes.⁶²

The Land Management Law of P.R.C. provides for the means of disputes settlement for land disputes.⁶³ The land provides that disputes of land ownership and land use should be solved by negotiation between the parties. If the parties cannot reach an agreement, government should handle the disputes. Disputes between organizations (such as companies and other organization with legal personality) should be handled by governments at or above county level. Disputes

⁵⁸ Ibid.

⁵⁹ Article 14, Land Management Law of P.R.C.

⁶⁰ Article 15, Land Management Law of P.R.C.

⁶¹ Article 14, 15, Land Management Law of P.R.C.

⁶² Article 15, Forest Law of P.R.C.

⁶³ Article 16, Land Management Law of P.R.C.

between individuals and between individuals and organizations should be handled by governments at Xiang (town) or county level. If a party disagrees with a decision on land disputes made by government, it can fill and case in court within 30 days after they received the decision. The Forest Law of P.R.C. provides procedures for disputes settlement too.⁶⁴ The law provides that governments at or above county level should handle disputes between organizations about forests or forestland. Disputes about forests and forestland between individuals, and between individuals and organization should be handled by governments at Xiang (town) or county levels.

2.3.2 Periodic forest-related planning, assessment and policy review that recognizes the range of forest values

The Forest Law of P.R.C. recognizes various values of forest, including water and soil conservancy, climate adjustment, environment improvement, and timber production.⁶⁵ For coordinating those values, the law categorizes forest into five categories.⁶⁶ “Protection Forests” are forests for protection purposes such as protecting water and soil resources, deserts control, and protecting farmlands, grasslands, coasts and roads. “Timber Forests” are forests for producing timber and other wood and bamboo materials. “Economic Forests” are forests for producing fruits, fruit oil, soft drank, flavoring ingredients, industrial materials and medicine materials. “Firewood forests” are forests for producing firewood. “Forests for Special Uses” are forests for uses of national defense, environmental protection, and scientific research.

Forest Law requires forestry departments of governments at various levels to organize forest resources investigation and inventorying,⁶⁷ and make long-term forestry plans.⁶⁸ State-owned forestry enterprises, nature reserves and collectives should make forest management plans according to the long-term forestry plan. The state forestry department should direct and help enterprises, nature reserves and collectives to make their forest management plans.

The forestry department of the State Council set up a State Forest Monitoring Center in 1990s.⁶⁹ There has been a nation-wide forest monitoring system since then. There has been a national forest resources investigation every five years since the State Forest Monitoring Center was established.⁷⁰ At the local level, the monitoring system is being established and improved. It is expected that there will be an investigation on forest planning every ten years.⁷¹

2.3.3 Public awareness

Public awareness of the forest issues and public participation in forest conservation are increasing at least in major cities of China in recent years.

A public poll conducted by the Forest Administration of P.R.C. for 1,050 residents in five major cities⁷² in March 1999, indicated that urban residents are more and more concerned with forest issues.

- 73.1% of the people interviewed believed that their concerns to issues of forest conservation, afforestation, wildlife protection have increased during 1990s.⁷³
- Over 90% of the people believed that destruction of forests was the major conditions intensifying the disastrous consequences of the 1998 flood.⁷⁴

⁶⁴ Article 17, Forest Law of P.R.C.

⁶⁵ Article 1, Forest Law of P.R.C.

⁶⁶ Article 4, Forest Law of P.R.C.

⁶⁷ Article 14, Forest Law of P.R.C.

⁶⁸ Article 16, Forest Law of P.R.C.

⁶⁹ National Environmental Protection Agency, *National Report of China on Implementation of Bio-Diversity Convention*, China Environmental Science Press, 1998, p. 47.

⁷⁰ *Ibid.*, p. 52.

⁷¹ *Ibid.*

⁷² Beijing, Shanghai, Guangzhou, Wuhan and Chengdou

⁷³ Ningyue, “The public hope to strengthen forest environmental regulation”, First Hand (5), <http://www.chinavista.com/experience/lingdian/chdiaocha259.html>.

⁷⁴ *Ibid.*

- The people who chose “clean air”, “clean river”, “green land and flowers” and “forest” as the essential things for an ideal life environment are 30%, 9.9%, 19.7% and 8.7% respectively, while the people who chose “TV”, “car”, “high-rise building” are only 5.8%, 2.2% and 1.4% respectively.⁷⁵
- 56% of the people believed that although there are policies for environment protection and forest conservation, but they had not been effectively implemented.⁷⁶
- 22% of the people believed that the current policy over stressed economic development and neglected environment and forest conservation.⁷⁷

In general, the interviewed people shown prudent optimistic for the future of forest conservation and afforestation. 45.5% of the people feel comparative optimistic to the future of forest conservation.⁷⁸ The interviewed people call for increasing of public investment in forest conservation. 34.1% of the people believed that the fund should come from state revenue.⁷⁹ 31.3% of the people believed that it was necessary to establish a forest fund.⁸⁰ 18.2% believed that all who benefit from forest conservation should pay for it.⁸¹

The poll also showed that public participation in forest conservation need to be further encouraged. There was 12.2% of the interviewed people confessed that they never participated in any activities for forest conservation, afforestation and protection of wildlife.⁸²

2.3.4 Public participation

The Forest Law encouraging public participation in afforestation. Organizations and individuals made great contribution to afforestation, forest conservation, forest management and forestry scientific research will be awarded.⁸³ Public participation in forest conservation, including local people’s participation, mainly takes the following forms.

All-citizen voluntary tree planting Citizens all over China gave an active response to the resolution of the National People’s Congress on voluntary tree planting. Since 1982, there have been 4 billion people/time participating in voluntary tree planting and have planted 20.5 billion trees.⁸⁴ Hundreds of thousands of people participate in tree planting or other forest conservation activities on and around 12 March each year.

Eco-Agriculture Eco-Agriculture is called Eco-Farming also. It is a combination of traditional agriculture practices and forestry practices. Eco-Agriculture is an important way for the rural area of China to achieve sustainable development of agriculture. Eco-Governments at all levels are encouraging the villages and farmers to pursue eco-agriculture. Forest conservation is an important part of eco-agriculture.

For example, in Yulin region, a region facing serious threats of desertification in Shan’xi Province, northwest of China, the government organizes and helps people to construct eco-agriculture for many years. The government encouraged farmers to construct forest belts so as to stop the expansion of desert and to control soil erosion. Up to 1997, the rate of forest cover of the region had increased from the 1.8% in early 1950s to 30.5%. Forest area reached 1.3 million hectares. People there have built four large wind and sand prevention forest belts, with a total length of 1,500 kilometers. There are 93 thousand hectares of farmland free from the damage of wind and sand

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.

⁸³ Article 12, Forest Law of P.R.C.

⁸⁴ Afforestation, <http://www.forestry.ac.cn/zglyjs/3.htm>.

because of the forest network they built. By afforestation, they had stabilized or basically stabilized 400 thousand hectares of moving sands from the total moving sands of 573.3 thousand hectares. They constructed 165 stands of forests, with each over 666 hectares, in desert areas. There were 100 thousand farmers come back to the green areas in the deserts. The trend of desertification started to reverse. The moving speed of the sand hills in north had slowed down from 5 to 7.7 meters per year to 1.68. The days of sandstorm had decreased from 66 to 24 days per year.⁸⁵

Cooperation between nature reserves and local communities in managing nature reserves In the recently years, there are more and more state nature reserves inviting local forestry industry and local communities to participate in the management of nature reserves. By this cooperation, the nature reserves, forestry industry and local communities understand each other better and harmonize their different development objectives. For example, in Xinxiang City, Henan Province, the Authority of Wetland Reserves in the Abandoned Waterway of Yellow River invited all the leaders of villages surrounding the reserves to have a meeting to discuss how to stop trenching wetland by surrounding farmers in 18 December 1998. The authority educated the leaders about the importance of wetland and persuaded them to persuade their villagers to stop trenching. The authority also invited the support of city government. The city government, on one hand, required the village leaders to persuade farmers, and on the other hand, decided to start a local environmental planning process so as to harmonize the protection of the reserve with the development of local economy. The city government suggested to develop ecological fishery and other high profit and ecologically sound projects for farmers.⁸⁶

Wasteland contract The state encourages citizens, especially peasants and unemployed urban residents, to rent and develop wasteland, such as bare mountains, in a way consistent with the land use plan and the principle of sustainable development. The term of the leases is 50 years. The leases are free of taxation for 50 years. The tenants have the right to manage and use the land and the right to the income generated from the use of the land. This kind of contract provides a firm protection to tenants' right. It is a popular legal form used in public participation of forest conservation. Forest Law of P.R.C. protects the legal rights of the tenants.⁸⁷

Mr. Li Fumin, a villager of Xiaoqiao Village, Xining City, Qinghai Province, is the first one in Xining City to rent bare mountains from city government. He contracted 86.6 hectares of bare mountain land with his village in 1997. He invested over 250 thousand yuan for building 26.6 hectares terra land with irrigation ditches in the mountain and planted over 2,000 trees on them. Now the mountain has turned into green. He is continuing working on irrigation system of the terra land. He is expecting to have economic return from the forests he planted in the future.⁸⁸

In Shengkang Town, Gucheng County, Hubei Province, the local government encourages local people to actively participate in the Shelter Forest Project of Middle and Upper Reaches of Changjiang River. Supported by the national shelter forest project, the local people constructed 6666 hectares of forest bases. The stock of living standing timber increases by 80 thousand cubic meters annually. They constructed 20 mushroom production bases and harnessed their basic farmland. They developed other non-agricultural business such as silica mining, labour export. By those ways, they have been able to abandon the traditional charcoal production business, which is destructive to forests.⁸⁹

Individual afforestation contributors There are many individuals who voluntarily conduct afforestation project for many years in China.

One example is the Global 500 (1998) owner, Mr. Ma Yongshun, a retired logger. Mr. Ma retired from his logging career in 1982 when he was 59. He decided to plant 8,180 trees to

⁸⁵ Ma Tieshan, "Ecological agriculture is a necessary choice of sustainable development of rural economy", *China Economic Times*, 12 March, 1999, p.4

⁸⁶ *China Environmental News*, 28 January 1999.

⁸⁷ Article 7, Forest Law of P.R.C.

⁸⁸ *China Environmental News*, 2 June 1998, p. 8.

⁸⁹ *China Environmental News*, 11 February, 1999, p.3

compensate for the 36.5 thousand trees he cut during his logging career in the past.⁹⁰ He mobilized his whole family, including the younger generations, to plant trees on mountains. He built an afforestation base on a mountain. In the spring of 1991, he finally accomplished the goal.⁹¹

Ms Wang Yingxia and her father, Mr. Wang Zhenrong, two villagers of Xishanhou Village, Donghai County, Jiangxi Province, voluntarily afforest a bare mountain for 14 years. Mr. Wang Zhenrong invested 10 thousand yuan for planting 6000 fruit trees on the bare mountain. What he wants was to make a contribution by this way to his hometown. Now, the mountain has become a mountain covered by fruit trees.⁹²

2.3.5 Implementation and enforcement of forest law

The implementation and enforcement of forest-related law in China is a two-sided story. On the one side, in the recently years, governmental enforcement of forest law has been increasingly strong and produced strong deterrent for preventing people from violating forest law. In addition, public concerns and participation in forest conservation is increasing. On the other side, due to the broadness of the territory that makes governmental regulation difficulty and the high profit potential in the timber market as well as the ignorance of forest law by some local governments and people, illegal or wanton logging have not been completely put under control.

Since early 1980s, governments at all levels have been keeping forest law enforcement high in their agenda. There are many forest law cases reported. We can see from those cases that the governments at all levels have been worked very hard to enforce law against the forest law violators. We can see also that there many difficulties in the implementation and enforcement of forest law. The following cases will tell us about the reality of the forest law implementation in China.

Example one: Campaign against illegal logging in Nincheng County, Neimenggu Autonomous Region (Inner Mongolia), 1998⁹³ Nicheng County located in the border junction area of Liaoning Province, Hebei Province and Neimenggu Autonomous Region. There are many mountains full of forests in the county. Because of the special geographic location, illegal logging used to be prevailing. The county government decided to launch a campaign against the illegal logging activities in November 1998. The county investigation team investigated the situation of reclaim farmland by destroying forests and other activities violating forest law in all 28 towns and 5 state-owned forests. During the three months investigation, the county government discovered 104 cases involving forest law violation. Among those cases, there are 3 criminal cases. There were 125 persons involved in criminal offences and been punished. There were four persons sentenced to criminal detention and one person was arrested. Over 20 cubic meters of timber and 100 illegally hunted protected animals were confiscated in those cases.

Example two: Campaign against illegal logging in Haerbin City, Heilongjiang Province, 1998⁹⁴ Haerbin City is one of the large city in North-east of China. The city has limited forest resources. But cases of destroying forests frequently happened. The city government launches a campaign for attacking illegal logging and other activities violating forest law in November 1998. From November 1998 to February 1999, the city discovered 110 cases of destroying forests and illegal taking of protected animals. There was 180 persons received administrative or criminal punishment. In Yanshou County, the government discovered a case involving illegal logging of 700 cubic meters of timber from state owned forests. The criminal was sentenced to 13 years of fixed-term imprisonment and a fine of 50 thousand Yuan. His RMB\$9,000 of illegal profits were confiscated.

Example three: Case of illegal logging in Xiaozhai Village, Henan Province, 1998⁹⁵ Xiaozhai

⁹⁰ He had planted 28.32 thousand trees when he was a logger.

⁹¹ *China Environmental Yearbook*, China Environmental Science Press, 1998, p. 503.

⁹² *China Environmental News*, 8 April 1999.

⁹³ *China Green Times*, 28 Jan. 1999, p. 4

⁹⁴ *China Environmental News*, 21 Jan. 1999, p. 3

⁹⁵ *China Environmental News*, 23 Jan. 1999, p. 3

Village is located in Shijiehe Xiang, Xixia County, Henan Province. It is a poor village. In order to help the village to get rid of poverty, the Shijiehe Xiang government illegally authorized the village to log 80 cubic meters of timber for developing a special mushroom. The Shijiehe Xiang government did not get approval from the forestry department of the County for its authorization. The Village Committee and the Director of Xiaozhai Village immediately decided to distribute the logging quota to the households of the village, while they all knew that any logging quota or plan should be approved by the Forestry Department of the County Government before it be carried out. The village committee actually assigned to villagers 177.7 cubic meters of timber quota, much more than the 80 cubic meters quota. Within a few days, the whole village logged 258.3 cubic meters of timber, which accounts to 469.6 cubic meters of living standing timber stock. The state owned forest was seriously damaged. The county prosecutor filed criminal charges against the village committee and the director of the village on 10 September 1998. The County Court sentenced the village committee a fine of 5000 yuan for committing the crime of illegal logging. The director of the village was sentenced two years fixed-term imprisonment with two years delayed execution and a fine of 2000 yuan. The 12,300 yuan of illegal profits of the whole village from the illegal logging was confiscated.

3. Conclusions

China is a country with low rate of forest cover and low per capita forest stock. The loss of forests has caused serious ecological and economic problem.

Facing the forest crisis, China has taken a series of measures to cope with it. National policies, plans and projects on forest conservation have been adopted and implemented in the past two decades. Forest conservation objectives are set forth for the short, middle, and long term. Logging of primary forests has been banned by the government in the recently years.

China has established a legislative framework on forest conservation. It consists of Constitutional clauses, statutes, implementing regulations and local law and regulations. The laws related to forest management have clarified the property rights related to forestland and forest management. A nation-wide forest resource monitoring system exists. Public awareness and participation in forest management is increasing. Chinese law encourages individuals to contract wasteland for afforestation and other environmentally beneficial uses.

The implementation of forest conservation law is a two-sided story. On one hand, the Chinese governments at all levels are firmly implementing and enforcing forest laws. The governmental actions against illegal logging and other illegal activities under forest law and strongly protect forest resources. In addition, public participation in forest conservation is growing. On the other hand, illegal logging and other forest destructive activities still exist in many localities.

Although the trend of development in forest conservation is encouraging, there are still many difficulties for forest conservation in China. Poverty, motivation for profit, ignorance of law by some local governments, village committees and villagers are some of the most eminent difficulties. They all contribute to the existence of the illegal activities. To overcome those difficulties, further developments in economic reform, education, institutional capacity building for implementing forest law and policy, forestry technology, and public participation are needed.

ECONOMIC, SOCIAL AND CULTURAL ACTIVITIES OF THE ARU ISLANDS IN SOUTHEAST MALUKU, INDONESIA

Herman Hidayat¹

This paper seeks to understand the society of people living on the Aru Islands in Southeast Maluku by examining the economic, social and cultural activities of these people and how they interact with their environment. It also seeks to highlight directions in sustainable development, especially to do with forest and other resources as part of the commons.

A. Theoretical View on Economic Anthropology

In his book *Economic Anthropology*, Schneider (1968) stated that, “economic organization is set in social frame work.” The same opinion was held by Firth (1967) in *Themes in Economic Anthropology* with “economic activities are part of social organizational activities.”

Hence, the sub-discipline of economic anthropology can be summarized as: an effort to understand the thoughts of human beings on economics, how they utilize living methods, and allocate and manage the existence of natural and man-made resources. In this sense, economic anthropology helps to explain economic phenomena throughout non-economic institutions. Beyond quantitative explanations, anthropologists can explain economic account models in detail using ethnographic methods. In other words, the study of social contexts is drawn from economic activities.

Economic science has two approaches. First, macroeconomics is formally identified by the deductive approach in its analytical methods and attention is focused, for example, on national income and the balance of payments. Second, microeconomics is identified more by inductive approaches, because it involves a smaller analytical unit, household affairs, for example. The studies of Hart, Turton and White (1989),² illustrate the connection between economic disciplines and anthropology, which is necessary when dealing with ethnographic data to explain various phenomena beyond statistical and economic accounting.

Salisbury (1983) stated in “Anthropological Economic and Development Planning” how ethnographic data helps with ‘cost-benefit analysis’ in development planning. Economists receive special training to understand certain behavioral aspects of human beings in order to help in decision-making for development planning, especially at the local level. Anthropologists familiar with conducting research on behavioral aspects at the local level can provide input for economists, therefore ‘cost benefit analysis’ will be more accurate. Syahrir (1985), in his thesis, “The Basic Human Needs in Indonesia,”

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² Hart, Turton and White, in their book *Agrarian Transformation*, explain and identify the patterns and the process of change in the control of natural and human resources in various villages in Southeast Asia. Their research combined both statistical economic data (secondary data) and field data (primary data). Both Thailand and Indonesia, for example, followed a similar approach to political policy formation in order to tighten basic control at the village level, where there is always the threat that elites could be co-opted by state bureaucrats. This policy was practiced in order to prevent political action against the state. This political policy succeeded in Javanese villages. In contrast, it did not succeed in Thailand, because the elite society in Thai villages was related to social and religious patronage in terms of legitimization, formation, and ultimately this influence promoted the ideological tendency to oppose and feel resentment towards any injustice.

considered non-economic factors in his analysis, such as political pressure and implications on social changes and improvements of society.³

During the New Order regime in 1975, student political pressure launched a policy to establish local health centers (*Puskesmas*) and mass-elementary school institutions (*SD Inpress*) for every district in Indonesia. This was evidence that decisions on economic policy were related to social and political factors.

Economic anthropology is an appropriate theory, if related to describe the Jabulenga and Tinguatu communities, who exist by subsistence living from fishing, hunting and cultivating activities. These activities are always related to social custom. For example, the practice of *sasi* follows community agreements on traditional practices in the Kei and Aru Islands, which manages the behavior of society for the maintenance and harvest of natural resources on land or in the sea. In practice, *sasi* is a tool to regulate persons entering and/or taking something in certain areas during certain times of the year.

1. ECONOMIC ASPECTS

This section offers a profile of economic aspects from the Jabulenga and Tinguatu villages in Dobo. This consists of an examination of income sources, the function of money-lenders and banks, labor opportunities, and the effects of development projects, using primary data from interviews and observation.

1a. Income sources

The people of Jabulenga maintain a subsistence lifestyle of fishing (60 percent), followed by field cultivation (30 percent), and animal hunting (10 percent). In contrast, in Tinguatu, the people are occupied differently with hunting (50 percent), fishing (30 percent), and field cultivation (20 percent).

Fishing

The predominance for fishing is based on the following factors:

- a. Sea-side living;
- b. Traditional ceremony “sea *sasi*”;
- c. *Serok* (bamboo planted in the sea to attract fish) in the wet season (October-March).
- d. Patterns of religious life (church *sasi*), is realized by all church attendants for the purpose of asking God to protect the sea and land resources so that a continuation for the improvement of social life exists;
- e. A source for daily food.

Tools used by fishermen include: boats of various sizes (70-150 horse power engines), casting nets (*jala*), large nets (*jaring ikan*), and fishing lines with a hundred hooks (*ribu 100 kail*). Fishermen who use boats larger than 100-150 in horsepower and fishing hook lines are in the category of rich fishermen who possess capital of more than 7 to 10 million rupiah. These fishermen can spend 4 to 5 days at sea and return with large catches and large fish, for example, *ikan hiu hitam* (black shark), which is valuable for its fins and tail. Fully grown, the three fins and one tail weigh two kilograms in total. In the Dobo market, 1 kg of black shark fin fetches about Rp.700.000; in Surabaya - Rp.1,200,000; in Jakarta - Rp.1,500,000; and in Hongkong and Tokyo - Rp.2,000,000–upto Rp.2,500,000. Shark’s fin is popular in soup dishes in prestigious restaurants in cities throughout Asia. *Ikan panru* (grey shark), bigger than a black shark, has fins and a tail that weigh about 3 kg in total. More expensive than a black shark, 1 kg of *ikan panru* fins and tail fetches

³ See, Kartini Sjahrir, “Economic Activities from Anthropological Perspective,” in *Masyarakat Indonesia* (Indonesian Social Sciences Magazine), LIPI, Jilid XXV, No. 1, 1999, p. 125-126. She said that community, whether they are ‘simple’ or ‘complex’ as individual groups, are very dependent on each other. The community decides how the process of transformation and the interrelation between local units, regional, national and global units, occurs because, in fact, the community itself produces and supports their civilization.

Rp.1,000,000 in Dobo; Rp.1,500,000 to Rp.2,000,000 in Surabaya and Jakarta; and Rp.2,500,000 to Rp.3,000,000 in Hongkong and Japan. Less lucrative in the Dobo market are: *ikan parie* (ray fish) with returns for one 1 kg of Rp.3,000 to Rp.4,500; the *ikan kakap* (white large fish) which brings Rp.8,000 to Rp.10,000 for 1kg; and the 1 kg of *ikan bubara* 1 kg returns about Rp.6,000 to Rp.8,000.

According to fishermen who fish during the East-season (*musim timur*) from April to September, large catches result because the wind and sea conditions are good. They collect almost 1 to 2 million rupiah every month. In contrast, the West-season (*musim barat*) during October to March results in reduced catches and little revenue.

The initial transaction of fish products is always done in the Dobo market. They have traditional relations in selling fish such as *bandar* (craipiers) to Chinese traders. Most of their income, about 70 percent, is spent on basic needs such as rice, sugar, salt, cigarettes, noodles and clothes. The remaining 30 percent is usually put into the BRI Bank (Government Bank) in Dobo for secondary needs such as educational fees and health care.

The next class of fishermen possesses capital of about 4 to 6 million rupiah. These fishermen use boats with 60-100 horsepower motors and ordinary nets (*jaring lebar*). They concentrate on catching various types of shrimps (*udang*) and cockle shells (*kerang*). For example: (1) *Udang lobster* (lobster shrimp) used in soups at restaurants brings about Rp.200,000 to Rp.250,000 for 1 kg in Dobo; Rp.350,000 to Rp.400,000 in Ambon; Rp.450,000 to Rp.500,000 in Surabaya and Jakarta; and Rp.600,000 to Rp.750,000 in Hong Kong and Tokyo. (2) *Chamboi* (big shells) are also found on restaurant menus and the shells (*karang cangkang*) are used for home decorations. One kg of *chamboi* is worth Rp.7,000 to Rp.8,000 in Dobo. (3) *Karang mata tujuh* (shell with seven eyes) is a type of shell consisting of 70 to 80 kernels (*biji*). One kg is worth about Rp.75,000 to Rp.80,000 in Dobo; Rp.100,000 in Ambon; Rp.150,000 to Rp.200,000 in Surabaya; and Rp.250,000 in Jakarta. (4) Sea food *gerigi* (serrated shells) receive Rp.1,500 to Rp.2,500 in Dobo and Rp.3,500 to Rp.4,000 in Ambon. (5) *Tafuri* are shells for everyday consumption, fetching about Rp.2,000 in Dobo.

Income for the first and second classes of fishermen every month totals almost Rp.1,000,000 to Rp.1,500,000. The nature of these jobs leads to health problems, especially hearing loss caused by diving activities at depths of more than 5 meters without proper equipment.

A third class of fishermen needs limited equipment and possesses capital of about Rp.1,000,000. These fishermen operate simple tools, such as a small boat and casting nets for shoreline fishing. These fishermen, most of them old men and women, usually work from 4:30 am until 7:30 am. They can amass 2 to 4 kg of shrimp and 4 to 5 kg of fish (*balanak, limah*) and directly sell their products to the village. The price for 1 kg of shrimp is about Rp.8,000-9,000, and Rp.4,000-5,000 for fish. According to informants, 85 percent of their income from fishing activities is spent on daily necessities, such as rice, salt, sugar, oil, cigarettes, and noodles. The remaining 15 percent is placed in the Bank in Dobo.

The fishermen of Tinguatu concentrate their activities on the river. The types of fish caught are the *ikan otei*, *ikan pari*, *ikan kepala bibir*, *ikan banda putih*, *ikan lele* (fresh water catfish), and *lindung* (eel). Most of their income is spent on daily necessities.

Animal Hunting

The Tinguatu community largely engages in animal hunting (50 percent), which sustains their lifestyle. The hunter's tools include a *busur* (archer's bow), *panah* (arrows), *parang* (a long-knife), *tombak* (a spear), and *lem* (a traditional glue made from *sukun* trees). The cost for these instruments ranges from Rp.300,000 to 400,000.

The hunting profession can be divided into several categories. In the first category are the professional hunters, who spend one to two months in the forest, along with their families. This is possible since the children usually do not attend elementary school until they reach the age of 9 to 10 years old. The consequence of this practice is a late start for education.

In the second category are the ordinary hunters who hunt daily from 4 p.m. and return home at 8 to 9 am the following morning. This type of hunting is usually conducted in groups of four to five persons.

Hunters catch various animals, such as *rusa* (deer), *celeng* (pig), *kanguru* (*macropus major*), *buaya* (crocodile), *kakak tua jambul kuning* (*Cacatua galerita*), *kakak tua raja/hitam* (*Probosiger aterimus*), *kakak tua merah dan hijau* (red and green cockatoo), *bayan* (parrot), and the *nuri merah biak* (*Eoscyanogenia*). But based on traditional regulations, it is prohibited to catch the *cendrawasih* (bird of paradise). According to the elders in Jabulenga, since ancient times the *cendrawasih* is believed to be symbolic as a magic bird which identifies the boundary lines between the customary forest owned by the local people and the state forest. This belief is still practiced today. In these terms, local people maintain their customary forest as an asset for improving their social life. In contrast, the over-populous *kakak tua Jambul kuning*, is regarded as an enemy of the farmers. In this respect, most hunters catch this bird in large amounts to sell in the Dobo market. This is despite the fact that a regulation from the Forest and Nature Protection Agency exists which states that it is strictly forbidden to catch certain birds, such as the *kakak tua*, *nuri*, and the *cendrawasih*, are strictly forbidden to be caught. In reality, many hunters disregard the laws, because it is unlikely that the hunters will be caught due to the remoteness of the area and the lack of policing.

The Market networks in Dobo include many bird and animal collectors who instruct hunters to catch rare species. For example, the price of a pig in Dobo weighing between 40 and 50 kg is about Rp.200,000 to 250,000. The buyers are usually Chinese. A deer also weighing 40 to 50 kg is about Rp.170,000 to 200,000. These buyers are usually Javanese and Chinese. The Javanese use deer to make *Baso* (meatballs), instead of cow meat, because it is cheaper. Birds, such as *kakak tua jambul kuning* and *Kakak tua Raja* fetch between Rp.30,000 and Rp.50,000 in the Dobo market, Rp.100,000 in Ambon, and Rp.150,000 to –Rp.200,000 in Jakarta. Today, market networks for buying and selling various birds, such as *nuri*, *kakak tua*, etc. is expanding to the big cities in Java. According to hunters in Jabulenga and Tinguatu, monthly income from hunting is about Rp.500,000 to –Rp.700,000. Even though they receive a large amount of money, they spend almost all of their income on their daily necessities. The remainder is kept in the bank.

Cultivation

Every family and those not yet married in the Jabulenga and Tinguatu communities possess a field for cultivation, usually not more than one hectare in size. Every family works in their fields daily to cultivate and harvest various vegetables and fruits. The farmers say that they receive harmonious and secure feelings from this cohesion.

There are two types of fields. The first type is an inherited field, cultivated by the family for many generations. These fields often contain mature coconut and sago trees up to 50 years of age. Second, there are modern fields. These farmers cultivate *pisang* (banana), *singkong* (cassava), *ubi jalar* (sweet potato), *sukun* (breadfruit), *mangga* (mango) and *nangka* (jackfruit). These farmers indicated they would like to consult with the Agricultural Office in Tual in order to improve their agricultural methods in terms of cultivation, planting seeds, harvesting, and marketing.

According to the farmers, coconut is harvested twice a year. Every tree bears 10 to 15 coconuts. One hectare consists of 350 to 400 trees. After harvesting coconut, copra (dry open coconut) is produced and fetches between Rp.2,500 to Rp.3,000 per kg in the village and Rp.4,000 in the Dobo market. Young coconut receives about Rp.4,000 to Rp.5,000 in the Dobo market and Rp.7,000 to Rp.8,000 in Surabaya.

There are various banana types, such as *selayar*, *ambon*, *emas*, *barangan*, *towakka*, *raja*, and *nyonya*. For example, a bunch of *ambon* demands almost Rp.3,500 to Rp.4,500 in Dobo, and Rp.7,500 to Rp.9,000 in Ambon.

A farmer's monthly income from products such as coconut, banana, cassava, oranges and jackfruit is between Rp.150,000 and Rp.200,000. The money is used to buy daily necessities, such as rice, sugar, salt, oil, noodles, clothes, etc. The rest of money is saved.

1b. Labor opportunity

This section can be classified according to the productive ages of the villagers. First, 60 percent of the work force is at the productive age between 18-55 years old. These workers usually work in the fishing, hunting and cultivating sectors.⁴

Second, 25 percent of the work force is former contract workers who worked for the logging forest concessionaire of P.T. Budhi Nyata during 1994-1995. Since this company has ceased operations in Jabulenga village, most of the villagers returned to their former professions of fishing, hunting and cultivation. According to informants, workers were satisfied with logging in regards to salary, productivity, and working ethic.

Third, the unproductive ages of between 56 to 69 years old represents 15 percent of the workforce. These aging members maintain households and assist other more active members of the family.

1c. Function of moneylenders and banks

Moneylenders, or more popularly called "rentier," are significant for mobilizing the local economy. Rentiers usually take 10 percent from the fishermen and hunters for every transaction. The rentiers from the local villages receive capital from *toke* (chinese merchants) and Javanese in Dobo, and the fish and animal products are submitted to the *toke* in Dobo before they are sent to Ambon, Surabaya, and Jakarta.

Second, the role of the bank is more significant for big and medium fishermen, who own capital of five to ten million rupiah. These fishermen usually ask for working credit from the BRI Bank and Danamond Bank (Private Bank), the only two operating banks in Dobo. The interest from these banks is very small, at 1.5 to 2 percent monthly. According to fishermen, just a little working credit is received from the bank, therefore if repayments cannot be made, the debt ratio is only 7 to 8 percent.

1d. Effect of development projects

The social interactions among local villagers with the other ethnic groups, such as those of Javanese, Buginese and Mingkabau in Dobo, allow for the adoption of various aspects into their own lifestyles. This social transformation occurred at the end of the 1970s as national development programs invited many investors to invest in the outer regions. In this case, many ethnic groups came to Dobo to work in pearling, fishing, trading, shipping and government.

The positive influence from the influx of these different ethnic groups has provided better health care and education for children. At present, 40 percent of children are attending secondary school, 15 percent are in high school and 35 percent attend elementary school. This is an improvement compared to the 1980s when only 5 percent attended high school and 30 percent attended secondary school.

Since the beginning of the 1990s, health care housing (Puskesmas) was built in every village, especially in Jabulenga and Tinguatu. However, today these Puskesmas are not operational.

Houses of affluence constructed of stone tend to belong to rich fishermen who represent a minority group. The contents of these houses usually include modern amenities such as televisions, radio and video players. The non-affluent majority resides in houses of wooden construction with no modern amenities.

The lifestyles of the youth display western tastes, like blue jeans, guitars, long hair, alcohol consumption and playing billiards for gambling. Thus the impact of globalization through modes of media and interaction with other ethnic groups is rapidly changing the societies of Jabulenga and Tinguatu.

⁴ As I quoted in previous writing, the total population in the village of Jabulenga was 301, consisting of 67 families with 165 women and 136 men. There were less people in the village of Tinguatu with total population at 235, with 51 families consisting of 121 women and 114 men (see first report).

2. SOCIAL ASPECTS

The purpose of this section is to give a profile of social organizations and their relationships, such as labor organizations for agriculture and resource management, community religion, local institutions/groups, mutual aid systems in daily life, the state of leadership, the function of informal leaders and outsiders (government, NGOs), and the effects of development projects.

2a. Labor organization for agriculture and resource management.

Worker patterns are based on three types. First, the nuclear family consists of parents and children who usually work twice a week in their gardens cultivating the land for crops and vegetables. The patrimonial system is followed here where the function of father has the role of leader.

Second, the family model is usually used for cultivating land in excess of more than one hectare. Extended families work together without salary (*upah*) based voluntary work (*gotong royong/dijuir*). In contrast, if other families need to open and cultivate land on other days, then help is at hand, based on mutual understanding. Labor mobilization by the head of the village and the chief of customary law for road construction, weeding along the roadside, etc., without salaries is also called *dijuir*.

Third, wage labor (*sagul*), is based on commercial housing furniture such as chairs, tables, beds, cupboards, kitchen sets, etc. Craftsmen make these products when they get an order from their family, village or traders from Dobo. If the heads of the village mobilize their people to work together on government projects for road construction, bridges, small ports, etc., the people receive lunch and a salary. This phenomenon is called *konsi*.

2b. Reality of the Community

This field research was conducted in August and September 1998 in two villages, Jabulenga and Tinguatu, in the Aru Islands. Jabulenga had 301 inhabitants, consisting 67 families with 165 women and 136 men. In Tinguatu, there were 235 inhabitants, made up of 51 families with 121 women, 114 men (see: report 1998). Neither villages have a *dusun* (small village) or RW (the people's neighborhood), but they do have RT (a small neighborhood). The function of RT is basically to organize small units of people within 20 to 25 families in order to deal with their administrative and security affairs. On the other hand, the heads of the villages work to organize the administrative affairs and the village people in roles larger than RT in order to improve their social and economic life.

The village (*desa*) can be regarded as a real community (with def. art.): people living in one place, district or country, and considered as a whole. Because the *desa* consists of two RTs in each village (Jabulenga and Tinguatu), administratively, *desa* can be seen as a social unit in which pairs of RT constitute a vital unit in the *desa* itself.

People who live in both villages (Jabulenga and Tinguatu) are related to each other through intermarriage. Therefore, they have a motivation as a part of the community to help one another in various (socio-economic) activities within the community itself.

2c. Local Institutions/groups

There are many local institutions/groups that villagers participate in. First, the LKMD (Villagers Defense Association) is a formal organization based on village structure led by the chief of the village (*kepala desa*). The members consist of prominent local leaders. The LKMD functions to formulate the master plan of village development from many aspects in terms of budgeting, allocating sectors to be developed, development targets and social welfare improvement. Second, the church functions to maintain and develop villagers in terms of religious development and natural resources. Third, the hobby association is based on sporting habits like football and volleyball. Fourth is the *lembaga adat* (Customary Institution), which has the mission of maintaining social and cultural order in the local community, including conflicts over land boundaries, forest cutting for commercial purposes, the legacy of distribution, marriage and death ceremonies, etc. The

role and function of the customary institution, led by elders over 65 to 70 years old, are very significant in providing resolution to social conflicts and keeping customary practices.

2d. Mutual aid system in daily life

These systems are usually practiced among local villagers, based on traditional customs such as in the construction of boats, marriage and death ceremonies, *sasi* practice, and voluntary collective public works. The villagers consider themselves as brothers who live together for a long time, hence the mutual aid.

Voluntary collective work (*gotong royong*) is still kept as a traditional value. It promotes village development for the construction of streets, bridges, boat harbors, and fences. *Gotong royong*, considered as voluntary collective works, is still kept today as a traditional value and usually supervised by the heads of RT and the chief of villages.

2e. State of Leadership

There are many types of leadership in this village. First, the formal leader or village head is chosen through votes cast by village members. This leader's function is to support governmental development with the main target of improving the community's social welfare. Second, there are informal leaders that consist of elderly and religious men. Both are very respected in the village. The function of the elderly men is to advise villagers to do good things and to manage social conflicts between other members in terms of land border lines, household affairs, divorce affairs, etc. On the other hand, the religious leader, usually a priest, facilitates religious ceremonies and Sunday prayers, Church Sasi (*Sasi Gereja*), marriage and death blessings, sacraments, Christmas Day, etc. The priests in these villages are newcomers from the city of Ambon, and they act as religious leaders for their followers.

2f. Function of Outsiders

The role of the government bureaucracy is to delegate authority to the heads of the village (*kepala desa*) and to realize objectives in community development. For example, education, health care, religion and infra-structural matters are usually intended to improve the social welfare of society. On the other hand, the NGOs function in local community development is also very necessary to realize the above objectives. However, in Jabulenga and Tunguatu, there are no NGOs present.

2g. Effect of Development Projects

The role of social aspects in encouraging local village development is very significant. This fact is based on two findings. First, the function of educational institutions, health care services and religious development since the end of the 1970s in improving the moral, health facilities and educational issues for local people has been very necessary from the viewpoint of moral and material development. Second, the function of formal and informal leaders as well as religious and the elderly is very significant in maintaining the welfare of society in the village in a secure atmosphere.

On the other hand, even though development projects have been introduced in Jabulenga and Tunguatu the effects of development have not ruined social relationships, patterns of work or social responsibility among the members of community.

3. CULTURAL ASPECTS

The goal of this section is to provide a profile of cultural aspects, such as social norms to establish and maintain organizational relations, norms of action, residents' recognition of the forest and trees, cultural activities related to trees and forests, and the effects of development projects.

3a. Social norms to establish and maintain organizational relations

There are three types of social norms. First, on maintenance of the sea there are unwritten regulations from elderly men on the conservation of mangrove trees and garbage disposal. The rationale for these rules is that the habitat for the sea life is amongst the mangrove trees. Therefore, if the population maintains harmony with the environment, then fish production will be maintained as well as increase.

Second, the marriage system follows a patrimonial model where the role for men is to give a dowry (*mas kawin*) to his wife. After the marriage ceremony the groom must take his wife to a new house.

Third, heritage rights belong to the eldest brother in the absence of the father. This is to ensure that property remains in the family.

Fourth, on the maintenance of participatory forest management, the cutting of trees for commercial purposes by individual or groups in the community is strictly forbidden, based on traditional customs. This positive regulation supports sustainable forest management.

3b. Residents' recognition of forests and trees

Almost every person recognizes that natural resources, as well as forests and trees, are essential and should be maintained. This leads to improved social welfare for the local people, because of the economic advantages of maintaining the forests and trees. The excessive cutting of wood for individual purposes is strictly forbidden. The reasoning is that the forests and trees belong to the people on a collective basis as a customary right. There also exists spiritual power from the forests related to ancestry, which lives harmoniously and quietly within the forests. Therefore, elderly men always recommend maintaining and keeping the forest as well as possible, as it is a source of life.

3c. Cultural activities related to trees and forests

As mentioned above, the functions of forests and trees have economic values, which help with the improvement of social welfare. Therefore, customary forestry rights have to be maintained on two issues.

The first issue is to decide the borderlines of state forests and customary forests. These borders are usually established by the sounds of the *cendrawasih* bird. This bird always sings in the mornings and evenings in a special tree. It is believed by local people that the *cendrawasih* bird, since ancient times, is magic, therefore it is strictly forbidden by anyone to hunt or kill it. The main function of this bird is to define customary forestry rights and the state forest in clear boundaries.

Second, the existence of forests and trees in customary areas measuring 42 hectares must be used for collective purposes to improve the peoples' quality of life.

3d. Effect of development projects

The effects of development on sea and forest protection have two benefits for local people. First, it improves the environmental awareness of the local people, based on their perceptions and traditions for managing their natural resources, which then provides empowerment for social and economic purposes.

Second, the sustainable development of their natural resources, whether in the sea or forest, means those resources can be conserved and developed, not only for them but also for future generations.

As the distance between Ambon and Dobo is far, taking three days by ship and three hours by plane, the local activities are less to be compared with other villages closer to Ambon as the capital of Maluku province. From this point of view, we found that traditional life patterns still exist. For instance, in agriculture people still maintain the help system (*gotong royong*) to open their lands, especially among members of households and members of the extended family. This does not mean that local people have not yet known about the role and function of finance in their daily activities. In brief,

we can say that the effect of development projects on the cultural characteristics of the community is limited.

4. INTERNAL AND IMMANENT CONSTRAINTS ON PARTICIPATORY FOREST MANAGEMENT

4a. Economic constraints

The desire for material possessions is rapidly increasing the suffering of the younger generation of villagers. This is a result of the globalization factor of mass media affecting all communities, such as Bugis, Buton, and Java in Dobo. There is a positive correlation between the material life with money, consumption and social deviation. Related to this, many young people who desire this life commit violations of tree cutting in the forest, and with the proceeds satisfy their material desires by visiting shops in Dobo. This negative deed certainly influences forest management today and tomorrow. To overcome this phenomenon, one solution is to deal with the offenders by not permitting them to stay in the village at certain times in order for sustainable forest management to develop.

In the long run, the main economic constraint for participatory forest management is the lack of inspection of replanting trees by the HPH (Forest Logging Concessionaires), led by the Forestry apparatus in the Dobo district, due to limited facilities and workers. Because of this phenomenon, the government and village leaders do not quickly participate in handling forestry management issues, resulting in forest degradation, which has serious economic implications for promoting the welfare of local people and maintaining government income.

4b. Social constraints

There appears to be a lack of awareness by local people in maintaining participatory forest management. In order to function properly, participatory forest management must observe customary forest rights and replanting programs for the future. Therefore heightened awareness among the local people from the educational perspective must occur.

Second, a lack of medical services such as doctors, nurses and health facilities has affected the health conditions of the local people. Good participatory forest management indirectly suffers, because attention is more focused on health matters. Therefore, in order for the issue of forest management to come to the fore, an improvement in government health agencies is required, as well as encouraging local people to allocate part of their incomes for health care. An improvement in educational and health care facilities are necessary in the near future so as to improve the quality of life at the local level. At the same time, the support and optimization of the roles and functions of the elderly groups and traditional institutions (*lembaga adat*) is very urgent to uphold customary forestry rights in order to maintain sustainable forest management.

4c. Cultural constraints

It is apparent that the local people lack understanding of the concept of “forests for the people. The consequences are that the creativity and innovative promotion needed to maximize forest resources is not being maximized. This perception must be transformed from a negative to a positive in order for local people to culturally understand the necessity of forests as valuable, natural, sustainable resources, which can elevate their socio-economic lifestyle. To overcome this condition, it is the role of the elderly men and chiefs of villages to socialize and educate the young people on participatory forest management.

5. MAIN ROLES IN MANAGING FORESTS:

There are two types of forest in Jabulenga and Tinguatu, the customary forest and the state-owned forest. In managing the customary forest there are three participant roles: the elderly men, individuals and the household.

5.1. Elderly men

Based on their age, knowledge and wisdom, the elderly in these two villages are appointed by the local people. They are responsible for maintaining and protecting the local traditions, and settling social, physical and land conflicts among members of community, including the distribution of heritage, etc. But their most important role, compared with the other functions they perform daily within the communities, is to manage the customary forest for the benefit of the local people. Any attempts by individuals to excessively exploit the forest or forest products for commercial purposes are strictly forbidden. In other words, forest or forest products can only be used for the sake of local people in the limited amounts.

5.2. Individual

The role of the individual, necessary in the management of the forests, is classified into two parts. First, individuals cultivate vegetables in gardens usually found in the buffer zone of the customary forest. Here, the role of the individual is to prevent fires in their gardens as well as within the customary and state-owned forest. Second, besides working as farmers, the local people also hunt animals in the customary forest. Concern with their additional subsistence as hunters in the forest areas encourages the hunters to be conscious of sustaining the forest for their beneficiaries. Without protecting the forest, we can predict that in the future, with continuous exploitation, this kind of practice will reduce the population of animals and the availability and quality of their habitats as well.

5.3. Households

A household (members differ in number) which maintains a garden(s) is closely linked with keeping a sustainable forest. Simultaneously, a group of households also has a significant role in protecting the forest from which they earn their living. This attitude towards the forest is based on the tradition of their parents, and the manifestation of it is seen in the role of the elderly men. They often remind people, saying 'the forest is for the people.' This saying can be interpreted as meaning that the forest plays an important role for them, for other people and all creatures. Again, in the local context, the role of the elderly group, also part of certain households, is immanent in the participatory forest management scheme. Furthermore, one matter to bear in mind is that the use of the forest and forest products within the two villages does not rely upon contracts between people, but relies on the authority of the elderly men.

On the other hand, between the government and these villages contracts are always used. Village headmen, LKMD (Lembaga Ketahanan Masyarakat Desa/Village Institution of Defence), mostly the elderly men, are responsible for this kind of affair. This includes, for instance, providing the labor force from the two villages in replanting trees (*reboisasi*) and introducing social forestry (*hutan kemasyarakatan*) in the state-owned forest. However, during my stay in the field in 1998 I could not find out about any forest contracts at all carried out by government and the villages in the state-owned forest areas. In sum, contracts for exploiting the forest either in state-owned forest or customary forest never takes place in the local context (*desa*). All contracts for the forest site are done in Jakarta between the Minister of Forestry and the HPH, for instance P.T. Budi Nyata, the branch of Jayanti's HPH in 1994.

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CONSTRAINING CONDITIONS FOR LOCAL PARTICIPATION IN FOREST MANAGEMENT: A CASE FROM EAST KALIMANTAN

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INTRODUCTION

The IGES Forest Conservation Project (FC Project) is developing strategies for conserving forests in the Asia-Pacific Region. A sub-team of the project, the participatory forest management (PM) sub-team, has the task of developing strategies for five southeast Asian countries, including Indonesia, Lao PDR, Philippines, Thailand, and Vietnam.

There are four reasons to develop participatory forest management: 1) forest management is not complete without local activities; 2) active involvement of local people will reduce the management cost borne by the government; 3) it promotes social justice—people who have been living for decades in the forest and have been culturally and economically bound with the forest should benefit from the forest; and 4) experiences at the local level might offer important lessons for discussions at national and international levels.

The framework for developing strategies on participatory forest management is presented in Figure 1. The first year of work (1998) was devoted to doing research on actual forest use by local people and on national policy studies. These two aspects of research were intended to find gaps between policy and local realities, because such gaps are considered as external constraints on local participation. The second year (1999) was devoted to doing research on economic, social and cultural characteristics of local communities. This was intended to identify internal constraints on local participation. In the third year (2000), while strategies are being drafted, supplementary research on the main actors of local forest management is being carried out. These researches are directed toward formulating forest conservation strategies from the perspective of participation. Research on forest policy in developed countries and on causes of forest degradation and deforestation is expected to provide important inputs for that purpose.

This paper is written based on the second year of research, which was conducted in accordance with an assignment given by PM sub-theme leader. The assignment was formulated as follows (Inoue 2000c):

1. Economic aspects: important economic conditions are described and analyzed, including income sources, labor opportunities, functions of money lenders and banks, and effects of development project, etc.
2. Social aspects: important elements of social organization and social relations are described and analyzed, including labor organization for agriculture and resource management, conditions in the community, local institutions and groups, mutual aid systems in daily life, the state of leadership, functions of informal leaders, functions of outsiders (government, non-governmental organizations, etc.), and effects of development projects, etc.
3. Cultural aspects: important cultural attributes are described and analyzed, including social norms to establish and maintain organizational relations, norms of action, residents' recognition of forests and trees, cultural activities related to trees and forests, and effects of development projects, etc.
4. Internal/immanent constraints for participatory forest management: economic, social, and cultural constraints for local participation at the research sites should be clarified. Countermeasures to overcome the constraints should be discussed.
5. Main actors to manage forests—actors for participatory forest management in the research sites—should be identified, including individuals and households, small groups (functional groups, users groups, etc.), and the village community, etc.

The author understands that the main purpose of these objectives is the analysis of internal constraints on participation and their countermeasures. However, this paper also includes analysis of enabling

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conditions for local participation. By identifying both constraining and enabling conditions, countermeasures are likely to be more comprehensive.

METHODS

1. Site selection

The research was conducted in Muara Begai Village, East Kalimantan, Indonesia. The village has abundant nature resources, but these are deteriorating due to exploitation of the land for plantations and logging activities, as well as other causes like forest fire and drought. The village was selected because it has experienced pressures from outside, which typically have serious impacts on traditional practices of local forest management, while traditional practices are still being maintained to some extent.

2. Data gathering

Data were collected by fieldwork during a total of four weeks in May and October 1999. Information on land use, the practice of shifting cultivation, social organizations, and norms, etc., were collected through semi-structured-interviews (SSI) with key informants (KI). The KI include the village headman, leaders of organizations, school principal, *adat* (customary law) leader, and elders, swidden cultivators, and other knowledgeable people. The author also conducted survey interviews with household representatives, mostly men, but sometimes, when available, other members of the households were involved in the interviews. The survey was to collect data on forest use, farm size, number of labor and production, rattan production, etc. For this purpose the author interviewed 24 households and conducted a group interview, attended by 19 people, including men and women, young and adult, to collect their views about problems related to natural resource management and the future of their village. Participants were observed in order to develop a “feeling” about and to figure out social relations with the community.

A wealth ranking was done with two persons, one from a poor category and one from a medium category. The persons were asked to rank each household into a socio-economic category according to their own perception. The selection of the respondents was based on the comparison of the two wealth rankings.

As it is impossible for the households to provide precise data of forest products they have collected, I used a “corn quantification technique” to help them make estimates of relative ranks of production within one year-period before the forest fires. Twenty-three households, divided into high, medium and low socio-economic status (SES), were asked to draw a product-use matrix. Various products were listed along the vertical axis, and one column was drawn for product collection. Then they marked the columns with corn seeds to indicate the estimate of products they have collected, used, and sold within one-year period (1997). Markers on a box were limited to a maximum of 10 seeds, representing the highest rank, and one seed marking the lowest. To make a comparison of the three categories possible, the author converted the average estimate of each SES category into percentages.

3. Analytical Framework

This paper is intended to analyze both potential (enabling conditions) and constraints facing a local community in managing the forest, based on the data and information on social, cultural, and economic features of the community. The analytical process follows the following steps (Figure 3).

First, features of the community in terms of social, cultural and economic conditions are described and analyzed. If separate features correlate with each other, such a correlation is identified. Second, the author tries to identify how these features can affect and contribute to the management of forests.

For this purpose, problems of forest management are described, objectives of management are defined, and roles of local actors are analyzed. The role of local actors is analyzed by answering two questions: What are the enabling factors (potential)? And what are the constraining factors? Finally, this analysis comes up with a recommendation at the local level: What kinds of countermeasures are needed for the success of local forest management?

Since this is basically an analysis of local participation, the term participation needs to be defined. Endogenous bottom-up participation (Inoue 2000b), which is also called self-mobilization (Hobley 1996), is taken into consideration for the purpose of this evaluation. This definition refers to the following indicators: 1) access and control over the land and forest resources by the local community; 2) control over local decisions, independent initiatives, and self-mobilization; 3) the ways that competing demands over the resources are solved so that conflicts are minimized; 4) complementary or synergistic relationships among different users and uses; 5) equitable sharing of the forest benefits (Wallenberg 1998). The last indicator deals with economic aspects, and the others refer to social and/or cultural aspects.

THE COMMUNITY'S PHYSICAL PROFILE

Muara Begai village lies on the bank of Lawa River in the sub-district of Muara Lawa, about 225 km from the provincial capital city Samarinda. Until October 1999 it was under the administration of Kutai District. But since the middle of that month, it has been under the administration of the West Kutai District. It has two settlement units with three neighborhood associations called Rukun Tetangga (RT). Geographically the village is rather isolated and for decades was only accessible by river transportation (canoe). Only recently a road was constructed to break the isolation. The size of the village's territory is unknown, as the village does not have a territorial map. Boundaries recognized by the people, although some of these are in dispute with neighboring communities.

The population as of 1999 was 331 people, or 73 households. Benuaq people form a majority (90%) and the rest is composed of Tunjung (Tonyoi), Banjarese, Javanese, and Florese.¹ Since the opening of the coal mining base in 1996 the number of people increased, but only few of them were registered as local residents. The presence of the company provides job opportunities for the community. Fifty-four households are involved in swidden farming, three people run a small variety shops, including rattan trading, and six persons are teachers.

There are three small variety stores selling basic commodities such as salt, sugar, coffee, tea, soap, cooking oil, kerosene, and cigarettes, etc. Two people run businesses involved in rattan trade. They buy rattan from the villagers and sell them to nearby sub-district towns Lambing and Damai. A rich family owns solar-harnessed power producing equipment, but the electricity produced is not available to the whole village.

Development promoted by the government puts much priority on physical aspects, i.e., constructing buildings. Education is less developed and the level of education is low. Very few people have completed a high school education. Health services are not available, even though a health center building has been constructed.

Lawa River has been an important highway for decades. Through the river the community is connected with and has its access to other communities, and transports products to outside markets, primarily in Damai and Lambing downriver. These towns have dynamic business activities. Seven motor-driven canoes (*ketinting*) are owned by individual households. Since the construction of a feeder road in early 1997, people have an alternative way to go to the towns, but only three households own

¹ Benuaq people form one of the largest first people groupings in Borneo, the Dayak. Most of the Benuaq people practise swidden agriculture. They are also well known as one of the best rattan cultivators. Many of them have also adopted forestry, particularly for rubber production. Hunting, fishing, and gathering are important activities carried out to supplement swidden agriculture.

motorcycles and regular transportation is not available. Furthermore, during rainy season, which is usually long, the road is quite unusable.

SOCIAL ARRANGEMENTS

Social arrangements are the interrelations between individuals in the whole community, including the way they are organized or disorganized. Considerations of social arrangements take into account changes in social relations, village politics, and social organizations, kinship, and conflict. Description on these factors will be summarized in an evaluation of participation.

1. The Past: Social relations in a Long House Community

Original populations of Muara Begai are Benuaq people from Lou Namis, which was located just 1 km southward (upstream). Lou Namis is already deserted. In the middle of the 1960s (Kakah and Itak Sopok recalled that it was about 1965), nine families moved from Lou Namis and built separate houses in the location now known as Muara Begai. Some of those families still live in Muara Begai.

As indicated by the name, Lou Namis was a hamlet with only one house, that is, a long house called *lou* (Figure 3).² A long house forms a community. The size of long house may vary, depending on the size of the population. The members live in separate halls called *olakng* or *jayukng*, with members of the closest kin members in one hall. One hall may consist of one or more households, depending on the size of the hall. Families who eat from one kitchen (*man ete erai beliku' api*) in the *olakng* are called one household (*pokatn*).

The front hall of the *lou*, which is called *bawo*, functions as a venue for community gathering; thus, it has a very important social function. Community meetings, including *perkara* (a meeting to settle conflicts), and rituals are performed in the *bawo*. When a big event is being held, all halls may actively be involved; e.g., cooking is done in all the halls. A *lou* is thus an important representation of community integration. Though conflict is embedded in every society, conflict in a long house is minimized. Members of one household, which usually consists more than one nuclear family, eat together and share their subsistence.

Another social function of the long house is collective defense against enemies. In the past the main enemy was headhunters (*bala*). Formal agreement on the abolishment of head hunting was achieved in the Tumbang Anoi gathering (Central Kalimantan) in 1894, sponsored by the Dutch colonial government and attended by representatives of most of ethnic groups in Borneo. But headhunting was practiced sporadically until the early 20th century.

The living in long houses shows a paradox in the social structure of the Benuaq community in the past. The paradox occurs because people having different social status live in one house, even though they may live in separate *olakngs*. This indicates that long house really functioned as defense for all. The traditional social structure of Benuaq people consisted of some levels of stratification. The top leader is called *mantii'*. This term has three meanings: person (noble person), leader, and leadership system. Thus, *mantii'* is sometimes referred to as an aristocratic rank. The *mantii'* had prerogatives and wealth beyond the norm, including final say in the delivery of legal judgement, fines, and other sanctions (Hope and others 1997). Below *mantii'* (nobility) there are *merentikaa'* also called *angee'* (common people) and *ripatn bataak* (slave).

As a system the *mantiq* leadership is composed of four components, respectively from the top to the bottom: *mantii' tatau*, *penggawa penggadikng*, *tuha' pokatn*, and *manokng/pengera'*. Direct management of community matters was in the hands of *tuha' pokatn*, that is, elders who are knowledgeable about *adat*. If problems cannot be handled at this level, the higher-level *penggawa penggadikng*, elders who are also knowledgeable about *adat*, take over. The *penggawa* also functioned as

² *Lou* is a Benuaq term for long house. In East Kalimantan the common name for long house is *lamin*.

war leaders and legal adjudicators (Hope and others 1997). *Manokng/pengerak* functions include as a community mediator, or more precisely as helper to the *mantii'*. As recalled by some elders in the village, under the *mantii'* leadership system, collaborative works were strong.

2. Adopting a New System

The move to current Muara Begai village marked two major changes from the previous social relations. First, people no longer share one long house. They built separate individual family houses. One family has built a smaller long house. But its function is totally different from the traditional communal long house, because only the family lives there. The children and grandchildren even live in separate individual houses. Thus, the new long house is not the property of the whole village. One reason for abandoning the communal long houses is that the government encouraged it. Many people now believe that living in a communal long house implies backwardness.

Second, the increase in population number and adoption of a new village leadership system. The larger population made it possible for the government to recognize Muara Begai as a village and apply the village government system. Nowadays the leadership system is based on two pillars: the *adat* and the government. The traditional leadership system based on the *adat* currently is subsumed under the village government system.

Mantii' in the three senses noted above no longer exists now, nor does slavery. The social stratification based on the *mantii'-angee'-ripatn* relationships is no longer practiced. Instead, the stratification is mainly based on economic status and the formal position of a person in the village government system. The people maintain their *adat* laws under the auspices of an *adat* leader. The *adat* leader maintains the *adat* together with the members of the Dewan Adat (Adat Council), which consists of an *adat* leader and his deputy, secretary, and treasurer; the structure that was unknown to the people in the past and strongly influenced by modern organizational structure models.

The role of *adat* leader and the council is quite different from those of the *mantii'* in the past. Whereas in the past all community matters were under the leadership of the *mantii'*, in present days the *adat* leader is responsible only for the matters related to customary laws. He has no control over the village government. He is even subsumed under the village government system (Figure 4). Frans (1999) argues that, according to the Village Government Law No. 5/1979, *adat* leader and village headman hold similar status in the village, because both belong to the Lembaga Musyawarah Desa (LMD) or Village Consultative Assembly. In fact, however, power and control of community matters is in the hands of the headman. The power structure of the village is clearly displayed in Figure 5. Within this structure, decisions on community matters are made. In practice, the headman himself made many important decisions in the past.

3. Social Organizations/Groups

It is a common feature that small communities are less diversified and less stratified. That is the case with the community of Muara Begai. Figure 5 shows several names of organizations (LKMD, PKK, DEF, KT, etc.). However, most of the organizations exist by name only, and are not active. Why is this so? Because those organizations were imposed from above by the government. The structure has proven to be incompatible with local conditions.

There are two religious groups: one Protestant and one Catholic. Both groups have almost an equal number of members, but the Protestants are more powerful because the leaders are more educated, as school teachers. Relations between the two groups are smooth and differences in religious affiliation do not influence the existing good relations among individuals. Religious groups do not influence the village decision-making process.

The community is divided into three neighborhood associations called *Rukun Tetangga* (RT). Adopted from the past Japanese neighborhood organization *Tonari Gumi*, the RT has developed as a means of state control over the grassroots during the New Order regime. It also functions as small basic

social unit. In urban areas RT has a lot of functions such as providing health care service to children under 5 year old (Posyandu), security, recommendation for getting identification cards, festivals, etc. In Muara Begai the RTs do not function as they should. The reason is probably because in such a small and remote community, the division into three RTs seems to be alien and does not reflect the community needs.

4. Kinship Relations

Kinship is a social relationship based on culturally recognized ties by descent and marriage. Kinship ties are rather strong within the community and many collaborative economic activities are based on kinship relations. The smallest and the most cohesive unit of collaborative work or mutual aid is the household or family (*pokaatn*). This may extend from the basic nuclear family to the extended family. The traditional form of extended family, in which several nuclear families share a residence and subsistence, has become extinct. However, the spirit of becoming a group of the same blood is still strong. At a larger scale collaborative works involve people of the same kin (*buhaatn*), although these ties are already loose. The Benuaq people apply bilateral kinship, in which all relatives of both sides of the parents are considered kin. But with new trends the young generation prefers to be named after the fathers' name. Thus, a tendency to adopt a patriarchal system in social relation is evident.

Exogamy, in which marriage is allowed with people from outside the community, even from outside of the ethnic group, is becoming more frequent. This tendency is likely to loosen the kinship ties in the future. There is a great tendency for the young generation to seek its livelihood outside the village and for couples to form there. This trend may reduce the role of kinship as a basis for mutual aid, and the role of the single household may become more important.

5. Conflict and Resolution

The advent of a coal mining company in 1995 triggered external and internal conflicts. About one third of the village land, most of which had been planted with rattan and other crops, belongs to the company's concession. Conflict occurred with the company, and the government supported the company's interests regarding the issue of indemnity for the villagers' land. As usually the case in other communities, the people gave up their demands, because of continuing and strong pressure from the sub-district government and local military (including the police).

In response to the arrival of the company, the community split into two conflicting stances. A handful of people, represented by powerful figures such as the headman, school principal, *adat* leader, and some elders, agreed to cooperate with the company and government. A larger number rejected the idea of cooperation, but they were less powerful and lacked strong leadership. The rest of the people were simply ignorant and followed whatever was beneficial to them. Although these different and opposing stances did not appear in an overt conflict, the experience is likely to influence collaborative activities and mutual aid within the community.

The resolution of external conflict involved formal bodies such as sub-district government, the police, and military. Internal conflict is to be settled on the basis of customary law (*adat*), in which one of the parties involved in a conflict should submit a plate called *lampakng penenukng* to the *adat* leader as a formal request to settle the conflict. The *adat* leader, in making a judgement, should consider two factors: *timakng* and *sukat*. *Timakng* (literally, consideration) means that a judgement should be made based on thorough consideration. *Sukat* is a kind of jurisprudence. Sometimes internal conflict cannot be settled by *adat*. In this case the issue is to be brought to the police.

6. Evaluation of Participation

The above description on social features identified the following points relevant to discussion on local participation.

1. Traditional long house community exhibited some basic indicators of participation such as local control and decision-making. This was possible because face-to-face interaction was easy, the

population was homogenous, there was strong observance of *adat* and tradition, and a minimum of internal conflict existed.

2. Under the new village government system community, decision-making process is less participatory (because the majority of the people is not involved), more conflicts have occurred, and the village leaders are strongly dependent on and tend to serve the interests of the government.
3. Various organizations imposed by the government reflect an ideal model of how a community is to be organized. In fact, however, these organizations do not work and cannot function as real “social capital,” because they do not meet the community’s aspirations and seem to be beyond their capacity to organize. Thus, they do not function as an effective means of decision-making.
4. Although kinship has functioned as an effective means for collaborative works, the current trend indicates that it will steadily change in the future. Thus, people should not rely only on this traditional mechanism.
5. Existing conflict reveals that at least one indicator of participation was not met. That is, competing demands over resources are not solved in such a way that conflicts are minimized and complementary/synergistic relationships are built.

MAKING A LIVING

Although the community depends largely on the subsistence activities for their livelihood, the process of entering an exchange economy (market economy) has long been known and practiced. This part presents two aspects of the people’s economy: production for subsistence and production for exchange. A short evaluation of participation is provided in the last section.

2. Subsistence Activities

Though it is clear that in the past swidden agriculture, hunting, gathering, and fishing were subsistence activities, it has undergone some changes. The people sell the products collected from the activities, though for a very small amount. However, as a major pattern, we can refer to these as subsistence activities.

Swidden Agriculture

This activity forms a major part of the people’s livelihood. The time spent for agricultural activities indicates that it has a great value within the community. As Sillitoe (1998) says the time that people invest in making something is likely to influence the value they put on it. Figure 5 shows how time is spent in one year on several procurement activities, including swidden agriculture.

Time spent for swidden agriculture is an average of 4.37 months per annum (37% of the year). Of course the time spent for the whole process of swidden agriculture is more than five months if waiting time is included. Waiting time includes the time for drying up after tree felling, and the period between planting and weeding, as well as between weeding and harvesting. The survey did not include the waiting time, because during the time people usually do other work, such as cutting timber, and harvesting rattan, etc. Work in a rattan garden only takes 1.60 months (13%) including planting, caring, and harvesting. A rattan garden does not require extra care. Gardening of annual crops (cucumbers, maize, vegetables, etc) and livestock raising require 1.70 months per year (14%). However, it is important to bear in mind that Benuaq people everywhere plant annual crops at the same time and same place with paddy field. Thus, they do not need extra time to clear a land for such purposes. Woodcutting and handicraft works respectively need 0.57 (5%) and 0.70 months (6%), and 1.60 months (13%) are spent for hunting and fishing. The rest of the time, 1.46 months (12%), is spent for other activities.

There are three components of swidden agriculture: land, labor, and technology. If a household has a sufficient labor force and technology, it can produce enough for its annual consumption. Some households did not have sufficient labor, but have better technology (chainsaw for cutting trees). Therefore, they can produce more. The use of the chainsaw significantly reduces the time for clearing forests, and thus more time can be allocated for other works. Figure 7 indicates a ratio of household labor, farmland size, and rice production by 23 households in the 1996 and 1997 cultivating and harvesting seasons.

The figure shows a pattern, that is, households with more labor can open larger farmland and thus produce more rice. However, in minor exceptions (households #3, #8, #12, and #21) a high number of laborers is not associated with larger size of land cleared for farming. The reason for this was not identified. Some households with few laborers can produce more, because they have better technology or financial resources to pay workers. The size of farmland and level of production is also influenced by how successfully a household calls for a collaborative works (*pelo jerab*). This also depends on the capacity of the household to feed the people participating in collaborative works.

The figure also shows that many households are not self-sufficient from swidden agriculture. Another pattern shown by the figure is that there are no striking products' surplus differences among households, because households with high production have more members and vice versa. This means that the shares of production from swidden agriculture are relatively equitable.

Hunting, Gathering, and Fishing

People of Muara Begai, as in other Benuaq communities, hunt animals and catch fish with traditional weapons. Both hunting and fishing are done on a small-scale basis. The people also collect wild vegetables as their source of diet. Common vegetables are rattan shoot (*uur ya*, *uur kotok*, *uur niwukng*), ferns (*paku'*, *paku' lawa*), etc. Table 1 shows that the amounts of collection of game animals, fish, bird, fruit, and sprout are relatively high within the community. According to the figure there is no striking difference in forest products collection among SES categories. When the amount of collection is high by people in a high SES, it is high as well by people in low and medium SES. This means that the sharing of products is relatively well balanced.

Originally people hunted for their own consumption. Big animals were shared with neighbors and close kin. When the population was very small, as in the long house community, all households could receive some portion (*pirikng*) of the hunted animals. Recently, people hunt partly for consumption and partly for exchange, and *pirikng* is only given to very close kin and neighbors. There are always people who desire to buy, because meat and vegetables are scarce in the village. Meat of hunted game (wild boar, deer) costs Rp 5,000/kg, and the price of fish ranges from Rp 2,000 to Rp 4,000, per kilogram depending on the sort of the fish. Unfortunately, income derived from hunting is very low, because hunting is not done frequently. Fishing is done more frequently.

2. Non-subsistent Economic Activities

Non-subsistence economic activities include production and market exchange. These cover the following sectors: rattan forestry, woodcutting, wage labor, and trade.

Rattan Forestry

Traditionally the people have been relying upon the production of rattan for exchange as well as for own use. Long before rattan gained a high economic value in the 1980s the people had planted rattan and collected wild rattan. Even after the rattan price dropped at the early 1990s they continued to plant rattan and harvest it to earn money. Almost every household owns a rattan garden, although the gardens differ in size.

The author's survey on rattan indicates an increase of rattan production over five years (1994-1998). There was a decrease in 1997, but the increase in 1998 exceeds the highest production in 1996. This indicates that rattan maintains its importance for the households' economy. However, the operation of the company PT. TCM in the area has destroyed some rattan gardens. The destruction was also caused by forest fire. More gardens are facing a threat of destruction due to the possible operation of an oil palm plantation.

There are 23 rattan species recognized by the community. But only few of them have economic value in the local market (Table 2).

Woodcutting

Woodcutting is the cutting of timber for logs, beams and boards. There are seven active woodcutters in the village. These are the people who own chainsaws. Theoretically a day's work is worth Rp 90,000, with Rp 80,000 as net profit. Within a month a woodcutter can earn Rp 1.6 million. However, the woodcutters cannot work every day because their work depends on market demands and they also work for swidden agriculture. The average income of the seven woodcutters was Rp 2 million per annum. Thus, woodcutting serves as an important source of income for them.

In the past few varieties of wood have market value: *jengaan* (*shorea laevis*), *meranti* (*shorea spp*), *teluyatn* (ironwood, *eusideroxylon zwageri*), and *ngoi*' (*dryobalanops spp*). Nowadays at least 16 species of trees have economic value. These are, in addition to the aforementioned ones (in local terms): *itir*, *belengkanai*, *aput*, *pudou*, *lelutukng*, *jematuk*, *sungkai*, *benuang*, *kalakng* (*durian*), *pangin*, *bayur*, and *gerungakng*. Though not really abundant, these varieties are available in the village forest.

According to the woodcutters they cut trees without official permits from the authorities (in fact they do not consider it necessary) to cut trees from the village forests. But the people are upset because of outsiders who also cut trees from the same forest: this is illegal logging with assistance from military personnel. In August 1999 a representative of a cooperative run by a Dayak association in the provincial city of Samarinda came to the village to inform the people that the cooperative had received a concession to cut trees in the village area. This might open a new market, but also threatens the local woodcutters, if they are not involved in the woodcutting. It appears that they have to compete with outside cutters and companies.

Wage Labor

Labor is a commodity that can be exchanged. The exchange value of the labor depends on the capacity of the labor. In Muara Begai only unskilled labor is available. Ten people work at the nearby coal mining company as surveyor assistant, cook, construction workers, survey assistants, and security guard. Their salaries vary from Rp 100,000 to 200,000 or 12.5 to 25 US dollar per month. Such a salary is not sufficient to cover the monthly consumption of a household and must be supplemented by other sources of income. In this case, other household members work in agricultural or other activities.

Another category of people who receive permanent salary is teachers. Most of the teachers do not depend only on the salary from teaching. They also practice swidden agriculture, gardening, fishing, and collecting wild vegetables. However, they are less dependent on forest products. Temporary work is occasionally available where people can earn money, , such as cutting tree for other's farmland, cleaning rattan, and working for a government project, etc.

Small-scale business

Some people run small-scale businesses in the village. There are two rattan brokers and three storeowners. Villagers do not sell their rattan to outside buyers because of transportation problems. The price of rattan does not depend on the local buyers; instead it depends on the powerful buyers at the sub-district towns of Muara Lawa and Damai. When the price increases at the sub-district town, the village-

level price will also increase. Basically, the price for rattan will fluctuate depending on the political economy of rattan at the national level.

Three households run small variety stores. One of them is also a rattan trader. They sell goods to meet the daily needs of the villagers such as kerosene, soap, salt, shampoo, cosmetics, noodles, and canned fish, etc. Their business has been getting more difficult since the financial and economic crisis in 1997.

Both rattan buyers and storeowners do not receive credit from banks, cooperatives, or moneylenders. But storeowners can take any kind of goods from a *tauke* (shop proprietor) to sell, and make the payment only after selling them. Male members of the household handle the business, and female members are involved in swidden agriculture and other procurement activities mentioned above. The people who run businesses practice swidden agriculture as well.

3. Evaluation of Participation

From the above description some points of evaluation from the perspective of participation can be listed. These are:

1. The importance of swidden agriculture should be recognized, because it reflects the basic access and control of the people over resources, particularly land. In terms of products, resources are shared equitably through swidden agriculture.
2. Hunting, fishing, and gathering provide little contribution to domestic economy, but are important for their diets. These activities can be considered as a form of local control over resources.
3. Rattan forestry is very important in the domestic/household economy and this can be a strong motivation to maintain or increase production. Thus, this type of forestry provides motivation to participate in conserving the forest.
4. Woodcutting is an important source of income, but does not reflect equitable sharing of resources, and is prone to competition and conflict.
5. An involvement in wage labor leads to less interest in the forest. Hence, people involved in wage labor might have little motivation to participate in forest management.
6. Local rattan brokers make the sale of rattan products easier. Hence, they help the people to highly evaluate rattan in their economy.

THE CULTURE AND THE FOREST

The presentation of cultural features in this section concentrates on normative aspects of culture, including customs and traditions. Thus, culture has to do with the people's day-to-day life. A short evaluation of participation will be provided in the last section.

1. Land Ownership

Ownership of land has several bases. Customary law of the Benuaq recognizes two legal subjects of land ownership, i.e., village (*henua*) and household (*pokatn*). In other words, village rights and household rights exist. Village rights are rights over resources that are traditionally allocated for village-wide purposes, or to which all villagers have similar access. This includes land for the cemetery (*simpukng lubakng*). In Benuaq society the cemetery is always located at a fruit grove (orchard), particularly an old one. Another village property is the primary forest. However village property of land tenure is not a communal property. Norms related to village rights are loose.

Household rights are acquired by virtue of opening primary forest for swidden agriculture (*uma' tautn*) on the land (labor investment). This right is extended to subsequent cropping at the site. Since labor is the basis of land ownership and it is the household that invests the labor, the land belongs to the household. The extent of primary forest cleared for cultivation depends on the household's capacity; that is, on the number of laborers within the household and technology they use. This means the size of the land

depends on the household ability to clear primary forest. The size of the household in the past included an extended family, but recently most households cover only nuclear members.

Nowadays clearing of primary forest has become very rare because its location is more distant from the village. How can a household that never cleared primary forest acquire a land? It gets the land on the basis of inheritance or gifts. Inheritance (*warih sebai ewai*) is given to a household, and (though possible) very rare to individuals in customary law. Once a land is given to an individual, it soon becomes the property of the individual's household. Usually an unmarried individual does not inherit land, because he or she at that stage is dependent and belongs to a household of a married brother or sister. Once it becomes a household property, there is no question of female and male right or claim over the land. Inheritance is not strict, because brothers or sisters, or even other kin members, have the right to use the land. Here inheritance is probably more appropriately called "transfer of responsibility" over the land.

When land is given (*denyeen*) to a household it holds the same principle with inheritance. Other bases of land ownership is *denaa'* (customary fine) and *poli'* (sale). But these two principles are very rare cases. The principle of *poli'* only appeared recently when land became more valuable.

Norms related to households' rights and individuals' rights are strictly defined.

2. Claim and Ownership of Trees and Other Resources

Individual claims over certain trees and resources are normal. But claiming many trees is not allowed. Claims over honey trees (*tanyut*) are done by the finder by making a recognized sign (*ngerasi'*) around the tree. The first claim is usually made on a tree found within a primary forest. Opening the forest around the honey tree is forbidden, because it would chase the bees away from the tree, but the first finder or the person who inherited the tree some time opens the surrounding forest. In this case, he should leave the cluster of surrounding forest untouched (enclave). This is to prevent the tree from burning and to allow bees to nest on the tree. No one in the Muara Begai community is a first finder of any honey tree. Some households have inherited honey trees from their ancestors.

Theoretically, claims over trees are also possible for the purpose of making canoes, beam boards, and shingles. These are also done by making a recognized sign around the tree. However, encroachment by outsiders makes such claims ineffective. Claims over the land around the trees are not allowed.

Rattan is an important commodity. As mentioned, aside from the planted rattan, some wild varieties have gained important exchange value. However, claims over wild rattan in the primary forest are not allowed. Most wild rattan grows in primary forests, but some may grow in old secondary forestland. In this case the owner of the secondary forest holds a prime right to harvest it.

3. Norms in Subsistence Activities

Swidden Cultivation Activities

Swidden activities should be started at a relatively same occasion, that is, in June or July (land clearing) to avoid or minimize the threat of pests. Rice fields of different households should be in adjacent locations or close to each other. Honey trees or potential honey trees within the rice field areas should not be cut. Bordering fields should be cleared and burnt at the same time. Otherwise, fire might flare in the neighbor's field and create conflict. In case a field is to be burnt ahead, the border should be cleared of ignitable materials to avoid unintended fires in the neighboring field. If such a fire happens, a customary fine (*jomit burai*) should be given to the victim by the responsible household. Before burning a rice field, borders next to forests should be cleared of ignitable materials (*ngeladakng*), to avoid forest fires.

The traditions and norms of swidden agriculture appeared to undergo a significant change in 1999, when several households started to clear rice fields again in October, just after planting season. This was done in response to information from the local government that another long drought would hit the area in early 2000. This change, however, seems to be temporary.

Hunting, Fishing, and Gathering

Poti (a bladed bamboo device that automatically stabs animals when touched) is not allowed in an area where intensive activities occur, but it can be set around one's own rice field. In this case a recognized sign should be used to remind other people of the danger.

Every member has free access to rivers and creeks and thus to fishing areas. Fishing is done in rivers and creeks. There are some norms in fishing. Fishing by tuba (*nua'*), a stupefying drug taken from a plant, should not be done frequently in the same place. *Nua'* in big river or lake should involve people from the whole village, or even other villages. *Nua'* in a small creek is allowed for small number of individuals or households. But the practitioner should inform people downriver about their activities, because the *tua'* may contaminate the water they consume. *Nyiur* (fishing by scoop net) is allowed at any time in a small creek. But the practitioner should inform people downriver who may be affected, because the activity may muddy the river. Since the practice of these ways of fishing is rare, the author could not verify conformity between the norms and reality.

Catching fish by electrocution and chemical poison is not allowed. But some people simply ignore the rule. A Banjarese accidentally killed himself by electric current in 1999 while catching fish by electrocution.

Woodcutting

Cutting timber in the past was merely for house construction and canoe building. All community members are allowed to cut any trees, except trees that have been claimed by other people. Nowadays trees are cut mostly for exchange, and competition over the trees is high and involves outsiders, particularly because of the intervention from outside. Hence traditional claims over trees are no longer effective, except claims over honey trees.

4. Evaluation of Participation

Some points of evaluation on the culture and the forest, which are relevant to the discussion on participation, can be listed as follows:

1. A distinction between loose norms (village rights) and strict norms (household and individual rights) is very important, because it may have serious implications on how the community is organized, as well as on the exploitation of resources.
2. Traditional rights are under serious threat from outside and cannot be effectively enforced.
3. Even in areas (i.e., primary forest) which not to be under ownership, a system of ownership exists in claims over trees and other resources. It may have functioned as an effective measure of conservation in the past (traditionally), but is also under threat.
4. Some norms in subsistence activities reflect the following functions: minimizing destruction caused by pests, avoiding conflict among members, avoiding forest fires, and dynamic adaptation.
5. Norms on hunting, fishing, and gathering reflect concerns for the environment (ecological concerns) and human beings (social concerns). These can be good bases for participation.
6. Traditional norms on woodcutting cannot be effectively enforced in commercial woodcutting activities. New rules need to be developed as the basis of participatory forest management.

LOCAL PARTICIPATION: CONSTRAINTS AND COUNTERMEASURES

In this section the author evaluates the constraints for community participation in the management of forest and analyzes the need for countermeasures. For this purpose, the nature of forest management and the role of local people are analyzed.

1. Actors and Activities

Forest-related activities (FRA) are swidden agriculture, woodcutting, rattan forestry, tree forestry, hunting, gathering, and fishing. These activities are done either by individuals, households, or occasional groups. Table 3 shows that swidden agriculture, rattan forestry, and tree forestry require group involvement. The group has traditionally been the household. Rattan forestry and tree forestry can also be done by individuals, particularly in harvesting. Hunting, fishing, and gathering are intrinsically individual activities, because energy required is relatively little. But fishing may need group activity, either by occasional group or household, particularly in the use of *nua'*. Occasional groups appeared only recently in swidden agriculture, during the economic crisis in which an aid agency required the people to make collective farms, thus requiring the form a group.

The identification of the actors reveals that there is no community-wide forestry activity. Individuals and households carry out most activities. This fact indicates that in reality the responsibility for forest management and sustainability are on the shoulders of individuals and small social units called households, but occasionally on the shoulders of a group as well.

2. Management Problems: Constraining Conditions

Observation of actors and activities reveals the basic problem of local forest management in terms of participation. Local forest management should involve participation of the whole or at least the majority of adult members of the community, but the chance for such participation is low because of the following constraints.

First, the community is not well organized: both village government and government-imposed community organizations do not function well in organizing the villagers. This means the process of decision-making hardly represents the aspirations of the whole community. This is the reason why there was a weak resistance against external pressures. Decisions whether to lose or to retain the forest were in the hands of each individual household. Community-wide resistance to threats was not evident. This situation will make it difficult to have a community-wide forestry program.

That is also the reason why collaboration at the community level is loose. This situation too might make it difficult to develop any form of collective forestry program. A Catholic priest in the sub-district town of Lambing even scornfully said, "There is no collaboration in Benuaq society." The statement is definitely untrue. But it is true that the collaboration is weak. Table 4 shows the need for and the actual collaborative work in certain forest-related activities. Only swidden agriculture has high needs for collaborative work. Collaboration is high at the kinship level, but low at the group and community level. Woodcutting has a medium need for collaboration, and the collaboration is more at the kinship level. Other activities require little collaboration.

The absence of strong leadership that accommodates the community aspirations is a serious hindrance to have any activities that require involvement or coordination of the whole or a major number of villagers. There is no leadership, either formal or informal, that can accommodate the people's aspiration. The leader makes decisions with minimum participation from the commoners.

3. Countermeasures

What are the local people able to do, or unable to do, in order to cope with the constraints to participatory forest management? This question is to be answered in this section.

Based on the social, economic, and cultural analysis, some conditions—which can be called enabling conditions—might enable the people to take responsibility in forest management. These are:

1. Kinship is still a useful basis for collaborative work within the community, though it is hardly effective for organizing the whole community, because not all community members are linked to each other by kinship ties. Kinship can be used as starting point to organize the people.

2. The importance of swidden agriculture and rattan forestry for household income, as well as actual access to and control over resources through hunting, fishing, gathering, and rattan forestry, can function as important motivation for the people to participate in forest management.
3. As mentioned previously, traditional norms are basically concerned with the ecological and social environments. These norms can be considered to be useful local wisdom to encourage local accountability.

Since the lack of leadership is one of the basic weaknesses in the community, it will be difficult for the people to deal with the constraints themselves. Hence external intervention appears to be necessary. However, if we analyze the need for external intervention based on the necessity and scope of collaborative work (Table 4), the amount of intervention needed seems to be low and less necessary. That is because the significance of intervention is based on the separate categories of forest-related activities. However, the intervention is highly necessary if seen from the perspective of participation of the whole community.

Thus, there is a need to strengthen the village leadership in order to be able to strengthen cooperation among community members. Village leadership based on the Village Government Law of 1979 has shown serious weaknesses. As explained previously, village leaders tended to serve government interests rather than villagers' aspirations. Orientation to serving the government should be minimized and serving the members should be maximized. Non-governmental organizations (NGOs) made efforts to organize and unite the people during the conflict that occurred with the mining company. However, the NGOs gave up owing to the lack of support from the majority of community members. If greater community organizing becomes necessary, the role of NGOs will be important.

There is also a need to strengthen the norms related to village rights, particularly the rights to natural forest. This can be achieved by giving clearer status to the village territory. For this purpose, village boundaries should be defined (by mapping), followed by formal recognition by the government authorities.³

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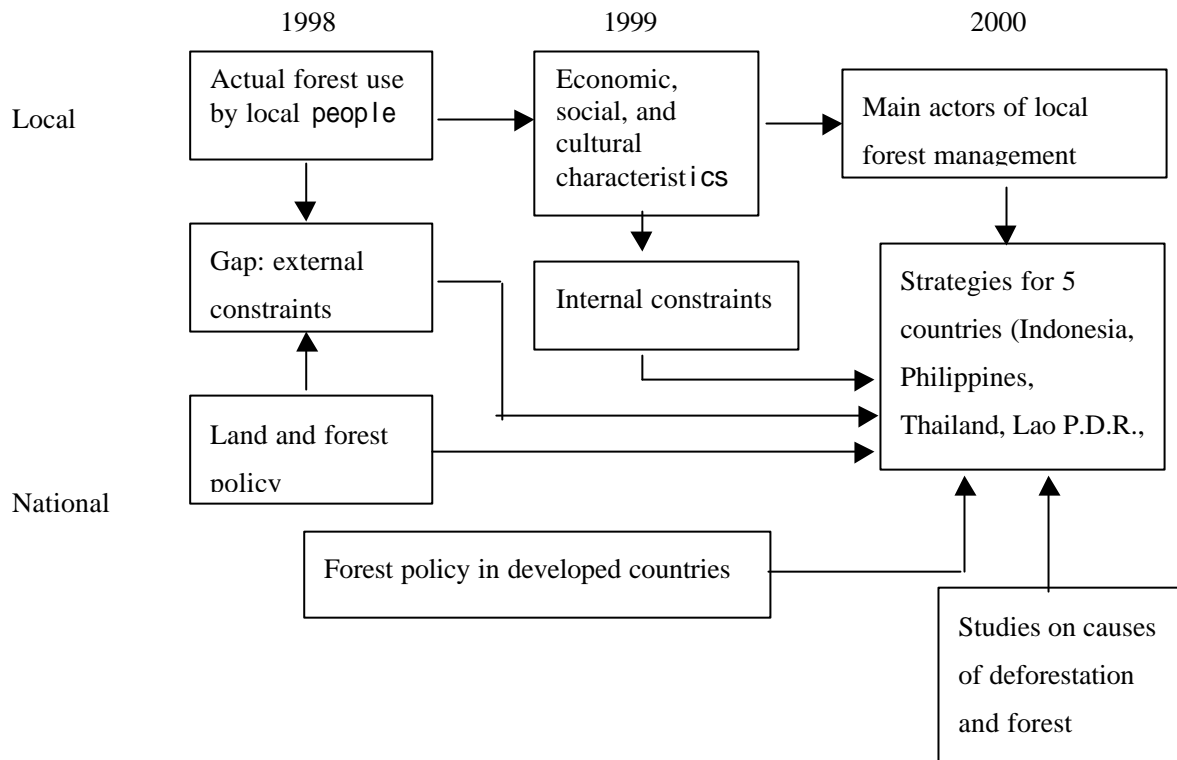
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³ The process to achieve the recognition might be very long and difficult because there is weak provision in national laws.

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FIGURES AND TABLES

Figure 1. IGES' procedural framework for developing country conservation strategy from the perspective of local participation.



Source: Simplified after Inoue 2000c .

Figure 2. Research site in East Kalimantan

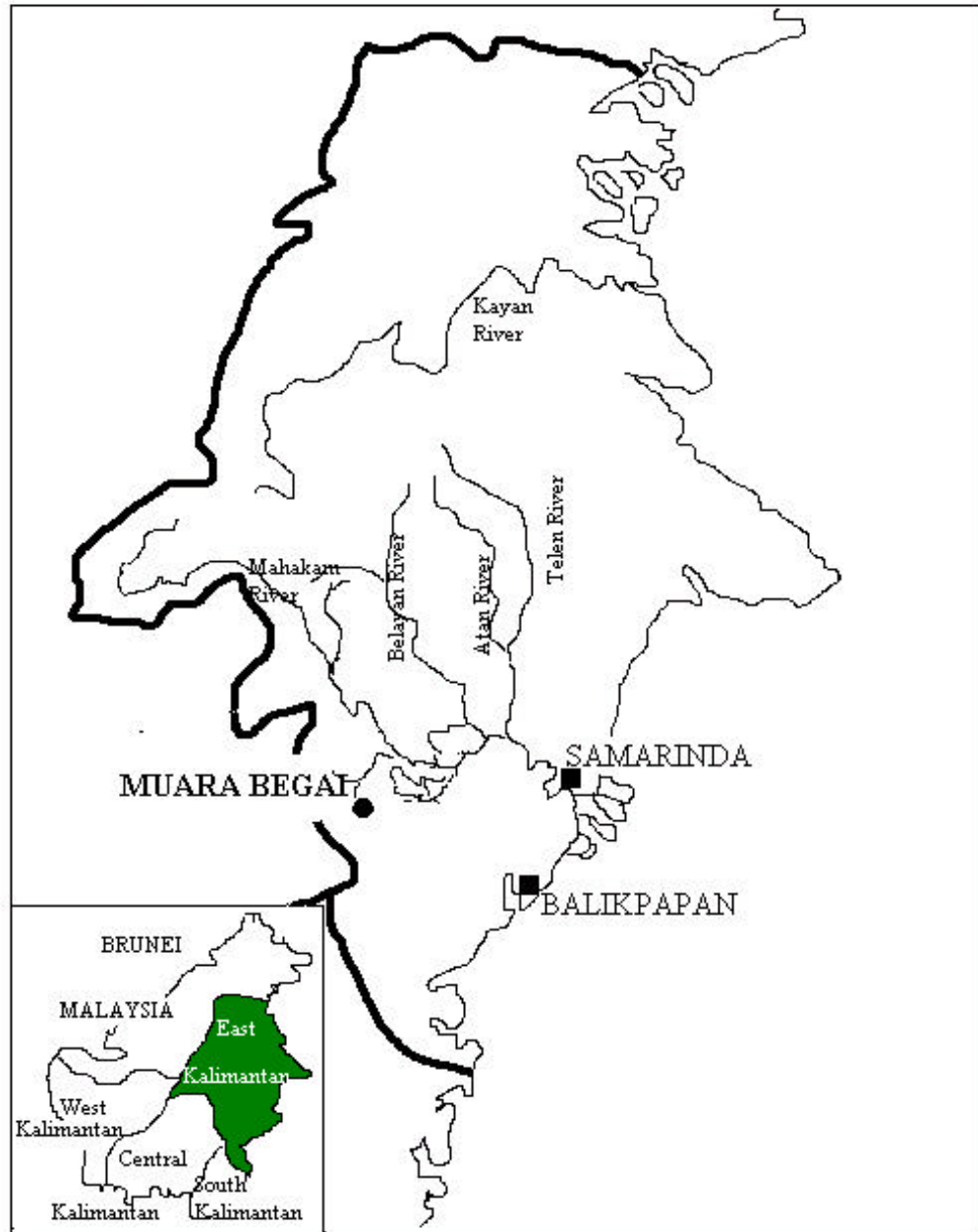


Figure 3. Analytical framework for developing local forest management strategy

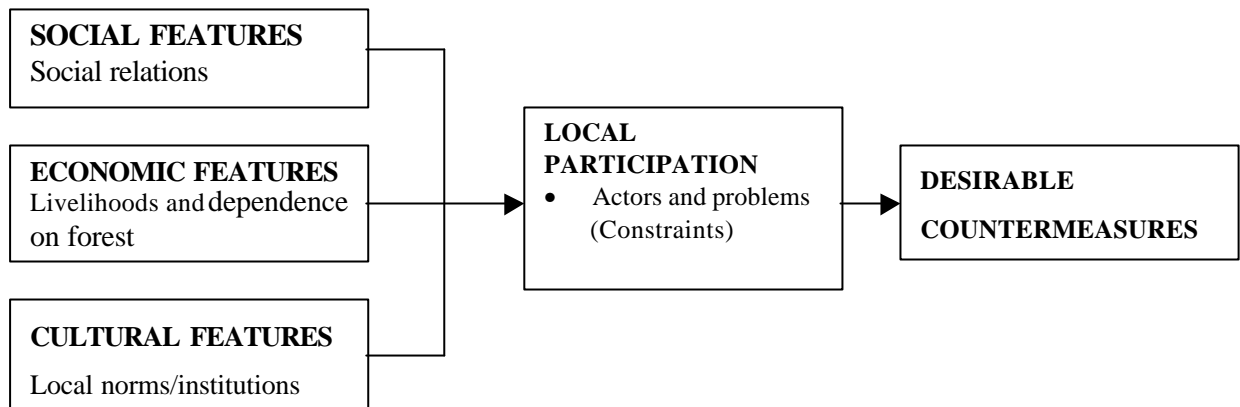


Figure 4. Organizational structure of the village government of Muara Begai based on VGL/1979

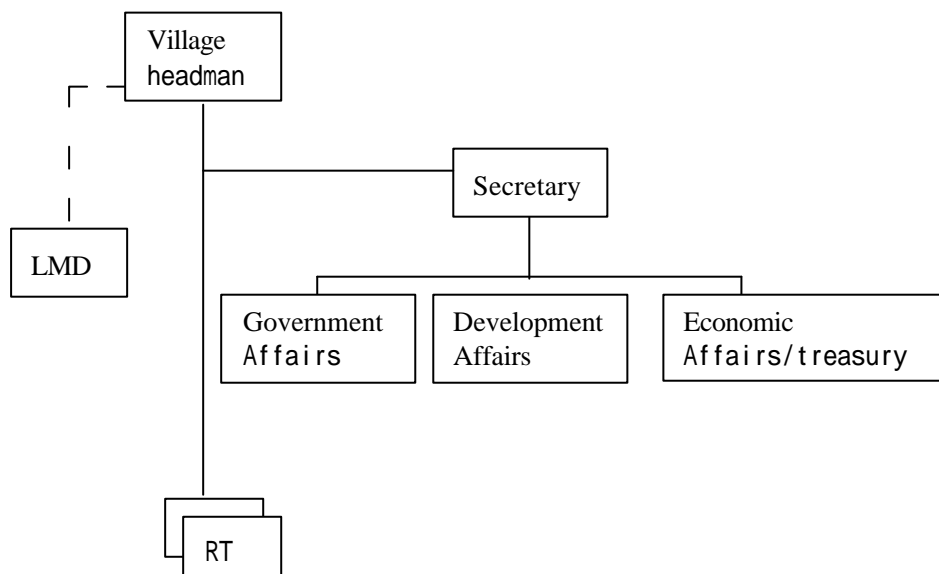
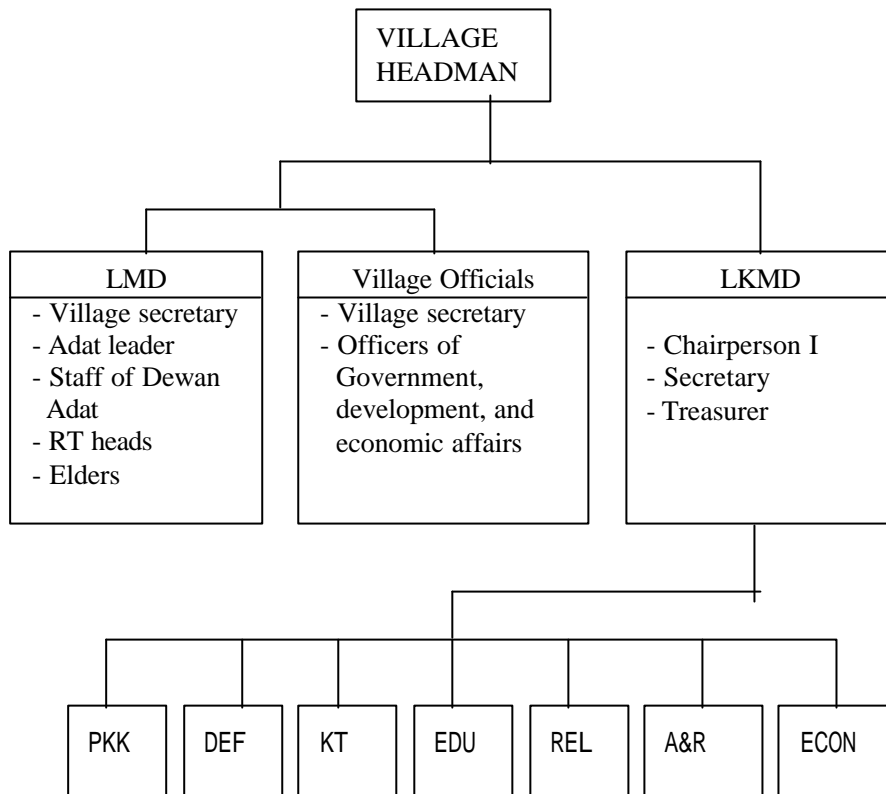


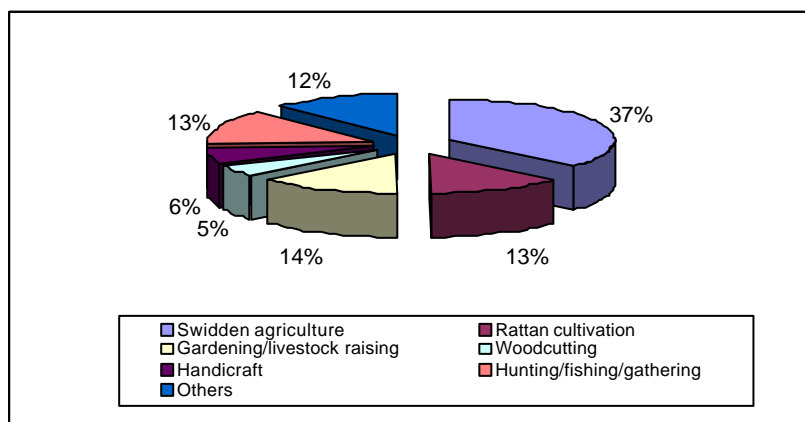
Figure 5. Structural power of the village headman in Muara Begai



Legend:

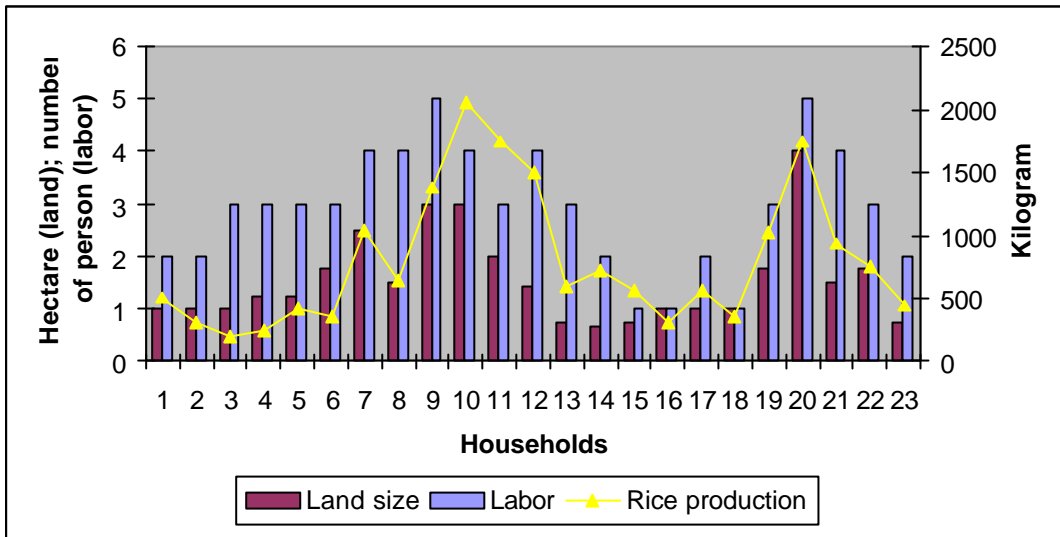
LKMD: Lembaga Ketahanan Masyarakat Desa (Village resilience organization); PKK: Pendidikan Kesejahteraan Keluarga (Family welfare education); DEF: Defense; KT: Karang Taruna (Youth group); EDU: Education; REL: Religious group; A&R: Arts and Culture; ECON: Economic group.

Figure 6. Percentage of time spent on a number of work activities showing relative values of each category.



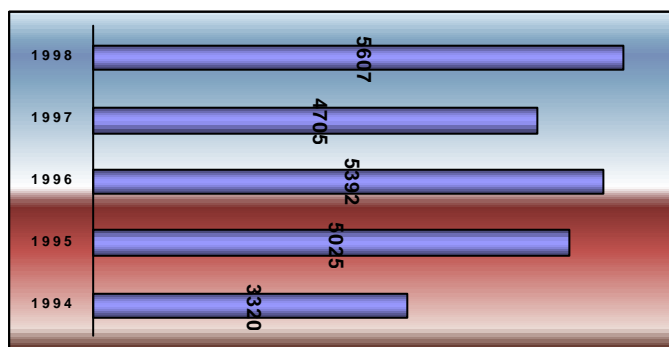
Source: Interviews

Figure 7. Comparison of land size, number of laborers, and production in swidden agriculture (1996-1997)



Source: Interviews

Figure 8. Production of rattan (in kilogram) by selected households within 5 years (1994-1998)



Source: interview

Table 1. Comparison of the degrees of forest products collection by households of each SES category

Forest products	SES		
	High	Medium	Low
Wood	80	68	74
Bamboo	60	39	50
Rattan	80	80	80
Pandan	15	33	34
Resin	12	13	16
Medicinal plants	42	42	56
Honey	5	11	11
Coffee	3	11	7
Durian	35	33	31
Jackfruits	17	33	34
Sugar palm	22	23	37
Sprouts	30	36	51
Fruits	30	49	43
Birds	17	11	11
Fish	60	54	60
Game animals	37	46	29
Spice plants	37	43	53
Mango	32	30	34

Source: Interviews

Note: Numbers indicate the degree of collection; high = high degree.

Table 2. The price of rattan sold in Muara Begai according to its variety as of October 1999

Rattan variety	Price	Unit
Sega/soka' (<i>calamus caesius</i>)	500	kg/fresh
Jahab/jahab (<i>calamus trachycoleus</i>)	300	kg/fresh
Pulut merah/jepukng (<i>daemonorops crinita</i>)	3,500	kg/fresh
Pelas (<i>alamus sp</i>)	10,000	kg/dry
	1500	kg/fresh
	1800	kg/dry

Source: Interviews

Table 3. Main actors in forest-related procurement activities.

Forest-related activity	Community	Occasional Group	Household	Individual
Swidden agriculture		▲	●	▲
Woodcutting		▲		▲
Rattan forestry			●	●
Tree forestry			●	●
Hunting				●
Fishing		▲	▲	●
Gathering				●

Legend: ● Regular (pattern) ▲ Occasional

Table 4. Necessity and scope of collaborative work in forest-related procurement activities.

Forest-related activities	Need for collaborative work	Scope of collaborative work			Significance of external intervention
		Community	Group	Kinship	
Swidden agriculture	●	▲	▲	●	▲
Woodcutting	■		▲	●	▲
Rattan forestry	▲		▲	▲	▲
Tree forestry	▲			▲	▲
Hunting				▲	▲
Fishing	▲	▲	▲	▲	▲
Gathering					

Legend: ● High ■ Medium ▲ Low

**TOWARDS 'GARDENIZATION'--
An Examination of the Potential for Participatory Forest Management
in Windunegara Village, Banyumas Regency, Central Java**

Yosei OIKAWA¹

1. Introduction

The aim of this paper is to examine the potential for participatory forest management on the island of Java through a case study in Windunegara village, Wangon subdistrict, Banyumas regency, in the southwestern part of Central Java, where problems of forest management related to the local people have occurred. In the case study, I would like to explore the economic, social, and cultural factors concerning participatory forest management to help identify solutions to the problems. Materials for the case study were collected in July and August 1994 (Oikawa 1998), December 1998 and January 1999 (Oikawa 1999 and 2000), and January 2000.

2. Problems of Forest Management Related to Local People in Java

2-1. Problems: Illegal Logging and Illegal Cultivation

Before describing the case study, I would like to give an overview of the current major problems of forest management related to the local people living near forests. This paper will not focus on the forest structure managed by the state forestry corporation (*Perum Perhutani*), or the bureaucratic forest management regime itself.² Rather, the main focus is on the local peoples' activities, which have been regarded as "illegal" by the government.

There are two major problems with forest management on the island of Java, i.e., illegal logging and illegal cultivation by local people. In order to solve the problems, various trials of participatory forest management, such as social forestry or community forestry program, have been carried out in and around the state forests (*Perum Perhutani* 1996). Those major problems, however, are still unresolved.

2-1-1. Illegal Logging

Since the Asian economic crisis in 1997, illegal logging and timber theft in the state forests has increased drastically. As local people increasingly plunder agricultural, forestry, and fishery commodities from plantations, forests, and nurseries, *penjarahan*, "plundering" in Indonesian, has been widely covered in the media. Although it has been a major problem in forest management in Java before (Peluso 1992: 147-149), the amount of damage in terms of the number of stolen trees jumped during the crisis. The Indonesian newspaper, *Kompas*, on February 9, 2000 reported that two million trees in the state forests in Java were stolen or illegally cut in 1999, four times the number in 1997. Another newspaper, *Suara Pembaruan*, says that the damage in Central Java in the fiscal year of 1998 reached 1.85 million trees or more than 30 billion rupiah (*Suara Pembaruan*, 3 Dec. 1999). Sunderlin (1999) also reports that illegal logging has boomed during the crisis.

When I visited the state teak forest in the Jeruk Legi subdistrict of Cilacap regency in December 1998, illegal logging or timber theft seemed to be carried out by groups of people (Oikawa 2000). The problem was that forest guards could not control the local people's illegal activities even inside the forests. If the forest guards were to take strong measures, local people may pour into and attack the branch offices of *Perum Perhutani* as actually happened in Wangon on February 2, 1996 and June 2, 1998 (*Kompas*, 3 Februari 1996 and 3 Juni 1998).

2-1-2. Illegal Cultivation

Conflicts on the borders between forests and villagers' lands have continued since the Dutch colonial era. The recent economic crisis and political changes have prompted illegal cultivation in state forests, especially in forests adjacent to villages.

According to my latest observations in the Banyumas and Purbalingga regencies in the province of Central Java, the state forests bordering villages are often cultivated by the villagers. On the slopes

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² Overharvesting of teak is, for example, pointed out by Peluso (1993).

of the border zone between state forests and villagers' agricultural lands, *palawija* crops (maize, cassava, groundnut, etc.) are planted, and timber trees (merkusii pine or teak) sparsely remained among these crops. It is easy to imagine the villagers illegally cultivating the state forest land to gain food for subsistence and sale. As I reported in the IGES Interim Report 1998, landless or poor class households who can not obtain enough agricultural production from their lands may cultivate in the state forest lands. Some cut trees for fuel and others cultivate under trees. Such landscape changes of the forest border zone are created by local people and observed even from main roads (provincial and regency roads) near Windunegara (see next section), Purwojati in Banyumas regency, and Bobotsari-Karangreja in the Purbalingga regency.

Photo 1 shows the forest border zone cultivated by local people (between Bobotsari and Karangreja, Purbalingga regency).

2-2. Solutions: Tightening Up Forest Guarding and Participatory Approaches

2-2-1. Tightening up the forest guard with people's participation

What are the possible solutions to the problems above? A basic solution to large-scale illegal logging is to tighten up the forest guard. The difficulty is that practical forest guards of each jurisdiction are very limited in number. Each jurisdiction is also deficient in facilities for patrolling. It is sometimes said that illegal logging and transporting are supported by some forest guards or other local officials like the police, military, and so on. We need to think about who should be involved in forest management under such conditions.

The Indonesian Ministry of Forestry and Estates has recently started to cooperate with Islamic schools (*Pondok Pesantren*) in East Java in order to develop local economies with environmental conservation (*Kompas*, 26 Oktober 1999).³ This program may contribute to overcoming the difficulties above if the participants from Islamic schools successfully promote local peoples' participation into forest conservation. Here, non-foresters and non-officials, namely, Islamic leaders and local people are involved in forest management and hope to act as an alternative of the existing forest guard.⁴

2-2-2. Participatory approaches in Java

Following the theme, "Forests for People," proposed in the 8th World Forestry Congress held in 1978, *Perum Perhutani* has carried out many participatory approaches since 1982 (*Perum Perhutani* 1996, *Perum Perhutani* and the Ford Foundation 1995, Peluso 1993). The approaches have been developed as *Pembangunan Masyarakat Desa Hutan* (PMDH) or Forest Village Community Development since 1982, *Perhutanan Sosial* (Social Forestry) since 1986, and so on.

In "Forestry Statistics of Indonesia 1996/97," from Departemen Kehutanan 1997, three types of programs involving local people are categorized as follows. (Some terms used in the statistics may be inaccurately translated from Indonesian into English).

A. *Reboisasi* (Reforestation)

This is carried out in state forests but villagers living around the forests are usually employed as laborers.

B. *Penghijauan* (Afforestation)

Perum Perhutani and *Dinas Perhutanan dan Konservasi Tanah* (the Afforestation and Soil Conservation Service) have carried out various afforestation programs as follows:

a. *Pembuatan Kebun Bibit Desa* - Village Nursery

b. *Hutan Rakyat / Kebun Rakyat* - Community Forest Development

Here, *Hutan Rakyat* is the name of the program. The better and more generic translation of the term *hutan rakyat* is, however, "individual forest on private land" (Inoue 2000: p.305). More details on *hutan rakyat* are described in the next part.

c. *Usaha Pelestarian Sumberdaya Alam* (UPSA) - Pilot Project of Natural Resources

³ The Ministry of Transmigration also started to send Islamic teachers and students to transmigration sites to contribute to the prosperity and peace of transmigrants.

⁴ This idea follows the recent trend in participatory forest management as described in the book *Keepers of the Forest* (Poffenberger et al. 1990).

Conservation

This is a conservation program for private lands on hilly or mountainous areas with establishment of terrace and introduction of perennial crops.

d. Establishment of check dam, well, terrace, etc.

C. *Hutan Kemasyarakatan* - Community Forest

In the statistics, *hutan kemasyarakatan* is translated as “community forest” as is *hutan rakyat* (item B.b above). The *Hutan Kemasyarakatan* program, however, has different activities such as mangrove rehabilitation; mulberry plantation and silk production; and honey production using bees.

Thus, there are many government-oriented participatory programs. If we review these programs in the long-term, we shall understand that participatory forest management on the island of Java has shown some progress in terms of the theme, “Forests for People.” The problems, nevertheless, still remain as overviewed above. We must, therefore, explore more effective participatory approaches to solve the remaining problems.

In the next part, I would like to emphasize the importance and possibility of *hutan rakyat* in the broad sense as a key to solve the problems.

2-3. *Hutan Rakyat*

Hutan rakyat has different definitions.

As mentioned in (B.b) above, *Hutan Rakyat* as an afforestation program can be literally translated as community forest, but it does not mean the real community forest managed by a community. Since the owner or manager of *Hutan Rakyat* is generally an individual, a more adequate translation would be “individual forest on private land” (Inoue 2000). As shown in Table 1, it seems that this program has been successful in terms of the percentage in total land area in Java.

According to Zain (1997), the term, *hutan rakyat*, was derived from *hutan milik* (owned forest) in the Basic Forestry Law⁵ and recently became commonly used. Citing the law, the Ministry of Forestry defines *hutan rakyat* as “forest grown on the land with ownership or other rights.” The characteristics of *hutan rakyat* summarized by Zain (1997) are:

- a. Forest managed by the owner, other person, or corporation;
- b. Forest on privately-owned (or other) land, or based on the regulation of legislation;
- c. Forest which can be owned with approval of the Minister of Forestry.

These are institutional characteristics of *hutan rakyat* (*hutan milik*). What type of forest is included in *hutan rakyat*?

According to a booklet published by the Ministry of Forestry (Departemen Kehutanan 1995/96: p.5), the area of *hutan rakyat* is at least 0.25ha and the crown density is more than 50%, or the tree density of the first year is more than 500 trees. The booklet refers to the fact that *hutan rakyat* consisting of mahogany (*Swietenia* sp.), teak (*Tectona grandis*), sengon (*Paraserianthes falcataria*), para rubber (*Hevea brasiliensis*), sungkai (*Peronema canescens*), merkusii pine (*Pinus merkusii*), lamtoro gung (*Leucaena glauca*), akasia (*Acacia auriculiformis*), or cendana / sandalwood (*Santalum album*) have been established in various parts in Indonesia. When these tree species are planted in monoculture or polyculture, the stand forms *hutan rakyat murni* (pure individual forest). And when the trees are mixed-planted with field crops, the stand forms *hutan rakyat campuran* (mixed individual forest).

When we focus on tree components of existing land use types, both typical Javanese home gardens and mixed tree gardens apart from them are also regarded as *hutan rakyat* in the broad sense.⁶ Both are dominantly planted with trees on their private or individual lands. Simon (1999) has also used this term in the broad sense, including home gardens and other tree-oriented land uses. In fact, the residents in various parts of rural Java have established stands of sengon, teak, and other trees in their

⁵ In 1999, this basic law was renewed as the Law of the Republic of Indonesia Number 41 Year 1999 on Forestry.

⁶ As noted in the Interim Report 1998, tree-oriented land uses such as home gardens (*pekarangan*), part of dry-fields (*kebun*), and tree gardens (*tanah yang ditanami kayu-kayuan* and *hutan rakyat*) are well-developed in Banyumas regency (Oikawa 2000: p.168); the area covered by trees or tree crops in private lands amounts to more than one fourth of the regency.

home gardens and mixed gardens with or without governmental supports. Therefore, if we expand our scope of “forest management by villagers,” the management of this *hutan rakyat* in the broad sense is also included in participatory forest management. Because local people have established and managed various types of *hutan rakyat* for a long time, their skills and experiences would provide a potential for revising the existing participatory forest management in Java. Based on this idea, I will analyze and examine more concrete approaches through a case study in the next section.

3. Case Study in Windunegara village, Wangon subdistrict

In this section, a field case study continued from the former studies (Oikawa 1998, 1999 and 2000) is described and discussed. The study site is Windunegara village, Wangon subdistrict, Banyumas regency in the province of Central Java.

Based on the second visit to the village in 1998-99, I temporarily concluded that *Tumpang Sari* (*taungya*) Afforestation, which provides participants cultivable lands for a few years, cannot entirely solve the problems of illegal cultivation and illegal cutting in the long term, since villagers still need cultivable lands and firewood for coconut palm sugar making (Oikawa 1999). We need to review the external and internal constraints on participatory forest management, and revise the existing *Tumpang Sari* Afforestation. Here, I would like to focus on the Karangkamal hamlet in this village.

3-1. Economic aspects

3-1-1. Livelihoods (income source, working opportunities)

In the Karangkamal hamlet, paddy cultivation and coconut palm sugar making are major livelihoods. Households that cultivate paddy fields number 17 households (34%) of the 50 sample households that were randomly selected from 78 households in the hamlet (see Table 2). Fourteen households (28%) combine coconut palm sugar making with paddy cultivation.

For the younger generation (especially males in their teens and twenties), however, working in Jakarta is the major livelihood. As shown in Table 3, the younger generation tends to choose working in Jakarta rather than tapping the flower sap of coconut palm in the village. For housewives in the hamlet, cooking the flower sap collected by male tappers is important work.

3-1-2. Land holding

As reported in the Interim report 1998, the hamlet is located on the narrow basin between the Tajum River and the hills behind the hamlet (Oikawa 2000). The topographical characteristics are reflected in land use and landholding in the hamlet. Figure 1 shows the landholding of each household by land use consisting of *pekarangan* (home garden), *kebun* (mixed garden mainly planted with perennial crops), *péréng* (mixed garden on the slope), and *tegalan* (upland field mainly planted with annual crops). As shown in the figure, each holding size of most households (90%) is less than 0.5 hectare. Such small-scale landholding seems to restrict the residents' livelihoods. Many households are engaged in coconut palm sugar making in home gardens. Landless or small-scale land-holders whose cultivable lands are extremely small are engaged in non-agricultural works in or out of the village, or they migrate to Jakarta.

Figure 1. Landholding of each household by land use

3-1-3. Other economic factors

There is no bank near the village. When the residents need funds to buy chemical fertilizer or seeds of high yielding varieties for paddy cultivation, they can obtain a loan through the agricultural loan program called *Kredit Usaha Tani* (KUT) operated by Bank Rakyat Indonesia (Indonesian People's Bank). Many farmers, however, individually buy fertilizer and other necessities in the market in Ajibarang or Wangon.

3-2. Social aspects

3-2-1. *Gotong-royong*

Gotong-royong is a Javanese word which means cooperation among neighbors. Maintenance of roadsides or irrigation, rice transplanting and harvest, and house construction are usually carried out in this form of cooperation.

3-2-2. Farmers' groups (*kelompok tani*)

On the island of Java, each administrative village or hamlet has a farmers' group called *kelompok tani*. A farmers' group is divided into some sub-groups or sub-teams for receiving agricultural extensions and for carrying out agricultural activities.

In Karangkamal, the farmers' group also plays a part as an afforestation group or forest farmers' group in the state forest lands behind the hamlet.

There is also a women/family group as a part of the PKK (*Pembinaan Kesejahteraan Keluarga* or Family Welfare Movement)⁷ in the hamlet, but it does not directly play a role for agriculture and forestry.

3-2-3. Construction of a bridge crossing the Tajum River

In August 1999, the residents of Karangkamal and the neighboring hamlets located on the east bank of the Tajum River cooperated in repairing the bridge which had been once damaged by a flood.

Before repairing the bridge, the residents (sometimes with bicycles or motorcycles) had to cross the river by bamboo raft at the crossing points in and near the hamlet. Now, they can cross the bridge by walk, motorcycle, and *becak* (pedicab). The bridge was repaired through donations from the relatively rich residents.

3-2-4. Social aspects of illegal cultivation

On the hillsides of the state forest on the west of Windunegara main hamlet, the residents have illegally cultivated since the economic crisis. I would like to emphasize here that the residents have orderly divided the forest lands into parcels of upland fields, even though they are "illegal" cultivators. According to the head of the KUD, the village unit cooperative (*Koperasi Unit Desa*), in Wangon, the cultivators belong to the relatively poor class in the village, and have no leader who takes an active role in resistance to *Perum Perhutani* or the state.

Here, the number of standing pine trees have been gradually decreasing. This seems to be caused by those who need firewood for cooking coconut palm sugar. Even though many residents know that some of them illegally cut trees in the state forests, no one informs the police or *Perum Perhutani*.

3-2-5. Norms for organizing a group

Like other villages in Java, this village is also densely populated. Even under such conditions, the residents live without serious conflicts. They have developed and maintained *gotong-royong* (cooperation) and other social relationships for agricultural production, such as sharecropping, lease, and employment.

3-3. Cultural aspects

3-3-1. How the residents view the state forests:

Although it is difficult to understand the residents' minds in my field works, they probably regard the state forest as a place for collecting firewood and fodder as they have done up to now. When they need additional production, they intend to cultivate the forest land. Since the economic crisis, the residents in Windunegara main hamlet and Karangkamal hamlet have used the forest land for agricultural production.

On private lands such as home gardens and mixed gardens on the slopes, they usually plant not only annuals but also perennials. In the state forests, both in the *tumpangsari* plots and in the illegally-cultivated lands, however, they plant few perennials, except for banana. This means that they are temporarily cultivating state lands for income or food that they can obtain in the short term.

3-3-2. Farmers' views toward trees

Many farmers whom I have met in rural Java seem to feel that they must take care of trees planted. In some cases, they can not cut down the trees immediately even though they are not productive.

In Wangon subdistrict including Windunegara village, local people prefer to use teak, merkusii

⁷PKK has various activities such as maintaining a clean village environment. For details, see Soemardjan and Breaseale (1993: 48-60).

pine, and kemelanjangan (*Leucaena leucocephala*) for cooking coconut palm sugar.

3-3-3. Garden culture including trees

Here, "garden culture"⁸ means agriculture in garden plots. Javanese farmers have developed garden culture on their agricultural lands, especially on the upland fields. They have cultivated annual crops with perennial crops, especially tree crops, by mixed planting. The plots, therefore, form mixed gardens which have multi-layered canopies.

Recently, sengon (*Paraserianthes falcataria*), a fast-growing timber/pulp species, has become an important commodity for farmers on the island of Java (Oikawa 1996 and 1997). The farmers, who cultivate sedentarily upland fields, have introduced this tree species by mixed-planting with their agricultural crops. Not all farmers can grow sengon on their plots because of competition with other crops. On large areas of upland fields, however, they have successfully established sengon stands by combining them with perennial crops such as banana, coffee, salak (*Zalacca edulis*), clove (*Syzygium aromaticum*), and coconut palm. As a result, they have established mixed gardens including sengon. In Windhunegara village, there are some pure stands of sengon. In most garden plots in the village, however, coconut palm is dominant, and sengon is only one of the components of the garden plots.

3-4. Constraints on participatory forest management

3-4-1. External Constraints

What are the external constraints on participatory forest management in the village?

Nanang (2000) has clarified that the Indonesian state, with its policy and legal framework, has constrained local people's participation in forest management. Based on the case study, I refer to other constraints existing in Java.

First, it must be noted that the working opportunities in Jakarta have strongly affected the migration of the young generation between Jakarta and rural areas. The recent economic crisis caused a rise in bankruptcies; young migrant workers had lost their jobs in Jakarta and returned to their home villages. Although such young workers may be illegal loggers or illegal cultivators, at the same time, we can also regard them as potential actors in participatory forest management.

Second, market trends affected the residents' farming system. For example, the rise of sengon wood prices promoted the extension of sengon planting and the establishment of tree garden plots on their farm land by the residents. If the price falls, this tree species will probably be replaced by another annual crop that is more profitable and harvested in a short period. Then, the tree garden may be converted into upland field.

Third, the attitude of the State Forestry Corporation (*Perum Perhutani*) towards local people is still conservative. The management schemes should be adapted to local socioeconomic and cultural characteristics in the field level, but are not sufficiently developed yet. In case of the extension programs of sengon on farmland, *Perum Perhutani* and local governments have not given sufficient technical support to farmers yet (Oikawa 1996).

3-4-2. Internal Constraints

The economic situation seems to be the most serious and basic constraint on participatory forest management in the Windunegara village among three aspects described above. Small-scale landholding, limited working opportunities, and firewood consumption for making coconut sugar would be the main constraints, and these are complicated.

In recent years, while the residents in Karangkamal hamlet have legally cultivated in the state land (through the *Tumpang Sari* Afforestation Program), those in the Windunegara main hamlet have illegally cultivated state land (without the program). Both cases indicate that the residents, especially landless and small-scale holders, still need more cultivable land for sustaining their livelihood. Therefore, coconut palm sugar-making has been a major way to sustain their livelihoods. As long as they continue to make coconut palm sugar, however, they need large amounts of firewood. Thus, firewood collection by the residents damages the state forests adjacent to their hamlets. If they use

⁸ I adopt this term from Pelzer[1945]. "Garden culture on land surrounding peasant houses in Java is devoted to a large variety crops, ranging from fruit trees to plants that are not required in large quantities but only to supplement the diet and add flavor to the daily rice meal." [Pelzer 1945: p.43]

kerosene as an alternative to firewood, illegal cutting caused by firewood collection may slow down. The residents, however, do not intend to use kerosene without more income.

3-4-3. Future constraints on *Tumpangsari* Afforestation in Karangkamal hamlet

Since 1997, the residents of Karangkamal hamlet have participated in *tumpangsari* teak afforestation. According to the hamlet head of Karangkamal, most of the participants belong to the middle-aged generation. As shown in Table 3, tapping flower sap of coconut palm is also carried out by the middle-aged generation. Younger residents prefer to work in Jakarta or other cities. In the future: 1) the number of residents engaged in coconut palm sugar making will decrease as the aged generation retire from the work; 2) firewood consumption will decrease as palm sugar-making declines; and 3) population pressures to cultivate state land will decrease as more of the young generation leave the agricultural sector and the aged generation retires. These trends may be preferable for the establishment of teak stands, which takes a long time.

The field situation in Karangkamal is, however, different. As teak trees grow up on the afforestation site, the canopy closes (Photo 2). Participants will be unable to cultivate annual crops on the site and will have to leave in the near future. Then, what will the participants do? They may clear the stand to obtain firewood or cultivable land. How can they continue to harvest from their plots without disturbing planted teaks? In order not to repeat illegal cutting and illegal cultivation, what type of participation and designs of forest management are more effective?

3-5. Who will be involved with participatory forest management?

In order to examine the preferable participatory forest management in Windunegara village, first, let us focus on the unit for management.

In this village, the household unit plays an important role for forest management in the *tumpangsari* afforestation site on state land, as well as in the tree gardens (home gardens, mixed gardens, mixed gardens on the slopes) on private land. Based on the household unit, the residents would be able to smoothly modify the existing sharecropping and lease of paddy and tree crops for the utilization of forest land. At the same time, in order to negotiate with *Perum Perhutani* or the local government, there must be a forest users' group. Generally in Java, existing farmers' groups (*kelompok tani*) and village unit cooperatives (KUD) seem to have the potential to arrange various contracts with *Perum Perhutani* on cropping of trees or share tree-growing (Oikawa 1999), lease of state land for agricultural production, and cooperation for conservation, etc. The forest users' group also hopes to develop their roles for arrangement of plots, provision of seedlings, processing and marketing of forest products, etc.

As I have mentioned in 2-2, the residents in rural Java have developed garden culture, or *hutan rakyat* in the broad sense, such as home gardens and tree gardens. When we focus on the evolution of such land uses including trees, we are able to understand the basis and more details of land use change supported by each household, such as 'gardenization,' the establishment and development of tree-oriented land use. In order to revise or create participatory forest management suitable in various areas on the island of Java, the dynamics of land use toward 'gardenization' in each area would be utilized by the residents as excellent gardeners.

Based on their skill for tree gardening, the participants might be able to create various types of forest management such as the long term management based on a contract of shared-tree-growing; mixed stand management including tree crops, fast-growing timber species, and shrubs; and matured stands surrounding small plots for annual crop cultivation.

4. Conclusion

Focusing on the case study in Windunegara village, I examined constraints on participatory forest management on the island of Java. In the village, illegal cutting will be repeated as long as villagers consume large amounts of firewood for making coconut palm sugar. In the future, however, the residents' main income source may shift from coconut palm sugar-making to other livelihoods, such as upland cultivation (in participatory plots, if established) and non-agricultural works (if created). Provided that *Perum Perhutani* gives the residents usufruct (the right to use) of the state forests, they would be able to develop tree-oriented land uses or *hutan rakyat* by mixed planting of perennial crops as they have done on their individual lands.

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Table 1. Land utilization design on forest land by agreement and total area of implemented Community Forest Development (*Hutan Rakyat*) (in hectares)

Total Land	Forest Land	Forest %	Implemented Hutan Rakyat 1992/93-96/97		
	(A)	(B)	(B/A)	(C)	(C/A)
West Java	4,689,001	1,013,825	21.62%	62426	(1.33%)
Central Java	3,738,000	665,976	17.82%	71984	(1.93%)
East Java	4,791,970	1,427,217	29.78%	53201	(1.11%)
Total Java	13,218,971	3,107,017	23.50%	187611	(1.42%)

(Source: Forestry Statistics of Indonesia 1996/1997)

Table 2. Livelihoods of heads of household

Main occupation	Number of heads of household
Farmer	34
Paddy+sugar making[tapper]	11
Paddy+sugar making[non-tapper]	3
Upland*+sugar making[tapper]	14
Upland*+sugar making[non-tapper]	3
Paddy + upland*	3
Laborer in the village	4
Commuter / Employee	3
Migrant laborer	7
Small shop manager / Peddler	2
Total	50
(Female heads)	(4)

* "Upland" includes home gardens (*pekarangan* and *kebun*) and mixed gardens on the slope (*péréng*).

Source: Household survey in July, 1994 (Oikawa 1998).

Table 3. Number of workers by sex and age class

Age class	10-	20-	30-	40-	50-	60-	Total
Tapper (male only)	0	2	8	9	3	4	26
Working in / near village							
Male	1	5	3	1	0	0	10
Female	1	1	0	0	0	0	2
Working in Jakarta							
Male	4	1	4	1	0	0	28
Female	10	1	1	0	0	0	12

Source: Household survey (50 households) in July, 1994.

PARTICIPATORY FOREST RESOURCE MANAGEMENT: A CASE STUDY IN BANAUE, IFUGAO IN THE PHILIPPINES

Atsuko HAYAMA¹

Introduction

The province of Ifugao is one of six provinces composing the Cordillera Administrative Region in the Cordillera Mountains in north-central part of Luzon. It is said that deforestation in the Cordillera Mountains was accelerated by mining, logging and commercial vegetable production, which started during the American period [Sajise and Omegan 1990: 59]. Upland Ifugao², however, had not been disturbed by such development pressures due to the absence of such attractive natural resources as mines and pine forests [Klock 1995: 6]. Unlike most upland areas in the Philippines, where deforestation is obvious, forests managed by local residents in the municipality of Banaue, Ifugao are especially noteworthy. This forest management system has been examined in terms of forest resource rights and use through a case study in *barangay* (smallest administrative unit in the Philippines) Poitan, Banaue [Hayama 1999].

Forests and rice terraces are incorporated features of landscapes in Banaue.³ Securing a water supply has been regarded as crucial for rice production. Watershed forests in the mountain ridges are customarily designated by local residents as community forests (*inalahan*), in which swidden (slash-and-burn) agriculture is prohibited in the higher portion. Man-made forests, interspersed like a mosaic between the rice terraces, are private forests (*pinugo* or *muyong*), which also help conserve water for irrigation and protect against landslides and erosion.

For daily life, local residents are highly dependent on the forest resources. The community and private forests provide supplies of firewood, construction material, woodcarving materials and other natural resources such as wild animals. It is true, of course, that the degree of dependence on forest resources varies in accordance with income groups. Those households who use LP (liquefied petroleum) gas, for instance, rarely collect firewood. The relationship between the local residents and the forests is, nevertheless, not just economic, but can also be considered in cultural and social terms. It seems that local residents feel that they are only temporary owners of the private forests, which have been carefully managed by their ancestors, and they feel responsible for transferring the private forests to succeeding generations. This consciousness towards property is also observed in the rice terraces.

It is a recent phenomenon that many rice terraces have been abandoned due to water shortage caused by landslides in irrigation canals or slippage caused by earthworms. Instead of putting in labor on repairs, owners of such damaged rice terraces are inclined to choose other income generating activities such as woodcarving. Struggle for income generating activities is one crucial factor influencing their land-use practices.

This paper attempts to examine the internal constraints which affect participatory forest management by local residents through a case study in barangay Poitan, municipality of Banaue, Ifugao. It also examines active units facilitating forest management. Data for this study was collected in December 1998, January 1999 and January 2000. Interviews were done mostly with barangay residents in Poitan (as of December 1998, the total number of households was 259 with a population of 1,566 and 236 households were interviewed), municipal government officers in Banaue and government forest officers.

1 Economic Aspects

Three points can be enumerated in the economic activities of barangay Poitan: (1) Agricultural activity alone, rice production in particular, cannot sustain the residents. Despite the fact that rice terraces are the predominant landscape feature there, rice production is exclusively for home consumption. Its yield is only good for an average of three months, and commercial lowland rice is purchased for the rest of the year. (2) For

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² The eastern and southeastern parts of Ifugao are relatively flat or rolling lands. The rest, more than 80% of the land area of Ifugao, is mountainous [Provincial Planning and Development Office 1993: 18].

³ In central Banaue, swidden fields are no longer outstanding landscape features since the residents do not engage in sweet potato production in swidden fields, while in other barangays in Banaue, swidden fields are a prominent landscape feature along with rice terraces and forests. Whether or not residents are engaged in swidden farming in Banaue depends highly on the chances for non-agricultural income sources.

earning an income, many are engaged in woodcarving (for men) and handloom weaving and wooden-rattan handicrafts (for women). Recently, materials for woodcarving have become difficult to procure locally. (3) Many males and females in their 20s are working temporarily or permanently outside Banaue, where the males are mainly engaged in woodcarving and the females work as maids and agricultural laborers.

1-1 Rice production

Rice fields in barangay Poitan amount to some 130 ha, accounting for about 29 percent of the total land area of the barangay⁴ [Conklin 1980: 8]. About 83 percent of the rice fields are irrigated [CECAP 1999: 2]. Rice production is done only once a year, since their rice varieties (*javanica*) require a seven-month growing season.⁵

Despite stagnancy, rice production is the predominant agricultural activity. Among 236 households interviewed, those who own rice fields inside and outside barangay Poitan amounted to 153 households (64.8 percent).⁶ Out of 236 households, 207 (87.7 percent) cultivate rice fields as the owner, tenant and mortgagee.⁷

The average size of the rice fields operated by one household is estimated to be 0.3 ha.⁸ For most households, rice production does not suffice to furnish them for a whole year. Rice production, on the average, is good for only three months from July to September. Previously it was sweet potato [*Ipomoea batatas*] cultivated in swidden fields that supplemented insufficient rice production for the remaining nine months [Conklin op. cit.: 10], while at present it has been replaced by commercial lowland rice. The reason for the unpopularity of sweet potato production in swidden fields is not necessarily related to opportunity cost. Sweet potato production in the first year requires approximately 100-120 man-days for 0.3 ha (based on the study by Conklin [ibid.: 25]), which is an estimated size for nine months' consumption, while necessary amounts of commercial lowland rice for the same period can be purchased if a man works for approximately 100 days in woodcarving.⁹ For one, they prefer rice to sweet potato for their staple food. In addition, as those who engage in

⁴ Conklin obtained the land-use size with a planimeter on 1:5,000-scale map based on aerial photos on 1963 [1980: 8]. In barangay Poitan, elderly people mentioned that new rice fields have not been constructed since the late 1960s. Thus, I used Conklin's rice field data as the present land-use size.

⁵ Field preparation starts from September, when women cut dead rice stalks from the previous harvest and weeds in ponded fields and tread this decaying vegetation into the muddy soil. This activity is repeated several times to hamper new weed growth. Repairing and reshaping of dikes and embankment walls of the ponded fields by men follows in October and early November. Women are again busy in weeding in the wet fields, marginal slopes and sides of the terraces before seedbed preparation. Chemical fertilizer is not applied. A seedbed is prepared in a portion of a pond field in November and December. Before transplanting seedlings, men complete soil leveling, surfacing dikes and inundation of all fields with paddle spades. Usually some 10 to 12 weeks later (February and March), after laying panicles on top of the mud layer of seedbed, seedling transplanting is done by women. The first weeding is done mainly by women when weeds in the ponded fields begin to clog, tilling rice plants, usually about one to two months after transplanting. When maturing rice begins to head, the second weeding is done (also mainly by women) in the walls, dikes, embankments and sides of the terraces to prevent rodents from remaining in the vicinity of the ponded fields. July is the month for harvesting.

⁶ The most common way to acquire rice fields is through inheritance after marriage. The principles of inheritance of rice fields are (1) non-fragmentation of holdings, and (2) a weighted bilateral form of primogeniture, i.e., rice fields flocked in the same parcel are transferred to one child without fragmentation and the first child inherits most parcels (either from the father's or mother's real estate), a second or a third child may receive smaller parcels, and younger children may inherit no rice fields at all [Barton 1919: 40, Conklin 1980: 36, Goda 1997: 47]. The other way to acquire rice fields is through purchase. Mortgaging rice fields is widely observed.

⁷ The majority (about 70 percent) of the owners of rice fields cultivated by tenants live outside barangay Poitan, such as in neighboring barangay, the center of Banaue and outside Banaue.

⁸ The way to obtain the area-size of various shaped rice fields was by calculation based on the average weight of a bundle (1.5 kg/bundle), the average yield (2 tons/ha), both of which were obtained by Conklin [1980: 11, 35], and the average number of bundles produced by each household, which was obtained through my interviews. Elderly people mentioned that there has not been a downdraft in rice production since the time when Conklin conducted his research.

⁹ The figure was obtained based on the average daily consumption of rice per household (3 kg), average price of

sweet potato cultivation in swidden fields decreases, there is an increased risk of crop invasion by rodents, wild pigs and other animals. Consequently, this discourages people from producing sweet potato in swidden fields. Sweet potato is, however, cultivated in dried fields, margins and interstitial slopes of rice terraces.

The problems with rice terraces commonly observed in Banaue, including barangay Poitan, are the increasing number of abandoned rice fields and the reduced size of the remaining ones. The former is attributed to a lack of water supply due to severely damaged irrigation canals, while the latter is due to earthworm-caused seepage and/or heavy rains.¹⁰ Previously, when landslides, seepage and storm damage occurred in irrigation facilities, an ad hoc group was formed among the irrigation beneficiaries to repair damages [ibid.: 28, Eder 1982: 110]. Nowadays, however, people do not opt to contribute their labor and cost for repair and maintenance, instead opting to engage in other income-generating activities to compensate for the lost rice production.¹¹ It was estimated by the residents that approximately one fifth of the rice terraces in barangay Poitan are currently abandoned. Some abandoned terraces are used as dried fields for vegetable and/or sweet potato production, while others have been left unused and are now covered with grasses and bush. Many owners of such damaged rice fields mentioned that they intended to restore them if capital permitted.

The majority of the households are engaged in vegetable production in terrace embankment or dry fields for home consumption. Ginger, cabbage and beans have been increasingly produced for commercial purposes, but on a minimal scale. Livestock, such as pigs, chickens, ducks, and goats are kept by many households, mostly for home consumption.¹²

1-2 Non-agricultural activities

In order to secure a minimum diet and at least to buy commercial lowland rice, income-generating activity is a requisite. Most households depend on non-agricultural activities. The most prevalent income-generating activity is craftwork, specifically woodcarving for men and handloom weaving and wooden-rattan handicraft making (such as baskets and vessels) for women. They are usually self-employed and the handicrafts are mainly sold in souvenir shops in Banaue and Baguio.

Among 236 households interviewed, those whose household members are engaged in woodcarving amount to 131 households (55.5 percent), of which 42 households have family members who work outside Banaue. Six households are middlemen and/or shop owners that sell woodcarvings. Those whose household members are engaged in handloom weaving total 81 households (34.3 percent), and those whose household members are engaged in wooden-rattan handicraft total 64 households (27.1 percent). The number of households whose family members are engaged in at least one of these three craft activities amounts to 171 (72.5 percent). The average daily wage varies from 150 to 200 pesos for woodcarvers and 80 to 150 pesos for weaving and handicrafts.¹³

There are two employment styles in these activities, i.e., order style and self-employment. In the former, which is common during the months between October and May when tourists flock to Banaue, souvenir shop owners order a number of items with a negotiated buying price. In the latter, the craftspeople bring their wares directly to souvenir shops and then negotiate the price; generally lower than that in peak months.

Procurement of necessary materials—wood for woodcarving, thread for handloom weaving and semi-finished wooden parts and rattan for wooden-rattan handicrafts—is the responsibility of the individual craftsman. Thread, semi-finished wooden parts and rattan are purchased from stores in Banaue, while wood has

commercial rice (20 pesos/kg), average days of commercial rice consumed (270 days)
and the average daily wage one man can earn with woodcarving (150 pesos).

¹⁰ Earthworm problems were already recorded in the early 1960s [Conklin 1980: 30]. To prevent recurrence of seepage due to earthworms, coarse gravel and broken shale fill are substituted for the regolithic earthen layer beneath the outer sections of muddy soil and against the upper part of the terrace rim and dike. This requires a lot of labor input.

¹¹ Since 1995, when the rice fields in Banaue were inscribed on the UNESCO World Heritage List [Motonaka 1997: 33], repairing works have been subsidized. Subsidies allocated to barangay Poitan, however, are not enough to cover costs for repairs of all the damaged rice terraces.

¹² Chickens are frequently butchered for rituals entailed in rice production. Seventeen calendric agricultural rites linked with rice production and consumption have been cited [Conklin 1980: 12], all of which are not performed nowadays. Pigs are mainly butchered on special occasions such as weddings and funerals.

¹³ The average daily wage for women in rice fields, such as for weeding and transplanting, is 80 pesos and that for men, for leveling and repairing, is 150 to 200 pesos.

to be procured directly by woodcarvers themselves through either cutting trees in the community and private forests or purchasing them.

The demand for woodcarving and wooden-rattan handicrafts in both local and international markets have forced them to utilize most of the available trees and rattan found in forests in Banaue. In particular, hardwood species such as acacia [*Samanea saman*] and kamagong [*Diospyros discolor*] are bought from the lowland Ifugao area and the neighboring lowland provinces of Nueva Viscaya and Isabela. Rattan is also bought from other provinces.

Other non-agricultural working opportunities found among barangay Poitan residents are (a) urban-type employment, in which employees such as civil servants, teachers and shop clerks arrange formal contracts with an employer and (b) rural-type or self-employment such as sari-sari store owners, tricycle drivers and carpenters. The availability of urban-type employment in Banaue is particularly limited.

1-3 Household members working outside Banaue

The fact that working opportunities in Banaue, both urban-type and rural-type employment, are limited tends to make household members seek work outside Banaue (Table 1).

Among 236 households with a total population of 1,469 (720 males and 749 females), those who work outside Banaue amount to 150 persons (10.2 percent). Many of those in their 20s are working temporally or permanently outside Banaue; 45.5 percent of the male and 30.1 percent of the female population [Hayama op.cit.: 4]. The major occupation of the males is woodcarving (64.0 percent of all men working outside Banaue), mainly in the neighboring province of Nueva Viscaya, other municipalities of Ifugao and the far provinces of Isabela and Qurino, where wood is still available. They commonly procure wood outside Banaue through purchase from 'owners' of the trees.¹⁴ Other places for male employment are Baguio and Manila, where there is a market for woodcarving for export. About half of the females are maids, including those working overseas, agricultural laborers in vegetable production in Benguet and factory workers in Manila.

During the months when male labor is required in rice production for tasks such as repairing dikes, soil leveling, inundation of rice fields and bringing harvested rice bundles to each house, many of these men return to their place of residence to help.

2 Social Aspects

The barangay, the smallest administrative unit in the Philippines, in Banaue is coincident with a customarily defined agricultural district (*himpuntona'an*), which is the largest and most functional unit in cultural, social and environmental terms [Conklin op.cit.: 6]. Members of agricultural districts (i.e., barangay) are loosely organized [ibid.: 6]. In both agricultural activity and daily life, labor collaboration and mutual assistance are widely practiced among barangay members. Ad hoc groups are formed for each occasion. Membership in such ad hoc groups is not fixed and they are usually family, relatives, and neighbors. The strongest bonds between individuals are formed in bilaterally reckoned consanguineous kinship [ibid.: 5, Kikuchi 1989: 86]. Kinship groups play a functional role in resource management, private forests (*pinugo*) in particular.

2-1 Labor collaboration in agriculture and daily life

When many laborers are required in agricultural activities,¹⁵ especially in transplanting and harvesting,

¹⁴ It is very common that even naturally grown trees in the public forests have *de facto* owners. Woodcarvers collect the necessary information before deciding where to go. When they find a favorable tree, they search for the *de facto* owner of the tree to negotiate the price.

¹⁵ One hectare of pond-filled surface area requires a minimum of 630 days of farm labor per year. Male labor fluctuates between 200 and 550+ days per hectare per year. Women's contributions remain relatively constant at about 450 days per year [Conklin 1980:37].

- (1) Weeding, treading, and wet mulching—women - 30 man-days/ha
- (2) Spading—men - 10 to more than several hundreds man-days/ha
- (3) Wall clearing—men - 6 work days/ha
- (4) Second weeding and wet mulching—women - 105 work days/ha
- (5) Margin cleaning—women - over 100 work days/ha

there are five types of labor recruitment, i.e., (a) family assistance, especially between parents and children (*dadda*), (b) exchange labor (*ub'ubbu*), (c) pay labor (*bo'la*) (d) entrustment (*lawwa*), and (e) contract (*pakyaw*). 'Entrustment' is found only in harvesting; when a rice field owner cannot harvest by him/herself, the owner entrusts someone, usually close kin, to harvest and all the expenses and yields are equally shared by them. In 'exchange labor' and 'pay labor' labor is usually found in the same and near-by hamlets. 'Contract' is a new form of labor recruitment in which harvesters are paid according to the number of bundles they harvest. There is no permanent or formal membership in such ad hoc groups.

There are two terms for labor collaboration in daily life: (f) for people (*baddang*) and (g) for materials (*dangah*). The former is usually practiced when a person gets sick; neighbors (men) carry a patient with a 'native ambulance' (a blanket or a cradle-attached bamboo pole) to a hospital. It is also practiced when a person dies; neighbors and other barangay members help the family in cooking food for visitors and bringing the body to the burial site. The latter is practiced when a family wants to move a house and to procure lumber from the community forest. A family in need of lumber calls any men who can help and sets the date of collection. At least one male member of the family guides helpers to the place for cutting trees in the community forest, while other family members prepare food for them at home, customarily butchering a pig, chickens or a dog, and providing them with home-made rice wine or commercial liquors. One intriguing comment by several men was that *dangah* is basically voluntary, but they feel it is a compulsory labor contribution. This is due to the observation that a person who has never helped others has difficulties in asking for help in his own time of need.

2-2 Barangay as a social territorial unit based on rice production

Defining boundaries of each agricultural district, which is coincident with barangay boundaries, was historically based on rice terrace-building. For example barangay Poitan, the study site, coincides with an agricultural district named Poitan.

Each agricultural district (i.e., barangay) has a main ritual rice field (*puntona'an*) and a secondary ritual rice field (*punol'nuban*).¹⁶ The agricultural district comprises several subdivisions, a unit of rice fields sharing the same water channels. Each subdivision has a name and a leading ritual rice field (*mangilin*). The owner of the main ritual field, the *tomona'*, makes district-wide decisions on when to seed in the seedbed, when to transplant and when to harvest. In cases where the main ritual field cannot be planted, the owner of the secondary ritual field, the *umolnub*, makes decisions in lieu of the *tomona'*. The *tomona'* and *umolnub* are considered the leader and sub-leader in the agricultural district, not only in rice production, but also in cultural and social terms. When the *tomona'* was a district priest, he performed the necessary agricultural rituals¹⁷ [Conklin op.cit.: 20]. Since ownership of rice fields has been handed down from one generation to another through inheritance at marriage, the positions of the *tomona'*, *umolnub* and *mangingilin* (owner of *mangilin*) are also inherited by the respective new owners of the ritual fields.

Since the independence of the country, the *tomona'* and *umolnub* are no longer considered to be leaders and sub-leaders, especially in social terms such as for resolving conflicts. These positions have been replaced by

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- (6) Soil preparation—men - 12 man-days/ha
 - (7) Rice panicle planting—women - 4 workdays/ha
 - (8) Green manuring and dike completion—men - 45 work days/ha
 - (9) Seedling transplanting—women - 46 man-days/ha
 - (10) Rice weeding (the first weeding)—women - 36 work days/ha
 - (11) Irrigation tending—men - 20 man-days/ha
 - (12) Wall weeding (the second weeding)—women - 30 work days/ha
 - (13) Margin weeding (the second weeding)—women - 8 work-days/ha
 - (14) Rice bundling (harvesting)—women - 80 full workdays/ha

¹⁶ It is said that in the early days, the main ritual pond field (*puntona'an*) was designated by residents for a trial at first. During the time that a certain field was designated as the main ritual field, if any problem such as rice production failure or outbreak of disease occurred over the entire rice fields and all the residents in the agricultural district, another field was instead designated as the main ritual field. This trial continued until no problems occurred and then the designated main ritual field was permanently fixed. The secondary ritual rice field (*punol'nuban*) and the leading ritual rice field in each subdivision (*mangilin*) were likewise designated and fixed.

¹⁷ If *tomona* was a female, a close male relative who was a pagan priest performed the necessary agricultural rituals.

an elected barangay captain and councils. However, the *tomona'*, *umolnob* and *mangingilin* still play an important role in decision-making in rice production over a barangay.

Barangay Poitan is composed of seven subdivisions. In Poitan, the owner of the main ritual field, the *tomona'*, makes a barangay-wide decision on harvesting, while the owner of each leading ritual field, *mangingilin*, makes a subdivision-wide decision on planting seeds in seedbeds and transplanting.¹⁸ The *tomona'* and *umolnob* also served as *mangingilin* of a respective subdivision. The main ritual field and the secondary ritual field in Poitan are located in the lower portion of the valley, the core area of the agricultural district in which the early rice terrace-building was initiated. Most other rice terraces were constructed in the upper portion of the valley, where water is colder than that in the main ritual field. Earlier seeding in seedbeds ahead of the schedule in the main ritual field is, thus, considered rational. No rice fields in the subdivision are allowed to be seeded ahead of the leading ritual rice field, *mangilin*.

Like seeding, *mangilin* precedes transplanting in each subdivision. Other rice fields in the same subdivision are only allowed to be transplanted after that of *mangilin*. Meanwhile, rice field harvesting in the barangay must be based on the decisions of the *tomona'* and *umolnob*. In principle, no rice field in the barangay can be harvested ahead of the start of the main ritual rice field and the secondary ritual rice field. The main ritual rice field initiates harvesting (*tona*). The following day, the secondary ritual rice field is harvested (*ulnum*). From the next day, harvesting can start in all other rice fields in the barangay. During harvesting, a ritual (*canao*) is held in each house. This is not only a religious ceremony to bless the harvest but also a social ceremony which brings kinship groups, neighbors and other barangay residents together to bond their relationships. Recently, however, not all perform the ritual.

2-3 Kinship group as a strongly bound unit in resource management

There are three terms for private forest, *pinugo*,¹⁹ based on ownership, i.e., single person-owned forest (*ohan un pinugo*, *ohan* means one), two or three generation-owned forest (*pinugon hina ama*, *ama* means father) and sibling-owned forest (*pinugon hina agi*, *agi* means siblings). One's ownership of properties, rice fields in particular, is generally passed to a child at the time of his or her marriage. In private forests, on the other hand, children are recognized as co-owners of the private forest owned by the parent when they marry.

Single person ownership (*ohan un pinugo*) becomes a two-generation ownership (*pinugon hina ama*) when his/her children marry, i.e., children are recognized as co-owners with the parent. Two-generation ownership becomes three-generation ownership, still termed as *pinugon hina ama*, when grandchildren marry, i.e., grandchildren are also recognized as co-owners with their parent and grandparent. Two-generation ownership becomes a sibling's forest (*pinugon hina agi*) if the parent dies and only siblings become co-owners. Sibling's forest again becomes two-generation ownership when their children marry. Subsequently, two-generation (siblings and their children) and three-generation (parent, children and grandchildren) ownership becomes single-person ownership (*ohan un pinugo*) when the fourth generation (great grandchild) marries, following the customary rule of primogeniture [Hayama op.cit.: 12].

Ownership of private forests is a cycle from single-person to three-generation ownership for every three generations of kin. What should be noticed is that if an owner lives outside the barangay, he/she is no more regarded as *ade facto* owner by other co-owners who live in the barangay, i.e., he/she cannot freely cut trees. In the case of a single person-owned forest, if the first child lives outside the barangay, the second or the third child who lives in the barangay inherits the forest. The important point in the ownership of private forest is, thus, the owners' residency within the barangay.

The ownership of trees planted belongs basically to the planter even in the case of co-owned private forest, i.e., *pinugun hina agi* and *pinugun hina ama*. When such co-owned private forest is transferred to the next generation, *ohan un pinugo* or single person ownership, there are two cases for transferring the ownership of planted trees. One is that the ownership of planted trees is also transferred to the new owner, i.e., he/she has the right to cut these trees. The reason is that the planted trees can grow through maintenance by other co-owners through cutting grasses and eliminating crooked trees. The other is that the ownership of planted trees is

¹⁸ The present *tomona* (female) in barangay Poitan lives in the neighboring barangay. She has a tenant who lives in barangay Poitan. In fact, it is the tenant who makes the district-wide decision on when to harvest. This fact indicates that it is not a person but a rice field itself on which the emphasis is placed for rice production.

¹⁹ Privately owned forests are man-made forests stemming from swidden. After harvesting, one's efforts to plant trees and/or facilitate forest regeneration are the basis for his/her private ownership [Hayama 1999: 11].

transferred to the planter's child even though the forest itself is transferred to the other new owner. In this case, there is a necessity for others to witness who is the new owner of the planted trees. In the future, if a conflict arises between the owner of a private forest and that of the planted trees, witnesses play an important role in proving who is the real owner of the planted trees.

3 Cultural Aspects

It is observed that the residents in the barangay constitute organized community membership based on rice cultivation in spite of the fact that the ratio of the produced rice in their overall diet is small. It seems that maintaining public order, including not violating the taboos, is related to the residents' concern to guarantee a comfortable daily life without disturbing public order. Under such mountainous topographical conditions that hinder the use of vehicles and draft animals on the narrow, steep trails, manual labor is the only means for conveyance of persons and goods. Residents depend on each other in case they need help. Maintenance of public order is an apparatus to guarantee living in the barangay. In the use of the forest, the point to observe is that anyone in the barangay can use others' private forests, particularly in the collection of firewood, without asking permission from the owners as long as they do not cut the trees. Anyone in the barangay, even those who do not own private forest and those whose private forests are located very far, can secure firewood for daily cooking. With permission of the owners, non-owner can cut trees, crooked trees in particular for firewood. Public order or the expected manner for anyone using the forests is to clean the forest floors after extracting trees. Residents are aware that a cursory manner is shameful.

3-1 Maintaining public order - Taboos in rice production

Four distinct taboos (*tungo*) in rice production strictly abided by the barangay residents maintain public order within the barangay. One taboo, specifically termed as *ngilin*, is to work in any field in the same subdivision following a day of seeding in a leading ritual rice field, *mangilin*. Owners and tenants whose rice fields are in the subdivision and who live outside barangay Poitan are not allowed to enter their rice fields on the day of *ngilin*. The landmark in the boundary of the subdivision indicates the taboo. Seeding for rice fields in the subdivision is only allowed following the day of *ngilin*. Transplanting in rice fields in the subdivision in the following day of transplanting in *mangilin* is also taboo (*ngilin*).

A taboo relating to harvesting, termed as *alop*, is to enter any rice field in the barangay in the following day of a ritual (*hanglag*) performed by the *tomona'* for reaping in rice fields earlier than that of the main ritual rice field (*puntona'an*). After all the harvest in rice fields in the barangay, a ritual (*hu'ap*) is performed by individual to close a reliquary, which is opened at the time of each harvesting. It is a taboo, termed as *guitob*, for barangay residents to enter any field and for non-barangay residents to enter a barangay territory except for the vehicular road.

It is generally believed that if the taboo is violated, deceased blood relatives can bring illness and misfortune. The punishment for a violator of the taboo is to pay a fine, such as a pig or chicken.

There is another taboo related to harvesting, which seems to be not strictly observed. The period of harvesting from the first day, when the main ritual rice field is harvested, until the last day, when all the rice fields in the barangay have been harvested, takes more than one month, and is termed *ahitulu*. During *ahitulu*, it is a taboo to eat any vegetables, fish or shellfish. It is believed that if these foods are eaten during *ahitulu*, the harvested rice will soon be consumed. It is noteworthy that every barangay member, even those who have no rice fields, seems to abide by the taboo. This may be due to the fact that those who have no rice fields depend on rice fields in the barangay in order to earn newly harvested rice for themselves by working as laborers. Some admitted, however, that they sometimes eat vegetables during *ahitulu*, but secretly, for fear of being accused of breaking the taboo by other barangay members. This shows that not all residents believe the taboo, but they fear being an object of social contempt.

3-2 Norms towards forest management

The norm that nature (naturally grown resources) should not be monopolized by one person underlies the fact that anyone in the barangay can use private forests owned by others.²⁰ Owners of private forests are allowed to plant, cut trees, and sell them, while a non-owner cannot do so but can gather branches, cut crooked

²⁰ This norm is even observed in rice fields, in which a single person's private ownership is firmly established. Naturally grown fish, shellfish and edible plants in ponded fields are free to be caught by anybody without asking the permission of the owner.

trees if the owner permits, and obtain fruits not intended for sale [Hayama op.cit.: 13]. The most important resource in private forest is firewood. The residents are aware that if only one person monopolizes a private forest for firewood, others who have no chance to own the forest or whose private forests are located far away may be disadvantaged for daily cooking. Collecting firewood in the community forest is quite difficult since it is too far for most of the residents.

Co-ownership of private forests is also based on the norm that nature should not be monopolized by one person. There is, however, a customary regulation in terms of the number of co-ownership. Co-ownership in a private forest is limited to three generations, based on their concern that an endless increase of co-owners will lead to overexploitation of the resources.

The important point to note is that resource use entails responsibility, i.e., anyone, both owners and non-owners, are expected to clean the forest floor after collecting firewood. It is also expected that everyone should cut grasses and pile the small branches and leaves in one place. By so doing, forest regeneration is facilitated and elderly people can easily collect piled branches for themselves after cutting trees.

This fact drives us to the question of what is their concept of 'private ownership'. It is reasonable to consider that their concept of private forest ownership is akin to a use right or stewardship. Owners have a stronger use right than non-owners in terms of cutting trees and selling them. Residents are aware that their private forests are important for the rice production of others. Because of this, owners feel strongly obliged to maintain private forests by frequent visits to clean the forest floor, selective cutting and thinning. Owners feel responsible for transferring the private forest, which has been carefully maintained by their ancestors, to a younger generation.

Whether the owner of single person-owned forest (*ohan un pinugo*) can sell the private forest depends on his/her kin group. Some owners of *ohan un pinugo* mentioned that they cannot sell the forest because of complaints from the kinship group who expect that the forest should be handed down to a younger generation. Others, on the other hand, mentioned that they can sell and mortgage *ohan un pinugo* at will.²¹

4 Active participatory forest management

Economic, social and cultural aspects towards participatory forest management are examined based on the case study in barangay Poitan, municipality of Banaue. Rice terraces as well as private forests, both of which were established and have been maintained by their ancestors, bind the residents together. Relationships between residents form a community as a whole, and the core of the individual relationship is a close blood-kin tie. This kinship group is an active unit in each private forest. Since shared access to natural resources in private forest affects interpersonal relations among co-owners [Conklin op.cit.: 36], they also have a shared responsibility to maintain the forest.

4-1 Internal constraints towards participatory forest management

Historically, forests (both community forests and private forests) have been managed by local residents in Banaue, and they are organized in each agricultural district (i.e., barangay). The community forest is not only a watershed forest but also a communal location for the swidden farming of the residents. The residents have maintained the customary regulation that the higher portion of the community forest cannot be used for swidden farming. Despite the fact that there have not been any regulations in resource extraction in the community forest, such as quantity and extraction periods, the residents' resource extraction has not brought about deforestation, because the trees are selected to be cut for wood appropriated for house materials and for woodcarving material. It is true, however, that most trees suitable for woodcarving and house construction have already been taken, and many woodcarvers have to find trees outside Banaue. Although the residents have not practiced planting trees in the community forest, natural regeneration of trees has been facilitated through cleaning the forest floor after cutting.

Planting trees has been practiced exclusively in private forests. Private forests generally originated from swidden fields [Hayama op.cit.: 11]. Generations of maintenance activities in previous swidden fields such as grass cutting, tree planting and thinning have shaped man-made forests as they are today. Present owners of

²¹ There are two ways for disposing of a single person-owned forest (*ohan un pinugo*); *barbar* and *boloh*. The former is to sell the trees and land altogether. If the new owner constructs rice fields there, he has to pay an additional payment to the previous owner. The latter is a mortgagee. A creditor can cut and sell all trees until the debtor returns the debt, but the land still belongs to a debtor. Cutting trees is considered as interest for the creditor.

private forests feel that they are responsible for maintenance activities. Maintenance grass cutting activities are encouraged by permitting anyone in the barangay to use the private forests, collecting firewood in particular. Although the use of LP gas is increasing among the residents (about 23 percent of the households in barangay Poitan use LP gas [ibid.: 17]), the majority still depends on firewood. Owners warn those who do not clear the forest floor after cutting trees and collecting firewood.

In the social and cultural aspects, internal constraints towards forest management can hardly be identified in barangay Poitan. In regards to economics, the following episode elucidates the economic conditions of the residents in promoting planting trees in private forests.

In 1999, CECAP (Central Cordillera Agricultural Programme), an EU funded organization, started to facilitate 'a community based resource planning and management'²² in Banaue [CECAP 1999], and barangay Poitan was selected as a pilot barangay. For the first stage, CECAP promoted residents' planting trees in private forests. CECAP staff held a meeting with the barangay captain and councils in January 1999. Meetings with barangay residents and CECAP staff were also held five times to explain the project. Ten residents were selected as seedling propagators and paid by CECAP. The seedlings were mainly mahogany [*Swietenia macrophylla*] and acacia [*Samanea saman*], and a small number of pine trees [*Pinus kesiya*], all of which were requested by the residents. Pine tree is native in Banaue, while mahogany and acacia are not. Mahogany and acacia are used for woodcarving and are presently procured in the lowland areas. Seedling distribution started in November and 35 residents took them. It is difficult to judge whether or not this figure is small in relation to the total number of 259 households, since they may be representatives of co-owners of private forests. Many residents first misunderstood that it was not free and that they had to pay for the seedlings, causing them to show little or no interest in seedling distribution. When they came to know otherwise, they asked for its distribution. This fact shows that even though they have a desire to improve the stand quality in private forests by planting trees, particularly trees for woodcarving, they do not intend to do so if they have to pay for seedlings.

Free seedling distribution would encourage them to plant trees in their private forests. Many private forest owners, particularly those who are engaged in woodcarving, showed a keen interest in the tree seedling suitable for woodcarving. Since neither mahogany nor acacia are native in Banaue, it is doubtful whether they will grow as big as in the lowland areas. Even so, the residents were willing to plant these seedlings for future use as woodcarving materials.

How about planting trees in the community forest? The fact that the residents' desire to procure woodcarving materials for themselves indicates that planting seedlings for this purpose in the community forests is hardly expected. This is due to the fact that in order to claim one's ownership on planted trees in the community forest and cut them in the future, witnesses are necessary to avoid conflict. Thus, it would be easier for them to plant seedlings in the private forests, in which the planting is easily witnessed by other co-owners. In the community forest, trees suitable for woodcarving will be grown through natural regeneration.

4-2 Active units in forest management

The most favorable site for planting trees is in private forests. Co-owned private forests are actively managed by a close blood kinship group. Owners who do not reside in the barangay are no more counted as *de facto* owners by other co-owners who reside in the barangay. Lazy maintenance activity, such as rarely visiting the forest and seldom cleaning the floor, is blamed on other co-owners. This affects their interpersonal relations. Therefore, blood kinship group members who reside in the barangay are the most active unit in participatory forest management in private forest. More specifically, male members can be the actual working unit due to the fact that firewood collection is done mainly by men (in case a female is an owner, her husband and/or sons collect firewood). It is also due to the fact that planting tree seedlings suitable for woodcarving material is the desire of those who are engaged in woodcarving. These facts show that free seedling distribution to woodcarvers would encourage them to plant in private forests.

'Participatory forest management' or 'community based resource planning and management' is, of course, not confined to planting large numbers of tree seedlings, as expected by outsiders such as CECAP. It is necessary for outsiders (the government, NGO, as well as researchers) to learn that the residents have already been practicing their own forest management, as discussed in this paper.

²² This project intends to introduce an agroforestry scheme into Banaue. Abandoned rice terraces are to be planted with agricultural crops and small woody species. Shrub lands are to be planted with fruit trees and/or agricultural crops. Private forests are to be planted with fruit trees and firewood species [CECAP 1999: 11].

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Table 1 Places and occupations of those who working outside Banaue

(1) Male

Region	Cordillera				Cagayan			Central Luzon	Southern Tagalog	Ilocos		Overseas	total
	ML	IF	BG	MT	NV	IS	QR	NE	AR	LU	PG	AF	
woodcarver	7	10	11		22	1	2	1	1	1	1		57
bamboo-ware maker	1												1
furniture maker					1		1						2
agricultural labor			6	2			1		1				10
factory worker			1										1
construction worker			1										1
driver	1		3										4
waiter			1										1
mechanic		1	2										3
electrician			1										1
company worker								1					1
teacher		1											1
project staff		1											1
pasture land helper					1								1
deep-sea fisherman												2	2
seeking employment			2										2
total	9	13	28	2	24	1	4	2	2	1	1	2	89

(2) Female

Region	Cordillera		Cagayan	Southern Tagalog	Ilocos	Overseas					total	
	ML	IF	BG	NV	CV	LU	HK	TW	MY	SP		EG
factory worker	6		1									7
agricultural labor			9	1								10
bamboo-ware maker			1									1
woodcarving process		1	1			1						3
tailor	1											1
working at hotels			1									1
working at restaurants			1									1
sales lady	2		3									5
maid			2				6	1	1	1	1	12
company worker	4				1							5
teacher		1	1									2
project staff		1										1
church			3									3
unknown			5									5
seeking employment			2	1								3
total	13	3	30	2	1	1	6	1	1	1	1	60

Note: Abbreviations of provincial and country names are indicated as follows: ML: Metro Manila, IF: Ifugao, BG: Benguet, MT: Mountain Province, NV: Nueva Viscaya, IS: Isabela, QR: Quirino, NE: Nueva Ecija, AR: Aurora, CV: Cavite, LU: La Union, PG: Pangasinan, AF: Africa, HK: Hong Kong, TW: Taiwan, MY: Malaysia, SP: Singapore, EG: Egypt.

Source: Interviews in December, 1998 and January, 1999

INTERNAL CONSTRAINTS ON PARTICIPATORY FOREST MANAGEMENT IN A POST-LOGGING, UPLAND COMMUNITY IN THE PHILIPPINES

Yoshiki Seki

Introduction

In 1995 the Department of Environment and Natural Resources (DENR) of the Philippine government launched a Community-Based Forest Management (CBFM) Program as “the national strategy to achieve sustainable forestry and social justice” (DENR 1997: 1).

The area covered by the Ilagan CBFM program in the province of Isabela was chosen as the research site for the study that is the subject of this paper. It is the same site that I reported on last year. This CBFM site is composed of four *barangays* (villages), namely Villa Imelda, Batong Labang, Nanagan, and Rang-Ayan. The management body of the Ilagan CBFM program is the VIBANARA Multi-Purpose Cooperative, Inc (VMPCI). The “VIBANARA” is named after four villages in the area.

The research site is located at the edge of a former logging concession of the ACME Plywood and Veneer Company Inc. The company’s Timber License Agreement (TLA) was revoked in 1990. The CBFM program has been implemented since 1992. So the forest management system was drastically transformed from a company-based management system into new participatory forest system (Seki, 1997).

In my last IGES report, I described the basic structure of the community and their resource utilization. In this report, I analyze people’s views on the CBFM policy and VMPCI’s activities in order to identify any gaps between the CBFM strategy and the people’s survival strategies.

I interviewed people and asked them to evaluate the CBFM program and offer their suggestions. Thus, we can analyze internal constraints on implementing a participatory forest management, based on the views of villagers.

1. General background

1) Economical background

This research was conducted from August 5 to September 16, 1999. I was able to interview 77 villagers during this period. These interviewees are divided into the following seven groups in terms of their livelihood. Views about the forest and forest management varied among different groups, because their way of survival and ratio of dependency on forest resources are different.

Group 1: Lowland Farmer (LF, n=19)

The Lowland Farmers are those who own titled land and engage in farming as their main income source. The first migrants who settled down in the area during the 1950s and early 60s usually belong to this group. Their farms are relatively flat, which is administratively categorized as “alienable and disposable land,” and their main products are maize and upland rice.

Group 2: Upland Farmer (UF, n=14)

Farmers who do not have titled land are categorized in this group. They have farm sites on public lands which are now part of the CBFM site. These are the so-called “squatters” on public land. Their farm sites are usually in sloped areas where productivity is relatively low with the main crop being banana. Last October, the banana plantations of the upland farmers were heavily damaged by Typhoon Iyang. I found that some upland farmers had shifted their livelihoods to logging activities since the

banana harvest was drastically affected.

Group 3: Logger (Log, n=24)

This group is defined as the ones who depend on logging activity as their main income source. The majority of them are ex-logging workers, but some upland farmers are also engaged in logging to support their livelihood. Ex-logging workers who became a member of the cooperative were given an official paper called the "Individual Property Right" (IPR) from the Cooperative and started upland farming. So the majority of this group is engaged in both logging and upland farming. As long as the income from logging is larger than from farming, the family belongs to this group. Loggers without farms are usually not members of the cooperative.

Group 4: Former Logger who became Upland Farmer (L UF, n=6)

This group is defined as ex-logging farmers who already stopped logging and engaged in upland farming as their main income source. The people in this group are given IPR from the Cooperative.

Group 5: New migrants after cancellation of the TLA (New UF, n=6)

After the cancellation of the TLA in 1990, new migrants began arriving in the logged-over area. They are mainly from the province of Ifugao. Upland Farmers who arrived after 1990 are categorized in this group. Out of six respondents in this group, five are from Ifugao, and these five are not members of the VMPCI. Some of them started cultivation inside secondary forest within the CBFM site. The Cooperative is trying to regulate their slash-and-burn agriculture.

Group 6: Non-Agricultural Worker (NAW, n=5)

This group includes the husband or wife that are non-agricultural workers, such as a teacher, a public worker, and so on. The people in this group are highly educated and usually college graduates. The main staffs of VMPCI are included in this group.

Group 7: Others (n=3)

Among 77 respondents, only three could not be categorized in any of the above groups. Two were a man and woman, both elderly, whose main income source were remittances from their children. The other one is an ex-logging worker who stopped logging and his main income source now is from being an agricultural laborer.

Figure 1-1 shows the average gross income of each group. The richest class is Group 6. The average gross income of Groups 2, 4, and 5, the upland farmers, is lower than the incomes of the lowland farmers and loggers.

2) Social background

The community is loosely structured. As I analyzed in the last report, all villagers are migrants from all over the Philippines who all have different backgrounds. There were seven ethnic groups with their own dialects found among my interview subjects. They are: Ilocano, Bicolano, Ifugao, Tagalog, Ibanag, Cebuano, and Pampango. This kind of ethnic diversity is common in upland communities in the Sierra Madre Mountains.

Though they have different backgrounds, village administration is democratically managed and functions well. The formal village administration is the "*barangay*" council, composed of one captain and seven councilors. This is the smallest administrative body in the Philippine government. The *barangay* captain and councilors are chosen by election every 6 years. Small conflicts in villagers' daily lives are usually brought to the *barangay* council.

The council, however, does not have legal right to directly manage the CBFM. The management body of the CBFM program should be “cooperative,” and organized by the DENR and a DENR-affiliated NGO. The cooperative has to be trained for managing the forest and accepts the guidelines of the DENR. The cooperatives are usually composed of several *barangays*. Because the area of one CBFM program is more than one thousand hectares, there are usually several *barangays* surrounding the area. In the case of the Ilagan CBFM program, the VMPCI was organized by the participation of four *barangays*.

The relationship between *barangay* officials and the VMPCI is good. The board of directors of the VMPCI is mostly *barangay* officials in each *barangay*. In other CBFM sites, there are some cases where *barangay* councils do not like the DENR’s guidelines, and then the CBFM programs do not function well. In this research area, this kind of problem was not observed. It shows that it is very important to organize *barangay* officials for managing the CBFM.

There were three major activities conducted by the VMPCI (see Figure 1-2). The first one was a small-scale selective logging operation, officially approved by the Department Administrative Order ‘96-26 in 1996. Since the CBFM is strategically implemented in former TLA sites, there usually exist many jobless ex-loggers. Ex-logging workers usually continue logging illegally. Thus, the DENR made a compromise with those loggers that selective logging would be permitted by the Cooperative under supervision from the DENR. The VMPCI conducted selective logging operations from 1996 to 1998 in line with the CBFM strategy. However, after the national election in May 1998, the newly elected Secretary of the DENR suspended logging activities in all CBFM sites. This government decision seriously affected the VMPCI as we will see below.

The second activity of the VMPCI is a reforestation project funded by the Asian Development Bank (ADB) that began in 1996. The VMPCI made contracts with villagers for reforestation activities like planting trees like yemane (*Gmelina arborea*), mahogany (*Swietenia macrophylla*) and rattan. This man-made plantation was supposed to be the main income source of the VMPCI in the future. The original strategy of the CBFM was that while logging in natural forest was permitted temporarily, the man-made plantation was to be established so regenerative forestry would replace exploitation forestry in the future.

The third important project of the VMPCI is issuing the right of private land possession inside the CBFM site. Since the land possession agreement, called the Community-Based Forest Management Agreement (CBFMA), was issued to the cooperative, the VMPCI started to survey land possessed by upland farmers and found a number of upland farmers including those formerly categorized as “squatters.” An IPR was issued to each of the upland farmers, and also to ex-logging workers, because most of them were landless before. The VMPCI also surveyed vacant lots in grass vegetation and began to issue IPR to applicants. Most ex-logging workers that were members of the VMPCI applied for the IPR. However, illegal loggers who were not members of the VMPCI still do not have IPR.

Any resident of the four *barangays* can become a member of the VMPCI, but the percentage of participants in the VMPCI is about 35 percent of the total households. Many villagers are not interested in the VMPCI’s activities.

I tried to interview mainly members of the VMPCI since the main questions are about its activities, but I did include interviews with non-members in order to compare the views of both members and non-members. Among 77 interviewees, 63 were members, and 14 were non-members.

Figure 1-3 shows the percentage of membership of the people interviewed. Among six main groups, it seems that Group 2 and 4 were the most actively involved in the VMPCI, because the people in these two groups need to have a legal right of land possession (IPR). They have to be a member to get the IPR. But when it comes to Group 5, the newly migrated upland farmer, only a few became members, because the VMPCI is trying to regulate new migrants, the relation between it and Group 5

is antagonistic.

In the case of Group 3, the loggers, it seems that more than half were non-members. Some illegal loggers got angry with the VMPCI, because it tried to regulate illegal logging under the guidelines of the DENR. I was able to interview only five non-members (20.8%) from Group 3. The illegal loggers were afraid to tell me about their activities, since the government had been intensifying efforts to regulate them. If they were reluctant to answer, I did not conduct the interview.

2. People's views on logging activities

1) Logging operation of the VMPCI

The Cooperative started logging activities in 1996, but it had to stop, because under the new administration of President Estrada that began in June 1998, the DENR prohibited logging operations inside the CBFM. The effect of the logging ban was that many workers were laid off. About 60 logging workers of the VMPCI went back to illegal logging again. The government's decision also affected the financial condition of the VMPCI.

Many of the people interviewed (76.6 percent) hoped that logging operation of VMPCI would be permitted again (Table 2-1-a). Although the main beneficiaries of logging are the loggers, the lowland farmers and upland farmers also sympathized with them and supported the logging operation.

The following comments are from the general manager of the VMPCI, a 30-year-old man with a college degree, who attended the first national assembly of the CBFM program in July 1999. Since the effect of the logging suspension in CBFM sites is a nation-wide issue, all cooperatives managed by the CBFM program gathered in Cebu to discuss their common concerns. It seems that the people's organizations involved with the CBFM intended to unite with one voice.

This is a big issue now. During the first national assembly of the CBFM, it was a main theme. Although Secretary (of the DENR) did not attend the assembly, Gloria Macapagal Arroyo, our vice-president, attended and stated her support to immediately lift the logging suspension of the CBFM. Senator Legarda also supports the suspension being lifted. Maybe, they are now working for it. We did not commit any violation. So suspension (of logging operation) is illegal.

The following three opinions are from VMPCI staff members.

Small-scale logging should be allowed by the DENR. We met a requirement from the government. We achieved reforestation. It is more than enough to grant us logging permission. If we plant 100 hectares, you can give us 50 hectares of logging (permission). It is the condition.... Secretary Cerilles [the new secretary of DENR] wants to phase out the CBFM. What he wants is commercial logging. But the CBFM is already established and we organized a regional federation of the CBFM. So we are united. We will put barricades up if they try to phase out the CBFM
(Male, 34, 3rd year of college, Group 6, Surveyor of VMPCI)

We need a logging operation, because it is the financial source (of VMPCI). The reforestation fund from the ADB will finish (in December, 1999). But we still need a budget for replanting and maintenance of reforestation site. If we have a logging operation, we can use the profit for reforestation.

(Male, 35, College graduate, Group 3, Computer operator of VMPCI)

Our community has a right to manage the forest. We protect it and we can also harvest inside the area (of CBFM). It is not so big volume. We never harvest more than quota that the government gave us.

(Female, 41, 3rd year of college, Group 3, Secretary of VMPCI)

When the 77 interviewees are divided into logger (Group 3) and non-logger, you can see that most of the loggers support a start to the logging operation again (Table 2-1-b). Out of 24 loggers, 22 (91.7 percent) think that logging should be permitted. The following are opinions of some of the loggers:

It is much better to continue (the logging operation). How do we support people? Because the (VMPCI's logging) operation was stopped, many people went to illegal logging. Then there are a lot of illegal loggers here. The richness of the mountain will really be exploited, if a lot of illegal operations continue.

(Male, 44, 2nd year of high school, Group 3, Member)

If the government does not give us (a logging license), people here are so pitiful. We do not have any alternative jobs.

(Male, 44, Elementary graduate, Group 3, Member)

It [logging of the CBFM] should be really allowed most especially in this community because there is a limit of the (logging) operation unlike before. It is only 50 hectares annually. Then when (allowed) timbers are finished, the operation is also stopped. It does not make mountain the bald. During the time of commercial logging, the company cut everywhere. Secondly, we plant trees before cut. This is only now that the policy is actually followed. Logging company did not follow, although there was this kind of policy even before.

(Male, 39, Elementary graduate, Group 3, Member)

Some (16.9 percent) of the people thought that logging operations are better to be stopped. Some of these ideas are listed below. The first person belonged to Group 3 He was the only logger who opposed the VMPCI's logging. Since he was not a member of the VMPCI, the reason he opposed it seemed to be jealousy.

It is better to stop, because it does not benefit all. Only the cooperative benefits. It also makes the mountains bald, but the Cooperative blames us (as illegal loggers).

(Male, 46, 3rd year high school, Group 3, Non-member)

I do not like logging. Mountains will be bald. And logging operations benefit only members of the cooperative.

(Male, 28, High school graduate, Group 2, Non-member)

2) Illegal logging

There are two kinds of small-scale logging activities in the villages. One is called *carabao* (water buffalo) logging and another is called water logging. Ordinary villagers do not have enough mechanized equipment, so the best ways of transporting timbers are by using water buffalo or the river. Both are not permitted by the government and considered as "illegal" activities.

The majority of villagers support the concept that the logging activities of the VMPCI must be permitted. On the other hand, when it comes to illegal logging activities, the biggest number, 42.9 percent, support prohibition (Table 2-2-a). However, if we compare loggers (Group 3) and non-loggers (other groups), there is a big difference between the two. Of the loggers, 50.0 percent hoped that the *carabao* logging and water logging would be permitted.

The official goal of the VMPCI is to stop people from illegal logging and then accept them into the cooperative's activities such as reforestation and legal logging. However, since logging under the CBFM was suspended, even main members of the VMPCI have been engaged in *carabao* and water logging.

According to the general manager of VMPCI:

The number of *carabao* loggers and water loggers has risen again. The Cooperative needs (logging) authority in order to stop illegal logging. We will adopt them [illegal loggers]. This is our scheme. The governor of Isabela wants to stop all illegal activity. They put a "special task force" against all illegal logging. Even me, I agree on this kind of policy (of the governor). The VMPCI has to apply the policy.

(Male, 30, College graduate, Group 6, General manager)

The following three are ideas from non-loggers who support the prohibition of illegal logging. Interestingly, some of them complain to the government rather than loggers. According to them, the government does not keep their own policy, since some local politicians are involved in timber dealing themselves. For example, the mayor of Ilagan herself is involved in timber dealing. They complain that timber middlemen, backed by powerful politicians, are not checked by the DENR officials.

Even we would like to stop all illegal activity. The government does not follow their own policy. The forest is being destroyed due to illegal activity. Why does not the government really stop them? People and the government must work together. If people do not cooperate with the government, there is a lot of corruption.

(Male, 74, 4th year elementary, Group 1, Member)

I wish there was no logging. If the government really implements their policy, it is much better. Because what they have done is favoritism. Some (middlemen of timber) are confiscated, but some are not. Why can powerful middlemen continue illegal operations?

(Male, 25, 2nd year of high school, Group 1, Member)

It will be beautiful (if there is no logging). There is still a lot of vacant land. Loggers must cultivate vacant lot and plant vegetable and trees. Mountains are pitiful if trees are not planted.

(Male, 32, Elementary graduate, Group 6, Member)

On the other hand, the majority of loggers are, of course, critical to the idea of prohibition. Of the loggers, 50.0 percent answered that they should be allowed to log. Another 25 percent answered that a condition that alternative jobs should be given before prohibition (Table 2-2-b). The majority of loggers think they cannot stop their activities.

One chainsaw operator says that water and *carabao* logging can be permitted because the volume of timber harvest is much less than compared with truck logging during the time of commercial

logging. According to him:

My opinion on this matter is that it should not be prohibited, because in the case of *carabao* logging and water logging, they do not harvest all the trees. The logging is just for their family needs. It is only a little volume (of harvest). When it comes to truck logging, the timbers are finished in a moment.

(Male, 51, Elementary graduate, Group 3, Member)

The following two respondents had the same kind of background. Both of them were chainsaw operators for the ACME company before. They were hired by the VMPCI's logging operation in 1996, but after the suspension in 1998, they went back to illegal activities. While they were engaged in illegal activities, they also planted yemane in their IPR lots, which were given to them by the VMPCI.

The first one suggested that the government legalize water and *carabao* logging and collect taxes from them. Then this fund could be used for reforestation projects.

The second one felt it was a sin to be engaged in illegal logging but, according to him, he needs cash to develop a tree plantation. He expects that all logging activities will be banned in the future so that he prepares a tree plantation as alternative income source. However, he does not have enough funds to last until the harvest time comes.

In my personal opinion, why does not the government collect tax from loggers? The government can monitor the people here, then make an agreement that people pay forest charges and the government permits the logging. I think it is possible. This will be a big income source for the government. Then the government can use this budget for reforestation projects. If the government does not like this kind of condition, people will just continue logging illegally.

(Male, 44, Elementary graduate, Group 3, Member)

When (commercial) logging stopped, people started illegal logging. But this is only minimum - unlike before. However, the DENR does not blame the logging company, but blames water loggers as the destroyers of the forest.... I agree with the opinion to stop illegal activity. If illegal activity is stopped, all people will concentrate on the CBFM project. Even if the income is small in legal activity, at least they can relax. (In the case of illegal logging), people can not relax even if income is bigger... I went back to illegal activity, although I do not like it. However, at least I have planted trees. I need cash to improve my IPR site. But some other water loggers do not do that. If the time comes that all logging stopped, they will be surprised. So we have to prepare now.

(Male, 39, Elementary graduate, Group 3, Member)

Some other loggers had requests to give them alternative jobs before the government tries to regulate illegal logging. The following three loggers said that logging activity is getting harder every year due to a decrease of resources. The last interviewee was really concerned about the environment since he suffered from a flashflood in October 1999. These three say that they are willing to stop if they have other job opportunities.

Before the government tries to stop water logging and *carabao* logging, they must observe our situation. They are impoverished while engaged in water logging. Nowadays they can not earn more than just enough for daily meals. If the government give us another job

opportunity to the villages, there will be no water logging. Because logging is really getting harder. That is why their families are starved. They have to do it (water logging) even if they do not want to.

(Male, 53, Elementary graduate, Group 3, Non-member)

Okay, I agree to stop (illegal logging), if there is an alternative job. It is getting harder to engage in water logging. I want to have another job.

(Rodolfo Fernandez, Male, 46, 3rd year high school, Group 3, Non-member)

I support the policy (to stop logging). Our watershed is heavily damaged now. During dry season, there is no water (in the river). Then when rainy season comes, we have flash floods. Mountains are already destroyed. Mountains are so pitiful. There are so many landslides. If there is a calamity, we are the one who are suffering from poverty. We are benefited from the forest. I wish logging could be stopped. If there is another job, it is possible.

(Male, 46, High school graduate, Group 3, Non-member)

The following respondent is a former *carabao* logger. He stopped because his two *carabaos* died from causes related to logging activity. Hence, he does not have any steady jobs nowadays except agricultural wage work and reforestation work of the VMPCI. His story tells us the risk of *carabao* logging. According to him:

It is my personal opinion. It is better to stop (all logging operations). I was a *carabao* logger before. I stopped it because my two *carabaos* died from overwork. I forced to work her (water buffalo) when she was pregnant. Another male *carabao* was also dead by accident. Timber hit his leg in the mountain that made him a fracture. He was no longer able to work. So I killed him. They were so hurtful experiences for me. Then I stopped (logging activity). Trees in mountains are not over-exploited if there is no logging. Then people concentrate on the reforestation activity.

(Male, 33, Elementary graduate, Group 7, Member)

3. People's views on reforestation

1) Cooperative-based reforestation

As we have seen above, the logging activities in the natural forest face a serious situation. The DENR encourages establishing yemane plantations in the CBFM sites. The regenerative forestry of yemane is expected to replace exploitation forestry in the near future.

A reforestation project in the Ilagan CBFM funded by the ADB started in 1996. The total project cost amounted 13.8 million pesos. The project proposed a 200 hectare plantation of yemane (*Gmelina arborea*) in grassland, 250 hectares of enrichment planting of yemane and mahogany in brush land, 197 hectares of agro-forestry development, and 350 hectares of rattan planting inside residual forest.

According to the government evaluation, the survival rate of VMPCI's reforestation project is 76 percent. It is said that this is one of the highest survival rate among reforestation projects conducted in the whole province of Isabela.

As Table 3-1-a shows, 33.8 percent of the people interviewed answer that reforestation project is very successful, and 49.4 percent, almost half, answer that it's at a normal level.

Among the 77 interviewees, 32 (41.6 percent) had been hired by the VMPCI's reforestation and the other 45 (58.4 percent) had not. When divided into those hired by reforestation and not hired, the

ratio of people who think “very successful” is little bit higher among those hired by reforestation projects (Table 3-1-b). However, 56.3 percent answer the success was at a “normal level” even among the ones hired by the project.

If they answered “normal level”, they felt there were some problems with the project. Mainly, two kinds of criticisms were heard. One is about the attitude of the contractor that the VMPCI contracted to plant trees in a particular area. After the VMPCI staff evaluated the area, the reforestation budget would be released to the contractor. However, many villagers complained that some contractors do not plant well but still get the budget. Some respondents described this kind of problem as “corruption.” Another problem is “favoritism.” Some said that officers of the VMPCI would choose contractors from their neighbors, relatives and so on. They think that job opportunities were not equally distributed to all villages.

The following are comments of those who answered “normal level” to the question of success. They complained about the management system of the reforestation.

Maybe successful in the minimum level. However, the policy (of the reforestation) is not good. Officials (of the VMPCI) are corrupted. The biggest problem is corruption. There is a problem between officials and contractors. Some contractors are okay. But some are not. For example, they report that they planted 10 hectares, however, they planted only 5 hectares in truth. Contractors should be honest.

(Male, 28, High school graduate, Group 2, Non-member)

It is difficult to say perfectly successful. Only medium level. Telling the truth, I want to change the system (of the reforestation project) to another one. There are a lot of contractors that did not plant well. There is no perfect contractor. But they receive full payment.

(Male, 44, 2nd year of high school, Group 3, Member)

There is a problem with management. The Cooperative does not supervise contractors well. Even contractors that do not accomplish, all budget is usually released.

(Male, 39, Elementary graduate, Group 3, Member)

I can not say “very successful”. If I said so, people would think that I am a liar. It is only medium level. There are problems. Officials of the cooperative are not fair. Because, as you see, beneficiaries (of reforestation) project are mostly residents of Rang-Ayan. People in other *barangays* are not benefited well.

(Pabro Marcelo, Male, 55, High school graduate, Group 1, Vice chairman)

The following comment is from the team leader of the forest patrol. The VMPCI established four fire patrol towers inside the reforestation area and dispatch forest guards regularly. The following leader had been staying in the area more than six months. He said that people did not understand well the purpose of the plantations and had even caused fires. The VMPCI makes following kind of efforts to protect the plantations. According to him:

There are still a lot of problems in the reforestation project. It is really important to supervise. The unit manager (of the project) should stay on the mountain. We have a very hard time here trying handle the people. A lot of illegal loggers pass this way everyday, we ask them to have discipline and not to damage the plantation. Even there were incendiary

fires before. We explain them that this plantation is not just for cooperative but for all people here. Since we started communicating with people, plantation is no longer affected by fire. Before they would carelessly throw away burning cigarettes. But now, they extinguish before throwing them away.

(Male, 63, 4th year of elementary, Group1, Patrol man of reforestation area)

2) Individual-based reforestation

Since 1996, individual-based reforestation in private lots has been getting popular. Major crops in this area have been maize, upland rice, and banana. In addition to these, yemane trees have emerged as a fourth “crop.” After the reforestation project began in 1996, people also started planting yemane on their own farms.

During my first research project in October 1997, 32.8 percent of sampled respondents (n=70) had already planted yemane or other varieties of trees. Then in 1999, the percentage of tree planters rose to 76.6 percent (Table3-2-a). In this paper, “tree planter” is defined as one who planted more than 50 trees on his or her own farm.

One of the most important contributors of the emerging yemane boom seems to be the VMPCI’s project itself. I found that the ones hired for reforestation are especially active in planting trees. Table 3-2-b shows a comparison between the ones hired by the VMPCI’s reforestation project and the ones who were not. Table 3-2-c then shows a comparison between members of the VMPCI and non-members. We found that the ones hired and other members were more sensitive to planting trees on their own farm. Among those hired for reforestation, 30 out of 32 (93.8 percent) have been planting trees. It shows that the role of technical knowledge is very important. Since ADB funding of the reforestation project began, the knowledge of how to establish a tree plantation was transferred to the villagers, first to the ones hired by the project, next to other villagers.

Another important contributor to the yemane boom is issuing land possessions, especially for ex-logging workers. Most ex-logging workers (Group 3 and 4) were landless before. Since the VMPCI started issuing IPRs, many landless loggers applied. Loggers are actively planting yemane trees in their IPR lots while they keep logging as the main income source. Out of 24 loggers, 18 (75.0 percent) have already started planting yemane. Ex-logging workers are able to plant due to being issued an IPR.

The IPR is a new idea that the government did not have before. The Individual Land Possession Right issued by the DENR is a “Certificate of Stewardship Contract (CSC).” The CSC is a land possession agreement between the government and each upland farmer. The DENR officials survey and issue a CSC to applicants. However, in the case of the CBFM program, the land possession agreement mentioned above (Community-Based Forest Management Agreement, or CBFMA), is already authorized to the cooperative. Therefore, the cooperative has the legal basis to issue the right of upland possession to members. It seems the IPR system is a much easier and cost efficient way than the CSC.

In the case of the Ilagan CBFM project, at first, the DENR tried to issue a CSC inside the CBFM site, but the VMPCI complained, rejected it and issued IPR themselves instead of the CSC. The general manager of the VMPCI explained this process as follows:

The DENR wanted the CSC, which is issued by the government itself. Processing a CSC is a very long-term process. Inviting officials and surveying.... The agreement (of CSC) is between the individual and the government. The work of VIBANARA would be just an endorsement. The question arose that individual claim lots belong to the CBFMA. The VMPCI already has the right to protect and manage the CBFMA area. This is something

complicated and discrepant. The permission of the IPR is from the chairman (of the VMPCI) himself. It is simple and only needs basic procedure. It is much easier. The VMPCI has power to manage inside the area. The idea of the IPR is included in the implementing guidelines of the CBFM. You will be the one who decides to choose CSC or IPR. If the IPR is more successful than the CSC, maybe the government will mandate that the IPR be taken in all CBFM sites. Then, the VMPCI supplies seedlings and encourages IPR applicants to plant (trees). However, we do not obligate them to plant, it is upon their own initiative. The Cooperative will just support the marketing (of trees).
(Male, 30, College graduate, Group 6, General manager)

I have pointed out two reasons for the emerging yemane boom. One is technical knowledge and the other is the issuing of IPRs. However, it seems that they are only minimal conditions and not sufficient to fully explain the boom. The most important reason for the yemane boom is the high value of yemane itself as I have described in the last report (Seki, 1999), and Table 3-3 proves it. Many people interviewed (47.8 percent) said that they plant yemane for economic reasons. The price of yemane is almost the same as red lauan as of 1999. This high price has created strong motivation among the villagers to plant yemane.

14.5 percent answered “as a member of cooperative.” The VMPCI recommends people to plant trees by supplying seedlings, but it is not forceful. The majority of people are planting yemane spontaneously without the support of VMPCI.

Yemane needs only the minimum maintenance. And there are a lot of buyers. I plant yemane on sloping land not so suitable for cash crops. Economically speaking, it is really reasonable.

(Male, 34, 3rd year of college, Group 6, Surveyor of VMPCI)

I have planted ginger in the upland farm before. But I replaced them for yemane. The problem with yemane is that it takes long time before harvesting. So my income decreased. However, I guess that when the harvest time comes, we can earn more than just recovering costs. In the case of ginger, you sell the products then they are finished tomorrow. A good point of yemane is that you can harvest continuously.

(Male, 35, College graduate, Group 3, Computer operator of VMPCI)

Next to economic reasons, the second majority answered “to alternate natural resources.” The ratio of those who answered so is high among active loggers and former loggers (Groups 3 and 4). Out of 30 active and former loggers, 9 (30.0 percent) thought that man-made plantations are necessary as an alternative to decreasing natural trees. Because they are the ones most heavily affected by resources depletion, their concern for the environment seems to be even higher than other villagers. Following are some comments from Group 3.

I think (natural) trees will disappear in the future. If we plant yemane now, our children can use them and not be suffering from poverty. The DENR gives us legal permission to sell them. So we should plant trees in private lots.

(Male, 40, Elementary graduate, Group 3, Member)

I planted trees for our future. Natural trees are now very far away from the village. We could use planted trees for house construction and also for sale. Yemane is suitable because

it is one the fastest growing species.

(Female, 41, 3rd year college, Group 3, Secretary of CBFM)

As we have seen above, there are two kinds of reforestation activities now going on in the village. One is the ADB-funded cooperative-based reforestation and another is the individual-based one. I asked all interviewees which is the better reforestation approach. As Table 3-4-a shows, 42.9 percent supported individual management and 32.5 percent supported both approaches.

Only 15.6 percent supported cooperative management. The following are typical comments of those that supported the Cooperative's management:

(VMPCI's) contract reforestation is the best. It is the easiest way to cover open land. But the problem is financing. It costs too much.

(Male, 30, College graduate, Group 6, General manager)

(Reforestation of) the Cooperative is good. Because they have a complete budget. In the case of private reforestation, if you do not have enough of a budget, you can not apply enough volume of fertilizer.

(Male, 46, High school graduate, Group 3, Non-member)

The following comment pointed out both positive and negative sides of the Cooperative's management.

Sometimes the Cooperative is good because they can employ jobless people. But the problem is corruption. Sometimes individual is good because individual approach has no corruption.

(Male, 28, High school graduate, Group2, Non-member)

The following are opinions of the majority who prefer individual-based management:

The IPR is better than a community approach. An individual's plantation is one's own. They can improve them by their own work. If you are in part of the community, the question is who is really responsible (to manage).

(Male, 34, 3rd year of college, Group 6, Surveyor of VMPCI)

Individual reforestation is more appealing for me. Because it does not require hired laborers. So there is no trouble about money. We do not need loans from the government. There is no debt. We plant just for ourselves.

(Male, 55, High school graduate, Group 1, Vice chair man)

IPR (is better). Because it is surely my own property. Even there is no fund from the VMPCI, you can work based on your own capability.

(Male, 44, Elementary graduate, Group 4, Member)

Private (reforestation is better). Because there is no big boss. You can manage yourself even if you do not have capital. In the case of the VMPCI, if the Cooperative does not pay you a salary, you do not work.

(Male, 39, Elementary graduate, Group 3, Member)

Individual approach is better. You can care (for the plantation) properly unlike the VMPCI. I worked and worked for the VMPCI's reforestation before, however, my team leader did not pay us a full salary. I went to the office to complain. They said that my team leader surely got the salary. But he did not give me. This is the very reason why private reforestation is good. The private plantation can be protected well.

(Male, 36, Elementary graduate, Group 2, Member)

IPR is much easier to improve denuded mountains. Because if the land is your own, automatically you maintain it. It is an obligation. We can also avoid corruption. For example, if the government gave me a budget for 10 hectares of reforestation, I could develop all. DENR can just keep the budget in the bank, then they send an evaluation team. If the plantation is well developed, DENR can release funds based upon their evaluation. If the fund goes through the Cooperative, there is somebody who sabotages it.

(Male, 40, Elementary graduate, Group 3, Member)

4. People's view on new migrants

Since the establishment of the VMPCI, two conflicts arose. One is between illegal loggers and the VMPCI. During the time that the VMPCI's logging operation was allowed, the Cooperative tried to regulate illegal activity. But their regulation angered the illegal loggers. However, the logging operation of the CBFM was banned and even the staff of the VMPCI went back to illegal logging. This conflict has almost ceased although some illegal loggers still have a negative sentiment toward the VMPCI.

Another conflict is between new migrants and original residents. It is a very serious issue as of 1999. Since the end of the commercial logging of ACME in 1990, new waves of land-seeking migrants have been induced in the logged-over secondary forest. New migrants are mostly from the province of Ifugao. As of 1999, about 70 Ifugao-migrants' households were registered to *barangay* Batong Labang. However, *barangay* officials estimate there are still a lot of Ifugao cultivators inside the secondary forest who are not registered yet. Nobody knows exactly how many Ifugao families stay inside the CBFM area. Since these areas are authorized to the VMPCI, the Cooperative has been trying to regulate new migrants, however, some Ifugaos are angry about the policy of the VMPCI.

The official policy of the VMPCI is that grassland can be given to the new migrants who have already settled down, but it prohibits *kaingin* (slash and burn cultivation) activity inside the secondary forest.

In each interview I asked what kind of resolution should be done. Having the VMPCI follow official policy of evicting migrants from the secondary forest and giving them grassland as alternative won support from 43.5 percent (Table 4-1). The second majority (18.8 percent) supported the violent action of evicting them and getting them to go home. Only three people supported Ifugao's migration into the forest. They are newly migrants to Ifugao themselves. These figures show the tension between original residents and new migrants.

The following are two opinions of staff of VMPCI about Ifugao migrants:

The government has to prepare the agricultural site for them. They can migrate. But here, they are entering inside the protection area of the CBFM. It should not be possible. We do

not allow migration (inside the protection area).

(Male, 51, High school graduate, Group 1, Vice-Chairman)

The VMPCI tried to stop *kaingin* before. I have confiscated some chainsaws from *kaingineros* (slash-and-burn agriculturists). Then, Ifugaos promised the VMPCI that they never would practice *kaingin*. They also promised that if there are new migrants, they would inform us and not permit new migrants any more. That was the agreement. Then we gave the chainsaws back to them. But they do not follow the agreement.

(Male, 25, 2nd year of high school, Group 1, Forest protection team)

The following opinion is also from the staff of the VMPCI. She is the only Ifugao who is working as staff of the VMPCI. She is one of the earliest Ifugao settlers in Batong Labang in the early 1980s, and became one of the leaders of the VMPCI. Her position is delicate. Because her ethnicity is Ifugao, she is asked by new Ifugao migrants to protect them. But she feels as a staff of the VMPCI that shifting cultivation of some of the new settlers is destructive. According to her:

Let's give them an area that they can develop. Then we prohibit to expand the area or shift to another area. Because they destroy plenty of trees. It can be permitted if they stay in one place and develop it.

(Female, 41, 3rd year of college, Group 3, Secretary)

The following three respondents sympathized enough with new migrants. However, they did not agree with the present *kaingin* system. The first one said that people should be allowed even inside residual forest, but the slash-and-burn method should be controlled.

The resolution should be giving the IPR to them and control their *kaingin*. *Kaingin* can be controlled. Even inside the area of the CBFM, they should not be phased out. They are original the Filipinos. IPRs must be given to them.... When I worked at Mindro (as a logging worker), I observed that people there planted coffee inside the forest, however, they do not cut down trees. They keep a limit on the amount trees harvested. This kind of agriculture is possible.

(Male, 44, Elementary graduate, Group 3, Member)

We can not phase them out, because they are Filipino citizens. The policy of the government is that foreigners can not get private land. If the government does not give the land to Ifugaos, they might become "hold-uppers." At the least, 3 hectares of land can be given. However, the land along the creek has to be protected. Joseph Estrada [president] will agree with my opinion.

(Male, 80, Group 7, Member)

Kaingineros are not only Ifugaos, but original residents also engaged in *kaingin* like myself. However, our *kaingin* is steady, unlike Ifugao. Ifugaos' *kaingin* is shifting from one place to another. It is much more destructive. However, if we prohibit Ifugaos' *kaingin* and we continue *kaingin*, of course they will feel jealousy and complain about it... But, *kaingin* is really a bad practice. The government and the VMPCI must prohibit it.... Why is it so hot although now it is supposed to be the rainy season? Then when typhoon comes, landslides easily occur on the mountain, because there are no trees.

(Male, 38, 2nd year of college, Group 1, Non-member)

The following are examples of the radical opinions that the new migrants in the forest should be evicted and forced to return home.

We have to prohibit *kaingin*. The best way is asking the help of military and the government..... The members of the VMPCI are pitiful. The Cooperative was supposed to be the one that managed the forest. I wish they (Ifugaos) had discipline (to regulate themselves). If they continue to cut, we are the ones who will be suffering from flash floods and land slides.

(Male, 57, Elementary graduate, Group 2, Member)

We should phase them out. They are seriously destroying the mountain. The best way is that we call the support from military and DENR. Then they would be the ones who phase them out. The VMPCI has to connect with the military and the DENR.

(Male, 54, 1st year of high school, Group 1, Member)

It could be better if all Ifugaos were phased out. The time might come that they [Ifugaos] control the mountains as their own. Then, they will prohibit our entry into the mountain. VMPCI should talk with high officials of the government, then the government would have to regulate them.

(Male, 39, Elementary graduate, Group 3, Member)

Finally, the following are the views of new Ifugao migrants on the VMPCI's policy. Since the relations between new migrants and the VMPCI are not good, it was very hard for me to interview them about this issue. Some of the new migrants refused to answer me. Therefore, I was only able to get 5 respondents from Group 5, and 3 out of 5 said that they do not like VMPCI's policy to stop *kaingin*.

I do not agree (of the policy to stop *kaingin*). Of course if you continuously plant crops in one place, harvest is going to decrease. How do we survive? We need to move to another place for a better harvest.

(Male, 22, 5th year of elementary, Group 5, Non-member)

Following is a comment of a new migrant who agreed with the VMPCI's policy. He migrated to Batong Labang together with his brothers in 1996. He occupied an area that was formerly brush vegetation. He produces mainly banana and does not use the slash-and-burn method of agriculture. The ones who are engaged in slash-and-burn method are producers of upland rice and maize.

I agree with the policy (to stop shifting cultivation). However, newcomers do not know the policy. The VMPCI or *barangay* council must inform them [newcomers] about it. Until now, they do not try to inform people well about their program. In *Pulang Lupa* [Name of their resident. It is a part of Batong Labang], all Ifugaos are registered to the *barangay* council. But in the upper portion, there are still a lot of people who do not register.

(Male, 24, High school graduate, Group 5, Non-member)

The following respondent strongly complains about the reforestation project because

reforestation areas of VMPCI overlap with some farms of new migrants. According to her, the VMPCI reforestation worker did not care about the possession of new migrants and planted yemane even inside their farms. Thus reforestation project made some Ifugao have anti-VMPCI sentiments.

I think the policy of the VMPCI is nice. They say that brush land is allowed for our cultivation and they recommend us to plant trees. I agree that *kaingin* in the natural forest should be prohibited. Actually, there are others who are engaged in *kaingin* inside the natural forest. They are newcomers and they do not know the policy.... Although their [VMPCI] explanation is nice, however, I heard some rumors about plantations that are not so good. Some contractors just get allowances from the VMPCI, though they did not plant trees. Then sometimes, they plant yemane even inside resident lots. So some Ifugaos are angry about it. I like planting trees, too. Because banana is not so stable a product. We also care about the future of our children. However, the problem is that they [the VMPCI] try to plant trees inside our private lots. Maybe, when the harvest time comes, only the Cooperative will get the benefits. If the purpose of the plantation is just like this, some say that they will fight until death. If the VMPCI wants to phase us out, we will fight by *bolo* [mountain knife].

(Female, 53, Elementary graduate, Group 5, Non-member)

5. People's views on the future of the CBFM

Finally, let us analyze how people evaluate the achievements of the CBFM program. I asked the question, "Do you think that the forest is returned to the people under the CBFM program?" The ones who answered "yes" amounted to only 13.0 percent (Table 5-1), while 28.6 percent answered "no," and, 33.8 percent think that it is going to be true if implementation of the program is continued.

The following four comments are from staff of the VMPCI. Opinions on this point vary even among the core members of the Cooperative.

I think the slogan of the CBFM - "People first so that sustainable forestry may follow" - is a good idea because that means the community survives first. My interpretation of the slogan is that the government gives more livelihood projects to the community so that people do not rely on or depend on forest resources. People survive; forests also survive. An important object of the CBFM is poverty eradication in the uplands. Because the way to survive here is going to the forest and getting the resources unless the organizations find job opportunities not to depend on the forest.

(Male, 30, College graduate, Group 6, General manager)

Well, the government is still controlling the land. But it is okay. It is much better than before. At least, there is a participatory procedure. We need more accurate policies. Maybe, what the VMPCI needs is sincerity action. If we do not protect the government policy, the CBFM program will not last long. Sincerity is the key to implementing the program.

(Male, 34, 3rd year of college, Group 6, Surveyor)

Oh, it is not true, because ownership itself is not given to the people. Returning forest to the People? It is only now that the government considers that kind of program. The mountains are already denuded. It should have been much earlier.

(Male, 51, High school graduate, Group 1, Vice-Chairman)

Since the actual management policy and regulations come from the government, 28.6 percent of respondents think that the forest is still controlled by the government. Especially, some loggers strongly complain about the government. Following are some examples of the criticism against the DENR. The last one even said that people can manage the forest without the government, and the DENR is not a necessary organization.

I do not believe it. If they return the forest to the people, why do they prohibit (harvesting trees)? The government made the policy then violate it themselves. They confiscate timber (from illegal loggers), then they sell it for their own profit. That's why life here in Isabela is difficult.

(Male, 46, 3rd year of high school, Group 3, Non-member)

Even if the forest is returned to the people, they can not manage well, because they do not have any budget. As long as the budget comes from the government, they are controlled by the government.

(Male, 45, Elementary graduate, Group 3, Member)

It is not true. If the slogan was true, why is the community is still under the supervision of the DENR? I wish there was only the BIR (Bureau of Internal Revenue). We would just pay taxes to the BIR, then we can manage the forest. That's it.... Why is the DENR still collecting the forest charges? The DENR is not necessary. During the time of (commercial) logging, TLA holders did not follow the agreements with the government. The company bribed the evaluator from the DENR, then the evaluator reported to the office that the company is very good....

(Male, 44, Elementary graduate, Group 3, Member)

The following two comments are from positive supporter of the CBFM program.

It will be true. It depends on people here. Because we are planting trees now. All mountains were controlled by TLA holders before and we were just laborers. But now we can manage by ourselves.

(Male, 38, Elementary graduate, Group 3, Member)

The CBFM is a very nice idea. People are also responsible to manage resources here. Now we are busy to plant trees. But people and the government must work together. If the government dislikes going together with people, who manages the forest? Nobody. At the same time, if people do not like to work with the government, there is also nobody. That is why our government and people must assist each other. The resources here are not just for our own but also all the people in our country.

(Male, 70, 1st year of high school, Group 2, Member)

The CBFM program has just been started and there are still a lot of problems to be solved. As we have seen above, a lot of villagers complained about the implementation of the program.

However, when I asked, "Which is a better forest management system; the former TLA system or the present CBFM?" Most people, 81.7 percent, answered that the present system is better (Table 5-2). Although many of them complained about the program at the detail level, they support and admire

the basic principles of the CBFM itself. Even many ex-logging workers, who lost their jobs when the TLA was banned, support the present system.

TLA holders just conducted rampant logging without planting. They just cut and cut until there were no more trees to be cut. We have to stop that kind of attitude. If the system is cut and then trees are planted, it is good.

(Male, 45, College graduate, Group 6, Board member of the VMPCI)

Filipinos do not have money. And a lot of businessmen operating here were from other countries. Because they have a lot of money... Now they have left, because they made the mountains bald. Their aim was, simply, money. But they did not care about the future of Filipinos.

(Female, 41, 3rd year of college, Group 3, Secretary)

In my personal opinion, I wish we had stopped any outsiders entering here at that time. So we could not deplete the resources in the mountains. Some others say that it was better at that time, because there were a lot of jobs and money. But they did not care that mountains were destroyed by the operations.

(Male, 51, Elementary graduate, Group 3, Member)

The TLA should be totally stopped. The present system is much better. The community is controlling the forest now. The beneficiaries of TLA are only the big capitalists.

(Male, 39, Elementary graduate, Group 3, Member)

The present condition is much better. Only capitalists got profit before. Only foreigners benefited. They managed the forest and we were just wage laborers. Now, you invest for your work, then you get your timber. Those big capitalists in the Philippines are full foreigners. Maybe, in Japan, if you get income, you save it for your future. But here, even if you stock income for a year, you spend all within a month and no savings for the future...

(Male, 40, Elementary graduate, Group 3, Member)

There were 8 people, or 11.3 percent, who preferred the former TLA system. Most of them were ex-logging workers who belonged to Group 3 or 4. It is natural since they are the ones who lost their jobs by the logging ban. Following are some comments from the TLA supporters. They are non-members of the VMPCI and did not benefit from the CBFM program.

Because I was a truck driver during the time of (commercial) logging, when it comes to myself, the former system was better. I was able to get stable salary at that time. However, the lesson (of commercial logging) is that the forest became bald.

(Male, 46, 3rd year of high school, Non-member)

It is difficult to answer. I think the government has to manage the forest if they can care for it well. For me, the former condition was much better. There were a lot of jobs. If the government controlled the forest again, they will bring foreigners to manage it. Then, many people will get benefits just like before. The road access will be also good if the commercial logging starts again.

(Male, 53, Elementary graduate, Group 3, Non-member)

The logging of ACME before was much better than present. It was selective cutting. But now, oh my god, they [illegal loggers] harvest even small trees. Trees in the watershed are also cut down. I prefer ACME's logging.

(Male, 46, High school graduate, Group 3, Non-member)

The final question was, "Which is the best body for forest management: the community, individuals, the government, or a company?" As Table 5-3 shows, community-based management was supported by more than half. However, not a small number of people, 16.9 percent, supported individual-based management, meaning dividing the area up for each villager. Supporters of the government management were only a few; there were no supporters of the private company.

The government must manage, because they know well about the process how to manage the forest. When it comes to the VMPCI, they might harvest all trees they have seen. So the government is better than the Cooperative.

(Female, 44, Elementary graduate, Group 5, Member)

Community. But the support from the government is necessary. If there is no budget in the community, people can not work well.

(Female, 40, 3rd year of college, Group 6, Member)

In my personal opinion, individual-based management is the best. If you are industrious, you will be successful. Then if you are lazy, you have a sin. There will be no corruption with the individual management.

(Female, 38, Elementary graduate, Group 1, Member)

Individual management is the best. You can improve your private lot properly, unlike the plantation of VMPCI. If there are no guards (in the VMPCI plantation), it is burnt down by fires. Then if there is no budget from the government, they do not care about it.

(Male, 36, Elementary graduate, Group 2, Member)

It must be the community. They are the ones who depend on the mountain. Aside from the community, how do the people, who stay far away, manage? When the forest fire occurs, who can protect it?

(Male, 40, Elementary graduate, Group 4, Member)

I think community is the best, because local people themselves can find problems. And they know what should be done. Officials of the government just sit down in the office. Their ambition is just money. Then, after releasing the budget, they do not care any more. On the other hand, people in the community know what is needed.

(Male, 35, College graduate, Group 3, Computer operator of the VMPCI)

All forms of management have a possibility to be successful... However, the community can help the people. But the company thinks only about private profits. They operate for their own wealth and not for the people. If the government policy is true, the CBFM is a program to benefit for not only rich but also poor. So, in my opinion, the best way is the CBFM strategy.

(Male, 36, 3rd year of college, Group 1, Member)

6. Conclusion

1) Internal constraints of participatory forest management

As we have observed above, some conflicts have arisen since launching the CBFM program. One conflict is between the VMPCI and illegal loggers; another is between the VMPCI and new migrants. These conflicts emerged based on timber resources and land control policies of the CBFM. Some villagers who have not benefited from the CBFM program developed anti-VMPCI sentiments. It seems that relationships under the VMPCI are characterized by *gesellschaft* (mechanistic and rationally developed contract relationships) rather than by *gemeinschaft* (spontaneously arising organic relationships with strong reciprocal bonds). People are expecting benefits from the VMPCI rather than being willing to make self-sacrifice.

The position of the VMPCI is two-sided. It has to maintain government policies and implement the government's guidelines in order to get resources from the government. At the same time, it also has to comply with requests from villagers for collaboration. However, since the demands of the government and villagers are contradictory, the policies of the VMPCI sometimes fluctuate.

2) Main actors of participatory forest management

Although there are some villagers who complain against the VMPCI, 55.8 percent of sampled respondents still think that the community is the best actor for forest management (Table 5-3). This shows, at least, that the majority of people agree with the concept of communal management.

At the same time, when it comes to reforestation projects, more people prefer individual management of tree plantations rather than the Cooperative management (Table 3-4). This is somewhat contradictory. However, both individual and communal management can be applied at different levels.

Inoue (1997) discussed two possibilities of communal forest management. One is "spatial" implementation of the commons. This is communal management based on communal ownership. Another one is the "conceptual" implementation of the commons. This type is basically individual management but their use of resources is regulated and controlled by the community. In the research area for this study, it seems that these two ways of communal management are better to be implemented together.

In the case of the remaining secondary forests, community-based selective logging management must be applied. Illegal logging is basically open access without any regulations. If the VMPCI organized all illegal loggers, at least a selective logging system and controlled management would take over. It is much better than the present open-access type of timber extraction. Therefore, the spatial type of commons is better to be applied in order to manage the remaining natural forest.

The policy of suspending logging in all the CBFM sites applied by the Estrada administration in 1998 is clearly wrong. Most of the loggers think that the forest has not yet been returned to the people and is still controlled by the government (Table 5-2). This sentiment arose mainly due to the logging suspension. The logging-ban policy just prompted the people to engage in illegal logging activities again. The government should permit the Cooperative to conduct selective logging in order to sustain livelihoods and also timber resources.

On the other hand, in the case of already denuded grassland, I believe that the conceptual type of commons is better. I doubt if the ADB-funded, large-scale reforestation project is really worth being implemented against the negative sentiments of many villagers. Since villagers are now spontaneously planting trees in their own lots, grasslands too can be reforested even if the land is divided up by

household. The majority of villagers themselves believe individual management of tree plantation is much better than the Cooperative's management (Table 3-4). This sentiment comes from their experience that individual management of tree plantations is better than cooperative management. But it does not mean that the Cooperative has no role. Even if grassland is divided individually, the Cooperative still has an important role to control villager's farming systems for sustainable use. Harvesting and marketing of harvested timber is also important work of the Cooperative.

The Cooperative will regulate the slash-and-burn agriculture of new migrants. It is not because they were requested to do so by the government, but because villagers themselves think they should protect the forest. This kind of collective action is a big achievement of the CBFM program. When the land tenure was not authorized to the community, they were not able to take this kind of action. For new migrants, grassland can be allocated as an agro-forestry site.

Since land tenure was authorized to the community, the majority of people have been thinking that the forest should be their own and they can manage it by themselves in a sustainable way. Although the community was newly established after the war and loosely structured, it has a capability for self-organizing. Therefore, the government should devolve control of resource use of the CBFM sites so that conflicts over resources will be resolved and the *gemeinschaft* type of social organization can be formed.

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Figure 1. Average Income by each Groups

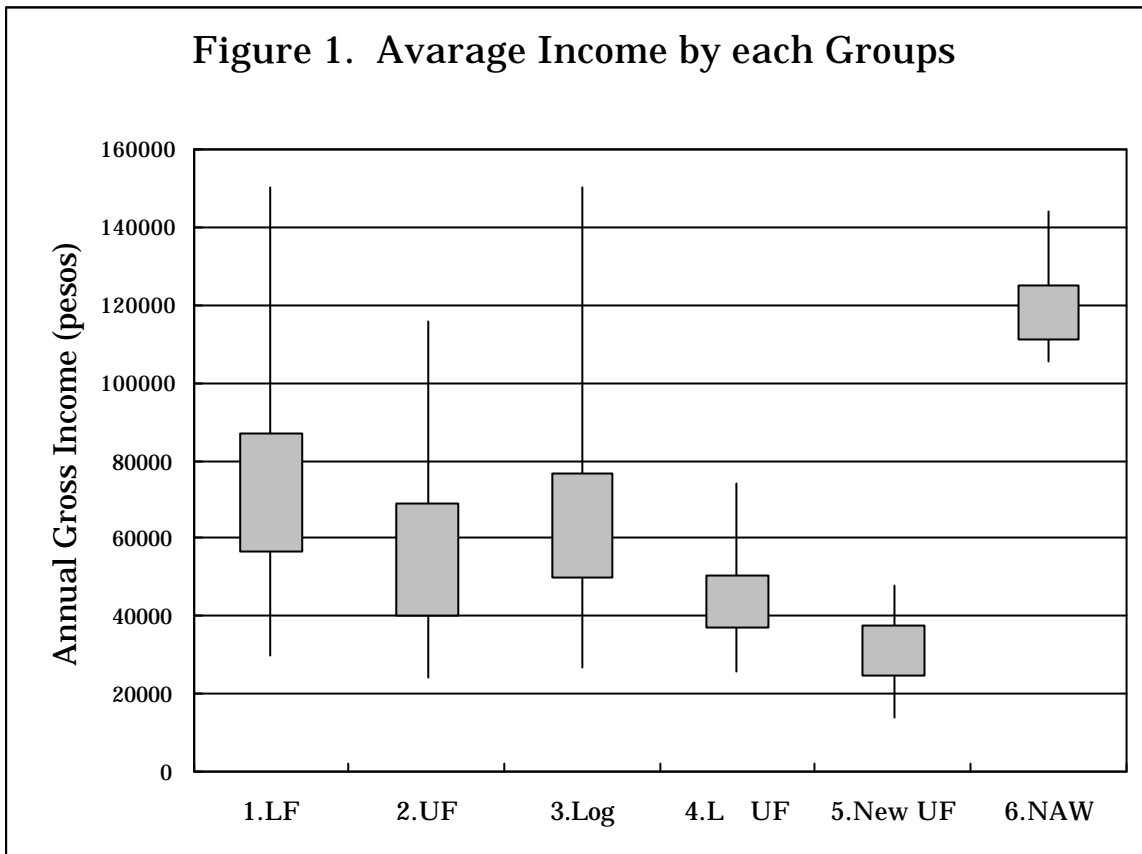
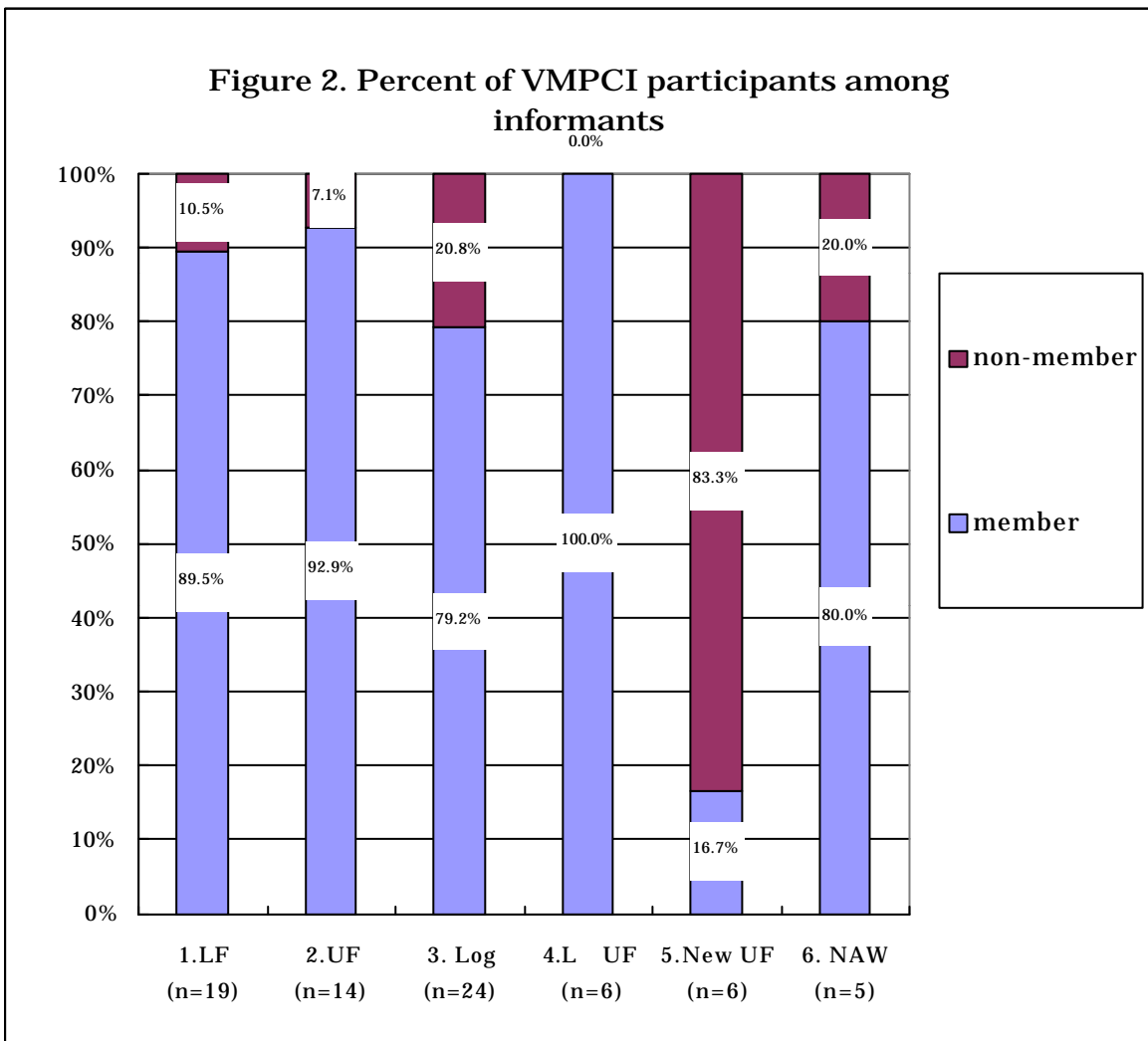


Figure 2. Percent of VMPCI participants among informants



Q. Which do you support, to permit the logging activity under CBFM program or to prohibit it?

Table 2-1-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Permit	15	10	22	3	3	4	2	59	76.6%
Prohibit	3	3	1	2	2	1	1	13	16.9%
No idea	1	1	0	1	1	0	0	4	5.2%
It depends	0	0	1	0	0	0	0	1	1.3%
Total answeres	19	14	24	6	6	5	3	77	100.0%

Table 2-1-b

	Logger (%)	Non logger (%)	Total	%
Permit	22 (91.7%)	37 (69.8%)	59	76.6%
Prohibit	1 (4.2%)	12 (22.6%)	13	16.9%
No idea	0 (0.0%)	4 (7.5%)	4	5.2%
It depends	1 (4.2%)	0 (0.0%)	1	1.3%
Total answeres	24 (100.0%)	53 (100.0%)	77	100.0%

Q. Which do you support, to permit carabao logging and water logging or to prohibit them?

Table 2-2-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Permit	5	3	12	1	1	1	0	23	29.9%
Prohibit	9	9	4	2	3	4	2	33	42.9%
Alternative job before prohibition	0	0	6	1	0	0	0	7	9.1%
Better to prohibit but impossible	5	2	2	2	0	0	1	12	15.6%
No idea	0	0	0	0	2	0	0	2	2.6%
Total answeres	19	14	24	6	6	5	3	77	100.0%

Table 2-2-b

	Logger (%)	Non logger (%)	Total	%
Permit	12 (50.0%)	11 (20.8%)	23	29.9%
Prohibit	4 (16.7%)	29 (54.7%)	33	42.9%
Alternative job before prohibition	6 (25.0%)	1 (1.9%)	7	9.1%
Better to prohibit but Impossible	2 (8.3%)	10 (18.9%)	12	15.6%
No idea	0 (0.0%)	2 (3.8%)	2	2.6%
Total answeres	24 (100.0%)	53 (100.0%)	77	100.0%

Q. How do you evaluate VMPCI's reforestation project?

Table 3-1-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Successful, very well	6	9	4	3	3	0	1	26	33.8%
Normal level	9	4	15	3	2	3	2	38	49.4%
Not so successful	1	1	3	0	0	0	0	5	6.5%
No idea	3	0	2	0	1	2	0	8	10.4%
Total answeres	19	14	24	6	6	5	3	77	100.0%

Table 3-1-b

	Hired by reforestation (%)	Not hired by reforestation (%)	Total	%
Successful, very well	13 (40.6%)	13 (28.9%)	26	33.8%
Normal level	18 (56.3%)	20 (44.4%)	38	49.4%
Not so successful	1 (3.1%)	4 (8.9%)	4	5.2%
No idea	0 (0.0%)	8 (17.8%)	8	10.4%
Total answeres	32 (100.0%)	45 (100.0%)	77	100.0%

Q. Do you plant yemane or other variety of trees in your own farm?

Table 3-2-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Yes	17	12	18	6	1	4	1	59	76.6%
No	2	2	6	0	5	1	2	18	23.4%
Total answerers	19	14	24	6	6	5	3	77	100.0%

Table 3-2-b

	Hired by reforestation (%)	Not hired by reforestation (%)	Total	%
Yes	30 (93.8%)	29 (64.4%)	59	76.6%
No	2 (6.3%)	16 (35.6%)	18	23.4%
Total answeres	32 (100.0%)	45 (100.0%)	77	100.0%

Table 3-2-c

	Member of VMPCI (%)	Non-member (%)	Total	%
Yes	53 (84.1%)	6 (42.9%)	59	76.6%
No	10 (15.9%)	8 (57.1%)	18	23.4%
Total answeres	63 (100.0%)	14 (100.0%)	77	100.0%

Q. If you plant yemane or other variety, what is the reason? (Plural answer is counted)

Table 3-3-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
For the future income	8	6	12	3	1	2	1	33	47.8%
For house consumption	0	0	3	1	1	1	0	6	8.7%
As a member of VMPCI	7	2	0	0	0	0	1	10	14.5%
To alternate natural resources	1	2	7	2	0	0	0	12	17.4%
To improve the environment	0	3	1	0	1	2	0	7	10.1%
Boundary making	0	0	1	0	0	0	0	1	1.4%
Total answeres	16	13	24	6	3	5	2	69	100.0%

Table 3-3-b

	Hired by reforestation (%)	Not hired by reforestation (%)	Total	%
For the future income	16 (51.6%)	17 (43.6%)	33	47.8%
For house consumption	2 (6.5%)	4 (10.3%)	6	8.7%
As a member of VMPCI	3 (9.7%)	8 (20.5%)	10	14.5%
To alternate natural resources	7 (22.6%)	5 (12.8%)	12	17.4%
To improve the environment	3 (9.7%)	4 (10.3%)	7	10.1%
Boundary making	0 (0.0%)	1 (0.3%)	1	1.4%
Total answeres	31 (100.0%)	39 (100.0%)	69	100.0%

Table 3-3-c

	Member of VMPCI (%)	Non-member (%)	Total	%
For the future income	31 (50.8%)	2 (25.0%)	33	47.8%
For house consumption	5 (8.2%)	1 (12.5%)	6	8.7%
As a member of VMPCI	10 (16.4%)	0 (0.0%)	10	14.5%
To alternate natural resources	11 (18.0%)	1 (12.5%)	12	17.4%
To improve the environment	3 (4.9%)	4 (50.0%)	7	10.1%
Boundary making	1 (1.6%)	0 (0.0%)	1	1.4%
Total answeres	61	8	69	100.0%

Q. Which is better reforestation approach, individual management or cooperative management?

Table 3-4-a

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Individual	6	5	13	2	2	4	1	33	42.9%
Cooperative	1	3	3	3	1	0	1	12	15.6%
Same, the merits and demerits	12	5	5	1	0	1	1	25	32.5%
No idea	0	1	3	0	3	0	0	7	9.1%
Total answeres	19	14	24	6	6	5	3	77	100.0%

Table 3-4-b

	Hired by reforestation (%)	Not hired by reforestation (%)	Total	%
Individual	12 (37.5%)	21(46.7%)	33	42.9%
Cooperative	7 (21.9%)	5(11.1%)	12	15.6%
Same, the merits and demerits	13 (40.6%)	12(26.7%)	25	32.5%
No idea	0 (0.0%)	7(15.6%)	7	9.1%
Total answeres	32 (100%)	45 (100.0%)	77	100.0%

Q. What is the resolution of kainginero problem in the natural forest?

Table 4-1

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Permit	0	0	0	0	3	0	0	3	4.3%
Permit settlers but prohibit shifting cultivation	3	0	4	2	1	0	2	12	17.4%
Permit already settled one and prohibit new comers since now	5	4	1	0	0	1	0	11	15.9%
Evict and go them home	4	1	7	0	0	1	0	13	18.8%
Evict from the forest and give IPR in the grassland	6	6	10	2	2	3	1	30	43.5%
Total answerers	18	11	22	4	6	5	3	69	100.0%

Q. Which is better forest management system, former (TLA) system or present (CBFM) system?

Table 5-1

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Present system (CBFM)	16	12	18	4	-	5	3	58	81.7%
Former system (TLA)	2	0	4	2	-	0	0	8	11.3%
Same, the merits and demerits	1	1	1	0	-	0	0	3	4.2%
No idea	0	1	1	0	-	0	0	2	2.8%
Total answerers	19	14	24	6	-	5	3	71	100.0%

Note: This question is not asked to group 5 (new migrants) since they settled down after the cancellation of TLA.

Q. Do you think that the forest is returned to the people under the CBFM program?

Table 5-2

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Yes	2	3	1	2	0	2	0	10	13.0%
Not yet	5	3	9	2	2	1	0	22	28.6%
It is going to be true.	6	3	10	2	0	2	3	26	33.8%
It depends.	2	0	0	0	0	0	0	2	2.6%
Too early to judge.	4	3	4	0	1	0	0	12	15.6%
No idea	0	0	0	0	3	0	0	3	3.9%
Others	0	2	0	0	0	0	0	2	2.6%
Total answerers	19	14	24	6	6	5	3	77	100.0%

Q. Which is the best body for forest management, community, individual, the government or company?

Table 5-3

	1. LF	2. UF	3. Log	4. L UF	5. New UF	6. NAW	7. Other	Total	%
Community	8	8	17	3	1	4	2	43	55.8%
Individual, family	2	2	4	2	2	1	0	13	16.9%
The government	1	0	2	1	0	0	0	4	5.2%
Private company	0	0	0	0	0	0	0	0	0.0%
Mixing with community and individual	3	3	0	0	0	0	1	7	9.1%
Mixing with community and the government	2	1	0	0	0	0	0	3	3.9%
Mixing with the government and individual	1	0	0	0	0	0	0	1	1.3%
Mixing with every types.	2	0	1	0	0	0	0	3	3.9%
No idea	0	0	0	0	3	0	0	3	3.9%
Total answerers	19	14	24	6	6	5	3	77	100.0%

RESEARCH ON SOCIO-ECONOMIC AND HUMAN CULTURE CHARACTERISTICS IN RELATION TO PARTICIPATORY FOREST MANAGEMENT IN TA HOC COMMUNE - MAI SON DISTRICT

Le Quang Trung¹
And collaborators

Introduction

1. Background:

Mai Son is a district of Son La province with total natural area of 141,026 ha, representing 10.03% of the area of the province. The inhabitants of Mai Son district belong to 6 ethnic groups: Thai, Muong, Kinh, Kho Mu, Xinh Mun and H'Mong with total population of 112,084 people.

Mai Son is a mountainous district with large land area favorable for all-sided agricultural development: Food crops, industrial crops, livestock keeping, forest career, fruit trees medicinal plants. The potentiality for industrial development of the district is also great. But those great potentialities have not yet been well exploited and forest recourses have been seriously devastated. Most of the people of the minority ethnic group in the upland have not had a stabilized livelihood and still mainly destroy forests for planting of food crops. This is a long - standing production system and way of living, man depends wholly on nature and leads a very difficult life. Hundreds of thousand hectares of forest that has been destroyed or exhaustedly exploited has caused and is causing very great damages to water sources, soil, climate, weather and living environment. This situation is not only threatening the people who are still practicing shifting cultivation and settlement but also exerting adverse effects on the lowland areas.

Carrying out this research in Mai Son we hope to find out the factors that hinder the participation of the communities, people and social organizations in forest management and masters will be found thereof for participation in the management and recommendation will be given for overcoming difficulties in meeting the requirements of sustainable forest management in the district.

2. Objective of the research subject:

Based on the results of the survey and the evaluation of the socio-economic and human culture characteristics there will be found out hindrances to the communities' participation in forest management in Mai Son district, Son La province, the masters will be found thereof to participate in forestry management in the district.

3. Content of the research:

- i) Economic aspects.*
- ii) Social aspects.*
- iii) Cultural aspects.*
- iv) Internal/immanent constraints for participatory forest management.*
- v) Main actors to manage forests.*
- vi) Solutions to enhance the involvement of local community in forest management.*

4. Research methods.

The following methods have been made use of in implementation of the research subject:

- Synthesis and analysis of documents and data already available.
- Participatory rural appraisal methods (PRA).
- Quick interview.
- Expert consultancy and scientific seminar.

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Part I

GENERAL SOCIO-ECONOMIC AND HUMAN CULTURE CHARACTERISTICS OF MAI SON DISTRICT, SON LA PROVINCE

I - Social characteristics:

I - Ethnological, population and labor force characteristics:

Mai Son district is inhabited by 7 ethnic groups: Thai, Kinh, H Mong, Kho Mu, Xinh Mun, Muong and Dao.

- *Thai ethnic group:* Thai is the ethnic group that has been living from long time ago in Mai Son. Main production activity is agriculture (water- rice cultivation + slash - and - burn cultivation) combined with livestock keeping (animals, poultry), handicrafts (weaving, matches making, cloth weaving, pottery). These handicrafts and their products are of a traditional and unique nature. Many advanced techniques have been applied in cultivation especially with water - rice. The Thai group lives a sedentarized life. Traditional beliefs are ancestry worship, worship to heaven and hamlet gods and there are many rituals associated with agricultural production. The Thai group has its own script and its script is among the earliest ones. Thai language is the most popular one in the Northwest of North Vietnam.

- *Kinh ethnic group:* The Kinh group in Mai Son is new immigrants from the North Vietnam delta region. This population sector is of higher cultural standard. The production and business activities are diversified: agriculture, commerce, services, handicrafts. People of this group live concentrated along main roads with easy communication and they have rather high living standards.

- *H Mong or Meo ethnic group:* The living and production habit is shifting cultivation and settlement. The living area of this group is therefore rather large. Cultivation system is slash- and- burn cultivation. Now the Meo group already has a sedentarized life but the production system is still shifting cultivation. Generally speaking there have been many changes in the life of Meo ethnic group now but the group still meets with many difficulties and shortages in life. The people's cultural standard is low with many backward customs.

- *Kho Mu ethnic group:* Kho Mu is the aborigine of this area. The people's living and production habit is shifting cultivation and settlement, slash- and - burn cultivation system with main food crops such as hill - rice, maize, cassava. Forest product collection, and hunting are still maintained. Hamlets are usually far from one another. Houses are too simple with few utensils. Much progress has been made where fixed cultivation and sedentarization has been practiced.

- *Muong ethnic group:* Muong ethnic people usually live in low areas, along river bank, mainly concentrated in two hamlets of Ta Hoc commune. Main cultivation practice is water- rice cultivation in combination with slash - and - burn cultivation. The Muong ethnic people frequently communicate with other ethnic communities especially with the Kinh ethnic group and therefore have rather good cultural standards and a rich material and spiritual life. Cultivation standard has been upgraded.

- *Xinh Mun ethnic group:* is a population sector that has been long living in this area, even earlier than the Thai group. It lives along the Vietnam - Lao border. Living and production habit is shifting cultivation and

settlement with backward cultivation techniques. Forest product collection and hunting activities are still maintained. People's cultural standard is especially low with many backward customs.

1.2 - Population:

Mai Son is a district of large population and high population density of Son La province. The population is 112,084 people with 21,591 households representing about 19.04% of the whole population of the province. Average population density is 79.5 people/km². Population growth rate now is 1.6%.

The population of the district is unevenly distributed between areas and communes and is highly concentrated along main roads, representing 99.7% of the total population of the district.

1.3 - Labor force:

Labor force of the district is about 48,197 people, representing 43% of the total population.

The easily seen over-all characteristic of the labor in Mai Son is young, unskilled and is of low technical level and mainly concentrates in agricultural and forest production activities. With the magnitude of population and labor as at present, the pressure on land and employment provision is really a problem with pending solution.

2 - Education and training:

Owing to the attention paid by the State the cause of education and training in the district in the recent past has made good steps forward. Up to now universal primary education has been attained in 18 out of 22 communes in the district. The ratio of school age children attending schools keeps increase. the education and training branch in Mai Son however still meets with problems such as:

- Lack of schools and school-rooms, especially in remote communes in the district.
- The quality of teaching and learning is still low.
- The ratio of school children that are incapable to attend secondary schools remains high.

3 - Other social problems:

3.1 - Health service and health care for the people: Health service and health care for the people has been much improved with such results as: restricting the outbreak of diseases, reducing the ratio of mal-nutrition children, reducing natural population growth rate, providing vaccination to the children, malaria and goiter control.

3.2 - Infrastructure and rural communication: With a mountainous area such as Mai Son the infrastructure and rural communication system are the weakest aspects. Although there are already accessible roads for automobiles to the centre of 22/22 commune centres and township but most of the roads are of earth, the traveling is difficult even in dry season. Most of inter - hamlet roads are foot paths, means of traveling is by foot.

II - Economic characteristic:

1 - General characteristic:

The economy of Mai Son is mainly an agricultural and shelf- sufficing one although in recent years some areas have initially begun a commodity production economy. Material and technical foundation of the economic branches is still meager, the careers in the rural areas have not yet developed. As regards economic geography, Mai Son is divided into 3 main economic zones as follows:

Zone I: is the area of 16 communes and the township and lies on either side of national road No. 6A with favorable conditions in communication, rather good infrastructure, initially developed commodity

production economy. This area has great potentiality in land resource favorable for industrial crops, livestock keeping and processing industry.

Zone II: the area bordering Da River lake, consisting of 2 communes adjacent to the lake. The quantity of commodities produced is still small, production is still of self-sufficing nature. The majority of people in this area has already practiced fixed cultivation and sedentarization. Some people have practiced sedentarization but still go on with shifting cultivation. Main potentiality of this area is forest and forest land favorable for development of industrial crops, fruit trees, livestock keeping and production of raw material for processing industry in zone I.

Zone III: This is the remote area of the district with 4 remote and border communes. There are not yet roads for automobiles, traveling is very difficult. The production is entirely of natural and self-sufficing nature. There is not yet commodity production. Main production activities are slash-and-burn cultivation and forest products collecting. Part of the population has adopted sedentarization but shifting cultivation and settlement still remains in this area. The people's average income is lowest in the district. The people's life is utterly difficult. The ratio of people suffering hunger and poverty accounts up to 50%. Main potentiality is forest resource.

2 - Economic characteristic:

2.1 - Agricultural production:

2.1.1 - Agricultural land:

The cycling coefficient of agricultural land is 1.2 in which that of rice-cultivation land is 1.5. The cycling coefficient of land is of low average level as compared with that of the region and whole country. With double-rice crop area the people have planted two crops of rice per year or one rice crop and one subsidiary food crop depending on the irrigation conditions. With hill garden area the people have applied agro-forestry system, fruit trees combined with annual agricultural crops.

2.1.2 - Cultivation:

- Planted crops: Paddy, maize, cassava and zinger sp. are main agricultural crops that are planted in Mai Son. In recent years besides intensive management and multiplication of crop, people have paid attention to changing the structure of planted crops and livestock in agreement with market mechanism. Depending on their own conditions, the households have made great effort in investment in procurement of chemical fertilizers, insecticides, new crop varieties of high productivity.

The development of industrial crops, fruit trees and vegetables is still slow although initial steps have been made in changing the structure of planted crops for higher effectiveness. The output is still small and the income obtained is still inconsiderable.

2.1.3 - Livestock keeping: From 1995 to 1998 the herd of buffaloes increased 3.41%, the number of pigs increased 53.81% and the poultry increased 18.21% but the herd of oxen decreased 16%. In general livestock keeping has strongly developed.

2.1.4 - Aquaculture and fishery:

Aquaculture and fishery in Mai Son is not yet developed. Forms of fresh-water aquaculture and fishery are very limited. Yield of aquaculture and fishery tended to gradually decrease and in 1999 it was only 252.4 tons squalling to only 77.18% that of 1998.

As regards fishing: Water body of Da river lake is large but there have been only small fishing activities by the households that live adjacent to the lake. The yield in 1998 was 47.5 tons and in 1999 it decreased to 34.8 tons.

2.1.5 - Problems in agricultural production and fishery:

- The production is of a spontaneous nature, without planning. The producers are interested only in immediate benefits and little attention is paid to long-term interest due to lack of information on market. The diversification of planted crops and livestock and the transformation of agricultural production structure in the direction of commodity production are not well defined.
- Agricultural production is not yet well-balanced: Results of agricultural, forest and aquaculture production in the 3 recent years although were better but there has been an imbalance between and within the 3 sectors.

2.2 - Industrial and handicraft production:

Industrial and handicraft branch has made initial steps in its development with some industrial activities meeting the on-the-spot requirements such as cement, brick, sugarcane, sugar and paper (paper mill is being under construction) etc. In the recent years the growth rhythm of industrial production in Mai Son was rather good. Mean increase in industrial production was over 19.6% of which in 1996, 1997, 1998 and 1999 the increases were 11.57%, 21.3%, 22.1% and 23.6% respectively.

Problems in industrial production at present in the locality:

- Material and technical foundation and equipment are out-of-date, lack of capital, competitiveness of the products is weak, low economic efficiency.
- Raw material and land used for industrial production now exert adverse effects on forest resources, e.g. Exploitation of fuelwood and raw materials for sugar and paper industries.

2.3 - Services activities:

Service activities in the locality are in small scope and isolated. Although the value of service activities did increase but its ratio in total revenue tends to gradually decrease.

2.4 - Livelihood:

- Mean annual income per capita: 1,954,000 dong equivalent only to US\$ 150.3.
- Mean annual income per household: 10.145 million dong.
- Mean annual income per labor: 4.545 million dong.
- Mean per capita Rice-equivalent food: 319.4 kg/year.

3 - Forest production:

3.1 - Present conditions of forest resources and forest land in Mai Son:

Forested area is 25,712.3 ha representing 18.23% of total natural area. Area of bare land and denuded hills is 69,004.7 ha, representing 49% and other land types amount to 46,296 ha, representing 32.77% of total natural area. Forest cover in Mai Son is low as compared with mean forest cover in the whole country. It is now only 18.2%, uneven and does not yet meet the requirements of environment protection and forest products supply.

3.1.1 - Natural forest:

The area of natural forest in Mai Son represents 18.2% of the natural area of the district of which.

- Timber forest represents 77.79% of the natural forest.
- Bamboo forest represents 8.18% of the natural forests and mainly concentrates in Chieng Noi, Chieng Chan, Ta Hoc communes.
- Mixed forest represents 14.03% of the natural forest and concentrates in such communes as Ta Hoc, Co Noi, Na Ot.

3.1.2 - Forest plantation:

Area of concentrated forest plantation in Mai Son is 2,777 ha representing 1.97% of natural area. Planted species are Acacia, Pine, Teak, Melia azedarach, Areurites Montana, Bamboo.

3.1.3 - Bare land and denuded hills:

The area of bare land and denuded hills in Mai Son is rather large, amounting to 69,044.7 ha, representing 49% of total natural area. The soil of bare land and denuded hills is seriously degraded; soil layer is medium or thin with utterly poor fertility. In many places, conglomeration is exposed on ground surface, vegetation mainly consists of *Cylindrinca imperata*.

The process of formation of bare land and denuded hills is a long and continued process of forest destruction with such main causes as:

- + Forest destruction for slash - and - burn cultivation by the ethnic minority people living in mountainous region.
- + Abused exploitation of timber, firewood and bamboo.
- + Forest fires, cattle grazing.
- + Poor forest management.

3.2 - Systems of forest production, management and protection in Mai Son:

3.2.1 - State units participating in forest protection and production in the district:

- State- owned forest enterprise. There is in the district a State forest enterprise in operation. Mai Yen forest enterprise is a state - run one with all - sided business in forestry and is assigned as manager of Project 327, now Project 661.

- Managing Board of Project 747 of Mai Son district with the following tasks:

- + Stabilizing the life and production of the people living in the utterly critical protection zone of Da river lake (consisting of 9 hamlets of 2 communes: Ta Hoc and Chieng Chan).
- + Construction of essential infrastructure in the project area such as: Road, electricity, schools. health stations, clean water etc...
- + Raising the forest cover and creating protection forests for the Da River watershed.

- Forest protection section of Mai Son district:

- + Implementing the legal State management of the forest area and forest land in the district .
- + Organizing the activities for establishment of enclosures for forest regrowth and forest regeneration in the area of forest and forest land that does not yet have master.
- + Implementing forest fire control.
- + Coordinates in implementing forest and forest land allocation to households, groups of households and individuals as regulated by the State.

- Fixed cultivation and sedentarization committee: With the task of implementing the campaign for fixed cultivation and sedentarization targeted at the ethnic minority people who are still practicing shifting

cultivation and settlement on the basis of establishing the sedentarization areas, guiding and supporting the people in carrying out advanced cultivation systems for life and production stabilization.

- Managing Board of Project 661:

- + Planting of new forests together with protection of the existing forest area to raise the forest cover in contribution to environment security, reducing natural calamities, increasing water sources, conservation of gene sources and biodiversity.
- + Effective use of the bare land and denuded hills area; creating more employment for the laboring people, contributing to hunger elimination and poverty alleviation, fixed cultivation and sedentarization; increasing the income of the people living in the rural areas of mountainous regions; stabilizing the politic and social situation, national defense and security.
- + Supplying wood as raw material for paper and composite board production, meeting the requirements in timber, firewood, and other forest products making forestry an important economic branch, in contribution to socio-economic development in mountainous regions.

3.2.3 - Area of forest and forest land managed by other agents:

Other agents that participate in forest management in Mai Son are: Households, army units, mining units etc...

4 - Forest and forest land allocation activities in Mai Son:

Activities taken in Mai Son for forest and forest land allocation. Up to July, 1999, there only accomplished the allocation to households, groups of households and communities (hamlets) in 6 communes of total 24,913.5 ha of forest and forest land, representing 26.3% of the land area managed by forestry and 17.7% of natural area of the district.

5 - The problem of investment and credit loan in Mai Son:

5.1 - Investment:

Being a mountainous district with no natural resources, the revenue of Mai Son is very limited. That is why the programmes for socio- economic development in the district depend much on the assistance of the State. Annually the State does give priority in investment of tens of billion dong in various programmes in Mai Son, such as:

- Programme of fixed cultivation and sedentarization.
- Programme of eliminating opium poppies.
- Programme for hunger elimination and poverty alleviation.
- Programme for agricultural and forest extension.
- Programme for education.
- Programme for health service and community's health.
- Programme for clean water.
-

5.2 - Credit loan:

There are in the Mai Son district Branch of Agricultural and Rural Development Bank, Branch of Bank for the Poor, Branch of State Treasury etc... The activities of these units in the recent past did exert definite effects on the development of production in the locality.

- Activities undertaken by Branch of Agricultural and Rural Development Bank:

- + Receiving deposited money with and without time limit in many flexible ways.

- + Lending short, medium - and long - term loan in Vietnamese and foreign currencies to all economic sectors for implementation of projects serving production, business and people's life.
- + Services in granting loan and disbursement for rural infrastructure construction projects, projects of programmes.
- + Bank services
- + Construction consultancy, examination of investment projects.
- + Carrying out other activities regulated by law on credit organizations.

- *Activities undertaken by Branch of Bank for the Poor:*

- + Mobilization of capital in home and foreign countries including deposited money with and without time limit of all organizations and people from all walks of life.
- + Mobilization of savings in the community of the poor to help one another in production and using the lent money.
- + Services in granting loan by vested right from international, national organizations, individuals in home country and aboard to the poor.
- + Organization of activities for direct loan granting to the poor in short -medium -and long -time limit serving production and business undertaking.

- *Activities undertaken by Branch of State Treasury:*

- + Concentrated report on State budget revenue, implementing the regulation of the State budget grants as regulated. Carrying out the payments, controlling the State budget grant to each target.
- + Controlling the receipts and expenses of financial reserve funds of the State, and the temporarily confiscated money, properties.
- + Organizing the mobilization of capital for State budget, development investment, issuing State bonds.
- + Organizing the liquidation and regulation of funds and cash in the entire State treasury system.
- + Temporarily stops the payments to and financial liquidation with the units that violate the regulations and other commitments.

6 - Market problem:

Mai Son is a district that enjoys convenient road and waterway systems (with river port, and being run through by national road N°-6) but the production in the district does not yet make use of the advantages provided by the communication and transport convenience. Mai Son now is a market for consumption of agricultural products coming from the lowland regions such as fresh vegetables, rice, poultry, eggs, etc... Main products sold by the local people are maize, cassava, Zinger sp., sugar cane, forest products, fruit...

Part II

RESULTS OF STUDYING ON SOCIO-ECONOMIC SITUATION AND THE PEOPLE PARTICIPATION IN FOREST MANAGEMENT IN TA HOC COMMUNE - MAI SON DISTRICT

I - General physical characteristic of the studied location:

- Geographical position: Ta Hoc is a commune lying at the right side of Da River. The centre of the commune is 30 km far from Hat Lot (Mai Son district township) in the East. The natural area of the commune is 11,500 ha. Five ethnic groups that live in the commune are HMong, Thai, Muong, Kho Mu and Kinh.
- Topography: the entire topography of Ta Hoc is high mountains and hills with steep slopes. The topography is intricately dissected. Mean slope gradient is 25-30° and at some places the slopes are over 50°. Complicated topography exerts great effects on production, business and the life of the people. Mean elevation is 600 m a.s.l.

- Land: the land in Ta Hoc commune consists of various soil types such as yellow and pale yellow feralite generated on basic magma parent rock, neutral magma and limestone mountains.

- Climate and hydrology: Ta Hoc is affected by tropical, monsoon climate of the North West of North Vietnam. There are annually a moist rainy season (from April to September) and a cold, dry season (from September to April the next year).

+ Mean annual temperature is 20.9°C. June is the hottest month (highest temperature is 38°C), January is the month of lowest temperature: (- 0.5°C).

+ Mean total annual rainfall is 1,414 mm.

- River, stream, and hydrology: The length of Da river running along Ta Hoc commune is 20 km. There are many favorable conditions in Ta Hoc for waterway communication and aqua - culture development and many small streams flowing into the river.

- Extremity factors:

+ Rainfall is unevenly distributed in the months of the year. Heavy rain usually concentrates in June, July and August. Heavy and concentrated rain together with dissected topography, high slope gradient, limestone mountains, forest destruction for slash - and - burn cultivation have created much surface run-off causing serious soil erosion. In rainy season the stream flow and stream flow speed are very great and usually cause flash floods. In dry season however the majority of streams (about 80%) are all dried up, stream flow only remains in main streams and is very little thus causing much difficulties in water supply for production and the people's life.

+ In late dry season, early summer, due to dry and hot west wind, land is dried up restricting cultivation activities and crops productivity.

II - Population, ethnological and labor forces characteristics:

1 - Population and labor force:

Ta Hoc commune has 19 hamlets, 809 households, 4,780 people and 2,282 labor people.

2 - Ethnological characteristics:

The inhabitants in Ta Hoc belong to 5 ethnic groups and live concentrated in harmony and close association with one another. However each ethnic group still maintains its own language, traditional culture and ethnological character. Production activities of the majority of the people of the ethnic groups are in agriculture with fixed slash-and-burn cultivation and crop rotation in combination with forest production and livestock keeping. General traditional careers are cotton growing cloth weaving, bamboo weaving.

2.1 - H' Mong ethnic group:

H' Mong is the ethnic group of largest population in Ta Hoc with 300 households, 1,877 people representing 39.27% of total population of the commune. H' Mong people live concentrated in 7 hamlets. They just emigrated from the neighboring districts and have been living here from early 1970s. The habit of the H'Mong group is inhabiting in the heads of water sources that are in high mountains and far from large roads, traveling in difficult. The H'Mong people in Ta Hoc now have adopted sedentarization but still practice shifting cultivation with slash-and-burn cultivation system. As being new immigrants here the cultivation land of the H'Mong people is very limited and they usually encroach upon the land in the

hamlets of other ethnic groups. The living standard and cultural level of the H'Mong are low as compared with those of other ethnic groups in the commune. Customs of the H'Mong people are still complex.

2.2 - Thai ethnic group:

Thai ethnic group is the group that has been living from a long time in Ta Hoc and concentrates in 6 hamlets and is second in population in the commune with 303 households, 1,738 people. Slash-and-burn cultivation land of the Thai ethnic group is rather stabilized. Each family usually has a small bit of garden for vegetables planting, serving the family. The Thai ethnic people now already have a rather high living standard with much advanced cultivation techniques. Some households can make use of water bodies to raise aqua products to meet the requirements of their own families or undertake service activities to raise the family's income. The majority of Thai families already have tile-roofed houses on stilts, many families have motor-bikes, T.V. set, Video head etc. Thai is an ethnic group of simple customs and habits. Traditional careers are cotton growing, cloth weaving, bamboo weaving and of these, cloth weaving is very delicate.

2.3 - Kho Mu ethnic group:

Kho Mu is the ethnic group that ranks third in population in the commune with 98 households, 601 people (representing 12.57% of the total population of the commune). Kho Mu ethnic group is also immigrants in Ta Hoc from some decades now. Its living and production habit is much similar to that of H'Mong group. The Kho Mu people in Ta Hoc now tend to move to live near the main roads. Kho Mu is a group having high sense of community, simple way of living, easily mixed. The life of Kho Mu people now has had many changes. Many customs are remained only as fine cultural features. In general however the educational and cultural standards, cultivation practices and the life of the Kho Mu group are of most backward level as compared with other ethnic groups in the commune.

2.4 - Muong ethnic group:

Muong is the ethnic group that has lived long in the area of Ta Hoc commune with the population ranking fourth in the commune with 94 households, 510 people, representing 10.67% of the total population of the commune. The Muong ethnic group usually lives in low areas, convenient for communication and exchange of commodities, allowing water-rice-cultivation. Cultivation habit has been water-rice-cultivation combined with slash-and-burn cultivation. But now the production is Slash-and-burn cultivation combined with water-rice-cultivation. This change resulted from the construction of Hoa Binh Lake, the entire water- rice land area of the hamlets is now water-submerged. The Muong people in their old hamlets had to move to areas of higher elevation although these areas are still adjacent to the lake. Muong is an ethnic group of rather high cultural and living standard. Production activities are relatively diversified.

2.5 - Kinh ethnic group:

Kinh ethnic group only consists of a group of families living concentrated in Huoi Dang hamlets (called also new sub-hamlets), with 54 people representing 1.13% of the population of the commune. The Kinh people in Ta Hoc are new immigrants in this area coming here, from early 1990s from the lowland provinces. The Kinh people in Ta Hoc have a far higher cultural standard than the common level here. They are well-experienced in production and business undertaking, can adopt advanced techniques for application in production. Production activity is planting industrial crop (sugar cane) in the direction of commodity production. In addition slash-and-burn cultivation with maize planting is combined.

3 - Use of labor force in the households in Ta Hoc commune.

Ratio of labor people is 47.7% the population of the commune. Most of the labor force of Ta Hoc is young people. However they are unskilled laborers with low educational level.

The habit in using labor force is relatively similar among the households. The allocation of labor is generally as follows:

- Males: Site clearing for slash - and - burn cultivation, sloughing, land preparation, go on patrol to guard the cultivated area, tending buffaloes and oxen.
- Females: Assisting the males in production such as sowing, weeding, crop harvesting, firewood fetching, collecting vegetables from the forest. The females undertake also the household work, especially cotton growing and cloth weaving to supply enough cloth required by the family.
- Old people and children: Watching the house, tending livestock, and assisting females in their work.
- In the busy harvesting time the local people usually exchange the labor (between relatives or neighbouring families). The time of laboring in the year of the people in Ta Hoc is about 8-9 months depending on each family. The local people spend much time in slash-and-burn cultivation and firewood fetching. Slash-and-burn cultivation activities are very arduous, the distance from home to the cultivation plots is very long, traveling is difficult, crop cultivation, harvesting and transport of products are all entirely done by human physical force. That is why although much time is used for slash-and-burn production activities the outcome of cultivation is still only just enough for self sufficiency of the family in food and feeds for livestock. Only part of the products becomes commodities.
- In leisure time without cropping work the labor force in the commune finds no hiring as the requirement in hiring labor in the area is very small. Female labor in this time is used in cloth weaving and clothes making while male labor is used in activities such as timber exploitation, transport and gathering for house construction or exploitation of bamboo, firewood for selling.

II - Land and land using:

1 - Present land-use conditions:

2 - *Remarks:* The above table is shown that:

1. Agricultural land although is large but most of it is slash-and-burn cultivation land: 1,740.4 ha, representing 15.13% of total natural area of the commune.

- Mean area of slash-and-burn cultivation land per household: 2.15 ha.
- Mean area of slash-and-burn cultivation land per labor people: 0.763 ha.
- Mean area of slash-and-burn cultivation land per capita: 0.364 ha.

2. Forestland capital represents 75.3% total natural area: Mean area of forestland per household is 10.7 ha.

Most of forestland is planned for critical and utterly critical area for planting of protection forests.

III - Production and business undertaking:

1 - Agricultural production:

Paddy, maize, cassava and sugarcane are main agricultural planted crops in Ta Hoc. Extensive cultivation management depends much on natural conditions such as water supply by the springs, topographical characteristics and natural soil fertility. Households of the Muong ethnic group live on the river bank do make full use of the semi water-submerged land for single-crop water-rice cultivation (winter-spring season).

Home garden is still miscellaneous ones with low economic efficiency. Main planted trees and crops are *plum*, *apricot*, *mang.*, and vegetables. The tree breeds are mostly of local origins. The individuals of

the species planted in the gardens are few and are little tended. Most of the trees were newly planted and they only bear fruit some years after planting thus the fruits obtained now are only consumed by the family.

1.1 - Food crops:

a) Maize: Maize is the most important crop in agriculture in the locality. Maize is usually planted in slash-and-burn cultivation land after the land is no longer suitable for rice. Each household plants annually at least 1 hectare of maize mixed with cassava. Two varieties of maize are planted: Local varieties of maize and the hybrid maize variety (LVN 10). The productivity of the hybrid maize is high but more investment and tending are required as compared with the local variety. Thus this maize variety can not be used by poor households that are incapable of investment. Productivity of hybrid maize is average 3.5 - 4 ton/ha/crop. Productivity of 3.5 - 4 ton/ha/crop can be attained by households highly capable of investment.

Maize is planted in March and harvest is in September. Maize is usually sold to buy more rice and the necessities for the family.

b) Paddy: Paddy in the food crop second in importance in agricultural production. Paddy planting is for self-sufficiency in food. There are two ways of rice cultivation: water-rice and hill rice. Rice cultivation still depends on natural conditions; no investment is yet made in fertilizers and materials.

- Hill rice: Hill rice of the local variety is used, mean productivity is 1-1.2 ton/ha/crop. The land area for hill rice cultivation in Ta Hoc is 380 ha. Sowing begins in April and ends in late May. Harvest is from late September to mid-October.

- Water-rice: The part of the land bordering the streams for water-rice cultivation is only 8.4 ha in area with two rice crops per year. In addition, the people do make full use of alluvial depositing area of the semi water-submerged area of Da River Lake for water-rice cultivation, about 80 ha. Rice productivity in the semi water-submerged area can be up to 6-7 ton/ha/year but the rice crop here is very uncertain because it depends heavily on the flooding every year. Only one rice crop (winter-spring) a year is possible in the semi water-submerged area. The planting of this rice crop usually begins from late January to the end of February. The harvest is in late May and the latest is in early June. The water-rice varieties used are CR 203, Bao Thai.

c) Cassava:

Cassava is a crop much planted in slash-and-burn cultivation land, mixed with maize or when the land is no longer suitable for maize. Cassava is food for man, feed for livestock and sold in part. Cassava is used fresh or dried. Cassava plots in many cases remain standing for years. Cassava planting causes most soil erosion, soil nutrients leaching and soils deterioration.

1.2 - Industrial crops:

Sugarcane is the sole agricultural crop widely planted in some recent years in some flat land areas, at hill foot or in slash-and-burn cultivation plots the soil of which is still good. Sugarcane productivity is low, about 25-30 tones/ha due to extensive management and lack of capital.

The market for sugarcane consumption is difficult, the price is uncertain, production produces no profit and the people are much worried.

1.3 - Fruit trees:

The planting of fruit trees by the people in Ta Hoc is supported by Project for fixed cultivation and sedentarization, Project 747.... Due to newly planted the trees do not yet give harvest and are thus not attractive to the people. The planted trees are *plum, apricot, mango, longan, litchi* ... In general the planted trees grow and develop well and it is hoped that with result of this production activity, many households in the commune will be active in planting fruit trees in their land area.

2 - Livestock keeping:

- Total cattle herd is 2,196 head of which buffalo are only 296. Mean cattle head per household is over 4.
- Goatherd is 300 head.
- Poultry of various kinds: 15,000 mean over 18 per household.

The households almost all keep livestock: buffaloes, cows and oxen, pigs, chicken (except the households that are exceptionally poor or all the members in the household are aged people). Cattle grazing is still of a natural nature (free grazing without stables). Due to epidemics and diseases, the livestock suffers great losses every year. The product of livestock keeping mainly serve the consumption of the households, few are sold. The breeds are the natural ones in the locality, no selection for superiority in size and quality was made. For example the number of pigs is large but the increment is only 15-20 kg/head/year.

The potentiality in aqua. culture in water bodies in Ta Hoc is very great. However fish rearing in Ta Hoc is not yet paid attention to, investment is not yet made for development. The reason is lack of capital, knowledge and production experiences.

3 - Handicraft production, commerce and services:

Handicraft production activities in Ta Hoc commune are those engaged by individual households with a few careers such as: wooden furniture making, food grain milling and grinding. The tradition careers such as bamboo, rattan, clothes weaving, embroidery are still maintained but they just only serve the family's requirements. In general handicraft production is only on small scale.

Commercial and service activities in Ta Hoc commune are small trading ones by some households, providing life necessities, dry food and cheap household appliances or agricultural produce trading, services at river port.

In 1999, the value of handicraft production and services attained 68.4 millions dong.

4 - Infrastructure:

a) Communication: Road network in the commune has just been invested and improved and the traveling of the people is now much easier. However, convenient communication is just possible only in 6 hamlets, communication in 9 hamlets is very difficult as people of various ethnic groups live at much higher elevation with complicated topography.

b) Other infrastructure aspects:

- *Education:* Education in the commune has made much progress in the recent past. Classes of primary education were organized right in the hamlets creating favorable conditions for the school-age children to attend. There is not secondary school in the commune therefore the children who wish to go to school must travel to the district township with much hardship. Due to this reason the number of school children at secondary school is still very small. There are almost no children attending upper secondary school.

- *Health service:* There is already a health station in the commune. Annually district and provincial health services do organize health check and periodic vaccination treatment for children. Hygiene, clean water supply and family planning have made better and better progress. Population growth rate in the commune in 1999 was 2.6%. The families are aware of using iodine salt in everyday meals to prevent goiter.

- National electricity grid does not yet come to the commune but with the help of the projects some hamlets already have electric generators. Some households provided themselves with hydroelectric generators for lighting. Many families of various ethnic groups that are rather well to do already have motor-bike, T.V. set, cassette, radio and video head.

5 - Credit:

With the assistance of a number of organizations and the local branch of bank such as The Peasant Association, Women Association, Bank for the Poor, Project 747 ... up to now the money borrowed by the people in the commune amounts up to 824 million dong, mean over 1 million dong per household. (See detail in the table below).

Although favorable conditions were created for the people here to borrow money for development of production but due to low knowledge in production the effectiveness in using the fund is still very low. Investment fund just only concentrated in 4 hamlets in utterly critical area of protection forest. Many households although are provided with favorable conditions to borrow fund but they do not borrow, as they do not know what to do with the borrowed fund.

It is obvious through the credit and investment activities in Ta Hoc that the conception ability and production standard of the people are still very low. The life of the people here will hardly be improved and they will still remain sunken in poverty with backward cultivation habit if we don't have effective measures to help them out of their old way of thinking.

6 - Market problem:

Ta Hoc has a waterway system and a river port convenient for commodities circulation and exchange but as the agricultural and forest production of the commune is still of a natural and self-sufficing nature, the convenience of communication is not yet exploited.

III - Economic situation:

- Total income of the commune in 1999 was 7,555.15 million dong.
- Mean income per household in 1999 was 9.34 million dong.
- Mean income per labor person in 1999 was 3.31 million dong.
- Mean income per capita in 1999 was 1.58 million dong.
- Rice-equivalent food yield of the commune was 2,369.4 tons.
- Mean Rice-equivalent food per capita was 495 kg/person/year.

IV - Policies and the people's contribution to the national economy development:

1 - Policies regulating the people's contribution:

i) Natural resource tax:

The formula for calculating resources tax is:

$$\text{Resources tax} = \text{Volume of exploited forest products} \times \text{Average selling price for each unit of exploited forest products (selling price at ground I)} \times \text{Tax rate (\%)}$$

Tariff of tax rates of forest products exploited from natural forests is as follows:

Order	Names of resources	Tax rate (%)
1	Logs: -Group 1 -Group 2 -Group 3, 4 -Group 5,6,7,8	40 35 25 15
2	Mine props	15
3	Wood for paper raw material	20
4	Wood for mast and post	20
5	Melalencia leucadendron, Rhizophora apiculata wood	25
6	Tree tops and branches	5
7	Bamboo	10
8	Special products, medicinal materials. Specially: - Aquilaria crassna wood - Fruit of Illivium verum, amomam echinosphaera; Cinnamomum cassia bark; Morinda officinalis tubers - Special-products of annual plants (Arundinaria balansae, Miscanthus japonicas ...)	20 40 25 7 20
9	Wildlife species: Specially: Birds and animals whose meat, bone and skin are used to make medicine such as tiger, panther, bear, lion, deer and sambar deer etc.	30 10
10	Other forest products and specialties.	

ii) *Agricultural land use tax:*

There are six land grades (in accordance with the government's Decree 73-CP of October 25, 1993) and tax rates for agricultural land use for each land grade are as follows:

- *For annual cultivation land and land with water surface used for aquaculture:*

Land grade	Fixed tax rate (kg of rice/ha)
1	550
2	460
3	370
4	280
5	180
6	50

- *For land for perennial trees:*

Land grade	Fixed tax rate (kg of rice/ha)
1	650
2	550
3	400
4	200
5	80

- *For perennial fruit trees grown on land for annual cultivation:*

+ The tax rate is 1.3 times the rate for annual cultivation land of the same grade, for land grades 1, 2, 3.

+ The tax rate is the same with the rate for annual cultivation land of the same grade, for land grades 4, 5, 6.

- With timber trees and perennial trees only harvest once, the tax rate is equal to 4% of the exploited value.

iii) Value added tax:

- For timber and forest products exploited from natural forests, consumers have to pay an VAT amount depending on the rate for each kind of products.

+ Non-wood products (except timber and bamboo shoots) without processing, tax rate: 5%.

+ Timber and wood products, bamboo shoots are subject to a tax rate of 10%.

- With service activities the tax rate is 10 % of the charge.

2 - Actual contribution of the people:

- In reality the policies of the State on taxation have not yet been strictly applied in the mountainous areas.

- The People now only pay the tax on the use of agricultural land are divided in tow categories.

+ Laborers that belong to H'Mong and Kho Mu ethnic groups usually encroach upon the land hardly to be controlled. They must pay agricultural tax 10 kg paddy/laborer/year.

+ People of other ethnic groups pay tax as regulated by law.

- VAT collected from service activities is very low, only nearly 0.7 million dong.

- The collection of natural resources tax has not yet implemented.

- Besides the people must also contribute 10 kg paddy/laborer/year for some funds in the commune.

Total revenue from tax and contributions in 1999 was 48 million dong and this sum was allowed to be kept at the People's Committee of Ta Hoc Commune for common expenditure, the deficit was supplemented by the State. The support by the State in 1999 was 118 million dong.

V - Forestry activities and the people's participation in forest management:

1 - Present condition of forest recourses of Ta Hoc commune.

- Present status of forestland.

- Comment:

+ The area of bare land and denuded hill is rather large, 5,073.8 ha representing 44.32% of total natural area of the commune. Through our actual study it is found that this area is actually the area used for rotational slash-and-burn cultivation by the people, more exactly it is being in the following period of slash-and-burn cultivation. The area of forest to be planted does lie in this area.

+ Forestland capital is big, representing 74.12% of natural area, mean per household is 10.7 ha. A large part of forest land is planned as critical area for establishment of protection forest for Hoa Binh lake of which only 3,586.7 ha has now forested, representing 31.33% of total natural area, too low to meet the requirement of protection that was planned. (The forest cover must be 70%).

- Forest resources in Ta Hoc:

+ Forest plant: Limestone mountain forest and rehabilitated young one are two main forest types in Ta Hoc. Species composition of the flora here is rather rich and diversified. There present those species of precious timber such as *Madhuca pasquieri*, *Parashorea Stellata*, *Machilus trijuga*, *Keteleria davidiana*. However due

to careless exploitation the volume of precious timber is more and more reduced and it remains very little now in the upstream area forests, far from the population settlement. There is in addition many other tree species of different orders and families. The rehabilitated young forest mostly contains economically inferior species such as *Mallotus cochinchinensis*, *Trema angustifolia*, *Wenlanddia paniculata*... however, there occur also some regenerated trees of valuable timber species such as *Madhuca Pasquieri*, *Talauma gioi*, *Quercus poilanei*. Etc.

+ Vegetation cover: General vegetation cover is 31.33% far below the planned requirement for protection (70%).

+ Wildlife: Formerly here was a region very rich in wildlife with such precious species as tiger, panther, deer and bear...

Now due to careless hunting, many species almost disappear. There remain now only some species with small population such as civet, jungle fowl, pheasant, python... and their distribution area is mainly upstream forests.

If the upstream forests are well managed and protected and especially careless hunting is restricted it is then possible to restore some rare and precious wildlife species here.

2 - The project that contain forestry activities in the commune area:

- Project 747:

+ Place: Heo and Luon hamlet.

+ Objectives: Resettlement of the population for production reorganization.
Investment for development of household economy.
Building of forest capital meeting the requirement of protection.
Investment for supplementary construction of infrastructure.

+ Results obtained: Three primary schools with 11 class-rooms have been built; construction of clean water supply system for each hamlet; construction of a two-stored office (160 m²) for the People's Committee of the commune; organizing the people in planting 476.19 ha of forest; establishing enclosures for forest regrowth combined with forest management and protection with an area of 2,273 ha; supplying over 4,000 seedlings of fruit trees for the people.

- Forest protection project:

+ Organizing the people to establish forest enclosures for forest regeneration, management and protection in forest and forest land areas that have not yet masters.

+ Organizing and guiding the implementation of forest fire control.

+ Result: 765.5 ha of forest has been managed and protected by the people.

- Fixed cultivation and sedentarization project. Implementing the campaign for fixed cultivation and sedentarization with the people of the ethnic groups H'Mong and Kho Mu in 9 hamlets (7 hamlets of the H'Mong ethnic group and 2 hamlets of Kho Mu ethnic group) in the commune through supporting and guiding the activities:

+ Use of advanced cultivation systems, transformation of structure of planted crops.

+ Development of livestock keeping.

+ Development of forest production: forest planting, establishing forest enclosure for forest regeneration, management and protection.

+ Construction of infrastructure: schools, clean water, supply system, community health care services.

+ Results obtained: clean water supply system has been constructed serving the hamlets in the project area; supplying the people with new crop varieties; high productivity hybrid maize variety brings mean maize productivity from 1.2 ton/ha to 3 ton/ha; assisting the people with over 5,000 seedlings of various kinds of fruit tree; organizing the planting of over 300 ha of new forests; establishing enclosures for forest regeneration and protection with an area of 700 hectares.

- *Project 661 (formerly was project 327):*

+ Forest planting combined with establishing of enclosures for forest regeneration and protection of the existing forests, enhancing the protection role of forests.

- Steps taken by the project in forest planting activity. Organization of forestry activity in various projects is relatively similar and 5 steps were taken:

+ Step 1: Forest planting designing.

+ Step 2: Organizing the registration of the household's participation.

+ Step 3: Signing of contracts, organizing technical demonstration courses.

+ Step 4: Organizing the actual forest planting.

+ Step 5: Control, justification and financial settlement.

- *Participation, role and responsibility of the participating agents:*

+ *Role and responsibility of the People committee of the commune:*

- Assisting, monitoring, inspecting and mobilizing the implementation of the projects in the field.
- Settle the contradictions, disputes, petitions and other problems raised in the process of project implementation in the commune area as has been regulated.
- Assisting the people in forest management and protection after justification of the forest.

+ *Role of the hamlets:*

- Assisting the commune in implementing the projects in the hamlet area.
- Accomplishing the tasks assigned by the commune.
- Monitoring, inspecting, mobilizing the households participating in the projects.
- Report to the commune the arising problems for solution.

+ *Role of households:* Carrying out the forest planting as has been signed with the projects and enjoying the rights as regulated by the projects. With the planting of new forests the benefits enjoyed by the households consist of:

- Forest planting and tending in the first year: 1,012,000 dong/ha/year
- Forest tending and protection in 2nd and 3rd year: 180,000 dong/ha/year
- From the 4th year onward the system of forest management and protection is applied.

+ *Social organizations:* Main task is carrying out the propaganda, mobilization of their members to realize State policies. Mutual assistance and assisting the commune authority when necessary.

3 - Forestry production:

3.1 - Forest planting:

Forest planting activities in Ta Hoc have been very limited and undertaken just recently. Regretfully that due to many reasons we could not obtain accurate date on the forest area planted in Ta Hoc. According

to the data available to us, in the past 8 years over 1,000 ha of forest has been planted but the area of forest plantation remains now in the entire commune is only 202.9 ha.

3.2 - Establishing forest enclosures for forest regeneration and protection:

The activities for establishing forest enclosures for forest regeneration and protection have been undertaken by the projects for many years now. Concrete results are as follows:

Program 327, now Project 661	887	ha
Non- production fund of forest production	765.5	ha
Fixed cultivation and sedentarization	700	ha
Project 747	2,273	ha
Total area accomplished	4,625.5	ha

The payment by pieces of work done is applied in two forms: Payment to group of households or to hamlet, depending on concrete conditions.

After the signing of contract on payment, group of households or the hamlet organizes itself the personnel for management, protection the forest area received. Main force that participates in forest protection consists of all members of the households in the group of households or in the hamlet. In both two forms of payment on contract the people enjoy the whole payment. The distribution system is as follows:

- 50% is evenly paid to the labor people.
- 50% is evenly paid to all the people.

The forms of payment now make the rights and obligations closely tied to each other. But in reality the benefit enjoyed by the people is two little. The protection of utterly critical protection forest, critical protection forest and less critical protection forest is paid 41,000 dong/ha/year, 21,000 dong/ha/year and 11,000 dong/ha/year respectively. In whatever form of forest protection for payment, the essential requirements in forest products of the people for domestic use are still ensured. After asking permission of the sub-hamlet and the group the people themselves go to fetch the trees according to their need in the forest managed by the group of households or by the community.

Some hamlets have regulation by which every bamboo culm exploited from forest enclosure for forest regrowth to sell on the market must pay 300 dongs to the welfare fund.

3.3 - Forest product exploitation activities in the commune area:

Forest products exploitation activities in the commune area is mainly exploitation of timber, bamboo, firewood and a number of other forest products in the remaining natural forests. The products exploited from natural forests do not only serve the requirements of the households but part of them is turned in to commodity such as bamboo, firewood (note that these forests are planned as protection forest).

- Houses of the people are different in style. Houses of the Muong, Kho Mu, people are houses on stilts while houses of the HMong and Kinh people are built right on the ground but all kind of house are invariably built of timber with tiled or thatch roof. To build a house, 4-12m³ of timber must be used depending on each type and the timber must be gathered in 3-5 years time. The hamlets have their own regulation on timber exploitation for house building:

- + Large families, household splitting, houses in bad repairs: The household must apply for timber exploitation in writing.
- + Head of the hamlet considers the case and gives permit. In complicated case the matter must be brought to the hamlet meeting for determination.
- + The timber exploited is exempt from forest resource tax.
- + Household having aged people is allowed to prepare coffin.

Mean ratio of households that build new houses or have their houses repaired is 3%/year. There has not been abused timber exploitation for selling or exchange. In 1999 about 210 m³ of timber was exploited in the entire commune for house construction with estimated value of 168 million dong.

- About 90,000 bamboo culms have been exploited from natural forests worth 162 million dong as paper raw material and constructional material.

- Firewood exploitation: the people are not allowed to cut standing trees for firewood. Only dry trees are allowed to be collected: Two sources of firewood for the families:

+ Firstly: Dry trees in forests or in slash-and-burn cultivation area. In general the firewood collecting by the people follows no regulation or principle. They collect firewood wherever available for convenience for cooking or reserve in preparation for difficult time, for example: Rainy season, winter.

+ Secondly: Collecting the firewood that floats along Da river and this is done by the households living along the river bank. Part of the collected firewood is use in the family, the remaining is sold to sugar mill.

Mean 10 - 15 kg of dry firewood is used by a family in a day. In winter the firewood used is 1.5 - 2 times the usual rate due to warming requirement. Firewood exploited in 1999 is estimated about 4,845 tons of which the amount consumed by the families themselves represents 73.2%.

- Other products annually exploited by the people are: various sorts of bamboo shoots, forest wildlife species (*jungle fowl, muntjac etc...*) honey, medicinal materials. It is estimated the people in Ta Hoc exploit annually about 50 tons of bamboo shoots of various sorts serving the consumption of the families (no selling of bamboo shoots is allowed) worth 50 million dong.

In 1999, total value of the forest products exploited in the entire commune was 580 million dong, mean income of nearly 0.72 million per household was from forest products exploitation.

VI - Internal/immanent constraints for participatory forest management.

1 - Institutional constraints for participatory forest management.

Reviewing the entire process of forestry development in Mai Son in general and in Ta Hoc in particular it is found that forestry activities although have been organized but they still express themselves many weak points that hinder the local people's participation in forest management. Main causes of these weak points are:

i) Plans and planing are not yet good.

- Land use is entirely of spontaneous nature.

+ Policies on allocation of forest for forest protection and forest land to various targets for forestry development have not yet been implemented in their spirit. Policies on allocation and allocation on contract of forestland and forest promulgated by the government of Vietnam in 1994 and 1995 and are being in force now but they are not yet implemented in Son La due to:
Attention is not paid by the province to work out implementation measures.

The volume of work is great, the situation is complicated while the budget and staff sources for the implementation are limited.

+ As regulated by law, forest and forest land is divided into 3 categories but till now there is not yet any system of authentic classifying standards. Therefore the delineation is only made on map.

+ District level is the lowest one in land use planning. The planning at district level usually entails 3 contradiction: contradiction in use objectives; contradiction between use objectives and regulation on land use; contradiction between.

+ Using the land for slash-and-burn cultivation by local people in the transitional period is still a must but land use planning for this purpose has not ever been paid attention to by the local authority.

- Plans of the projects have been elaborated from top downward and were aimed only at concrete and immediate objectives while flexible and sustainable development is required.

ii) Lack of scientific nature in forest planting, management and protection activities:

- Forest capital continues suffering abused exploitation: forestry activities in the commune area still incline more to abused exploitation than application of silvicultural measures in the direction of forest resources renewal and sustainable use. Right at the time when we made the study in the Ta Hoc area, the people still went on with the exploitation of bamboo and firewood to sell to purchase section of Mai Yen State forest enterprise and the sugar mill of the district. There were up to over 1,000 stress. of firewood and tens of thousand bamboo culms were piled up at the river bank waiting transportation. What is worth noting here is the exploitation activities were utterly careless and without designing. The exploitation was done at will to one's heart's content, the more the better.

- The legal frame work is weak and this is expressed as follows:

+ Many units participate in forestry activities but there is a lack of joint action, mutual assistance to achieve common aims. e.g. the lying out and implementing of various projects in the Ta Hoc area. The projects are of small scale with many similar activities deployed in the same area but these activities are separated from one another

+ The local authorities (provincial, district) are given much more and more rights to self-determination but at the local level the policies are drawn in direction beneficial to some branches while others become depleted. This results in the trying to increase the revenue for the province, especially in forestry, at the expense of national interests. An example is the forest opening for exploitation of timber, bamboo and firewood in Son La.

+ Lack of a legal system as a base for supervising and treating well the arising problems. Obligations and rights of the entities that participate in forestry activities are not well defined. Benefits of the people are not yet considered as a main motive force for their participation. This is expressed by the following facts:

Benefit obtained by the people from planting a hectare of forest (planting and 3 - year tending) is equal only to planting a hectare of cassava in one year.

Benefit obtained by the people from management and protection of a hectare of forest is too small. Actually the people's interest in undertaking the forest management and protection is to collect the forest products in the forest area received. In the area planned for protection forest, this collection is illegal (as regulated by law) but actually it still happens and is understood by the people as legal.

The people are seemingly considered as hired laborers in forestry production activities.

- The project was worked out without scientific foundation. The lack of scientific foundation expresses itself right in project designing. Result of this designing stage can only be seen as an incomplete calculation of funding requirement. There mentioned no implementation steps. Accurate design of the work content and implementation measures is absent. That is why the implementation of the project met with many difficulties, many items of work must be newly designed or more detailed designing must be added resulting in the estimation of the fund being not fit and the work being delayed.

- Thoughtlessness in selection of planted species, planting system and site results in the area of forest plantation being segmented, poor survival of the planted trees.

- Service activities of the projects are of low quality, planting stock and materials supplied to the households are not up to technical standards resulting in poor success of the activities. The supply of planting stock was not done at proper time as regards forest planting season.

- The project was not really linked with socio-economic development and the creation of employment for the local people. They do not yet bring about a solution to the urgent problem of the people that is infrastructure construction serving production. A large part of the project 747 fund in Ta Hoc was used for supplementary construction of infrastructure and we estimate that 40 % of the work volume has been accomplished such as construction but only very few of the local labors were allowed to join these activities.

iii) The mode and organization of the projects' activities in the commune were not effective, lack of practicability, of formal nature, overlapping. Objectives and content of the projects are great while the competence and knowledge level of the project implementing staff are low.

The staff in charge of the guidance and organization of the implementation of the project are incompetent and lack sufficient professional knowledge and thus are much embarrassed in deploying the projects. For example the managing board of Project 747 has only 5 persons of whom 1 works part time for the project and 4 work in full time. Of the 4 staff working full time only 1 has engineer degree. However this project must spend billions of dong of the state a year. The second example is that the forest protection section of Mai Son district that manages 25,000 ha. Of forest and shoulders many other tasks as regulated but have only 26 staff. This means that each staff must manage mean 961.5 ha of forest. In the conditions of material foundation and infrastructure such as in Mai Son, the carrying out of the responsibility of a forest protection staff seems a bet.

The educational level of the staff at commune level in almost only secondary school graduation. They lack professional knowledge and then are very embarrassed in organizing the rational implementation of projects.

2 - Immanent constraints for participatory forest management:

2.1 - Economic and social constraints for participatory forest management:

The majority of the people have low living standard. To find out real situation of the people's life we have made a study in 5 hamlets of 5 different ethnic groups in Ta Hoc. Results of the study are as follows:

- Some remarks on the results of the study:

- + Report of the commune is in agreement with real situation.
- + Cultivation provides main income source for the households.
- + With household of rather good economic condition, livestock keeping contributes a considerable part in the income.
- + Which households, which ethnic group that have higher educational level, better experiences in production to have higher income and vice versa.
- + Forest products exploitation and use depends much on size of the household and utilization habit of each ethnic group, the capacity of the forest area managed. e.g. in the hamlet of the Kinh ethnic group, the people already know to make full use of sugar-cane leaves, maize stems and corn-cobs as fuel because their forest areas are small, possibility in forest products exploitation is almost zero.
- + The area of forest plantation is segmented and it is worth of note that this area is designed coincided with the land for slash and burn cultivation of the households.

2.2 - Cultural constraints for participatory forest management:

i) Limited education level and conception: the educational level of the local people is very low, the conditions for exchange of ideas, experiences and study are still limited making it difficult for the people to acquire new ways of thinking and doing things. Illiterate people still represent a high ratio of the population and a large part of them are females, especially in Kho Mu, H'Mong and Thai ethnic groups.

ii) *Cultivation system very backward, land is seriously exploited; the subconscious practices are hardly to be changed. (See appendix about land use of the studied household).*

- The objective of production is to ensure food security, thus the cultivation area depends much on food requirement of the family. In addition there possibly can be other supplementary income sources. The studied households use mean 4.4 ha of land for cultivation, much higher than the mean level in the commune - those household, that are striving to get high income tend to use more and more land. The slash-and-burn cultivation system is rotational one:

Vegetation cleaning → burning → cultivation (2-3 rice crops + 4-5 Maize and cassava crops) → fallowing (7-8 years) → vegetation cleaning → burning ...

Compared with the past, the fallowing period now reduces a half. With the production situation as at present each household needs a land capital of mean 8.8 ha at least for slash and burn cultivation and total land capital for this cultivation and total land capital for this cultivation system in the commune is 7,0000 ha. This is fit with the report of the district on actual land use situation.

- Investment in production by the people is very low and simple. All the investment is in seed. The majority of which is produced by themselves or supplied by various organization. So the cost in material for production is zero.

iii) *There has been a habit of careless and wasteful use using the substituted. In the mind of the people forests are natural resources endowed by nature and everyone may exploit them as he/she wishes and after being cut, the forest grows up by itself. (See appendix).*

The useful ratio timber use by the people is only 40%. This means that 2.5 m³ of timber is wasted for 1m³ of time in use. 40% of the timber exploited is left in the forest and 20% is wasted due to processing by hand. Thus with 210 m³ of timber in use as the result of the timber exploitation in 1999 the local people did have 525 m³ of timber wasted.

2.3 - Other constraints:

i) *Production condition is very difficult and depends much on natural conditions: difficult production sites, impoverished soil fertility, high slope gradients, no possibility of irrigation or intensive management for raising crops productivity.*

ii) *Lacking of information.*

VII - Main actors for participatory forest management:

- Local authority: This is the unit responsible for State management at the commune. The local authority's participation, cooperation in and supervision over the activities in the locality are indispensable.

- In Vietnam now, the household is considered to be self-help-economic unit; Vietnam Government has issued many policies to encourage households contributing to national economic development. So the household-based development and organization of production will have many advantages, as the households can make decisions and implement their own production plans.

- With the ethnic minority people, hamlet is their traditional social centre, the life of each individual is closely linked with the community. Many traditional customs still remain now with actual strength and not only in the peoples spirit and mental life. Although household is a self-relying economic unit but production activities (land use, production seasons, crop harvesting ...) still strongly depend on the hamlet community. Moreover in the mountainous, rural society, each hamlet has its own territory including land for agricultural production and forests. Boundaries between hamlets are well delineated. People in a hamlet have the right to using the land and exploiting natural resources within to using the hamlet territory and are

responsible for their protection. Many social changes have happened but the hamlet boundaries still remain (informal) and are recognized by the local people. Thus the use of the local people community such as the hamlet is the use of the high community spirit of the ethnic minorities, closely linking the rights and benefit of the member households to those of the whole community. This also limits the spontaneous trends and the individualism.

- Social organization: The participation in social organizations now depends on the volunteering of the people who meet definite requirements and as thus social organizations are not representatives of the entire people as far as legal status and benefit are concerned. These organization are usually suitable to short-term activities with nature of movements, focussing on very concrete benefit.

- Group of households: Some projects have made use of a group of households as the core for forest protection activities. The linkage within the household group however was very loose and actually the group has done nothing. Moreover the households that were not in the group still so far entered the forests for forest products collection. Thus the forest management by group of households is only formal now, forests still have no real master and their quality keeps deterioration.

There are three stakeholders who should be organized to take part in the forest management in Mai Son District, they are Local authority, households and village/hamlet community.

VIII - Some solutions to enhance the involvement of local community in forest management at research site:

1 - Land use:

Objective:

- To formulate a sustainable land use system according to the identified aim of land use which brings out the most effective outputs.
- The advanced farming techniques, new high yield and good quality species/varieties should be applied to production in order to gradually minimize the inadequate farming techniques which cause unfavorable impacts to forest, soil and environment by application of advanced farming techniques, new high yield species with good quality for nutrition and the improvement of community life.

Method:

- Land use advises to be provided to district and provincial levels.
- Regulations of land use should be introduced in the areas where shifting cultivation still exists.

Actions:

- Criteria and introduction of land classification according to land use aims should be complied and introduced.
- Participatory land use planning must be carried out starting from commune level.
- Reorganize all projects within district and commune area.

2 - Land allocation:

Objective:

- There is a need to accelerate LA to promote land recipients to invest in the allocated land.
- To ensure the allocated land to be used according to the aim and land use plan.

Methods:

- To minimize the limit caused by land classification for the most effective land utilization based on its capacity.
- Survey and issue land certificate for both agriculture and forest land at the same time.
- The plans of land allocation, forest and forestland allocation and forest management have to be suitable to specific conditions of each community.

Actions:

- Clear benefit sharing should be compiled.
- Criteria for sustainable land use and land management have to be identified.
- Agriculture and forestry extension activities must be strengthened and supported.
- Training courses and workshops should be provided to commune and district level to strengthen their capacity in implementing approved programmes.

3 - Effective management and protection of forest:

Objective:

- Sustainable forest development through active involvement of people community who are dependent on forests by combined - forest resource management in order to supply wood and non-wood products and other environment service to community.
- To ensure the balance between consumption and resources.

Methods:

- Replace the contract policy by benefit sharing one of the protection forest.
- Creation of legal base and policies for community forest management.

Action:

- Forest classification should be done in the field.
- Harvesting plan must be approved before logging.
- Harvesting regulations have to be formulated and strictly followed to minimize damages to young forests and optimize the utilization of forest products.
- Signing contracts with the community for forest management and protection.
- Organizing the people to work out regulations by themselves for sustainable community forest management.

4 - Forest regeneration and newly-established forest plantation:

Objective:

- To increase the forest cover to meet the demand and supply of timber and other products.
- To save production costs.

Methods:

- Regeneration and enrichment are the major methods.
- Plantation must be established in accordance with hedgerows for erosion control in the shifting cultivation areas.
- Creating job opportunity and income for rural inhabitants: this is applied for newly-established plantation, which the rural can effort Government support, and can benefit both from the protection function of the plantation and economic income.
- Promote the involvement of mass associations (Returnees, Women's and The Youth Union...) to participate in service activities such as seedling production, extension...

Actions:

- Facilitate local inhabitants producing seedlings.
- Survey the regeneration capacity to be based for enrichment and regeneration activities.
- Providing training on planting and maintaining techniques, matching species.
- Promoting and supporting commune, typically mass organizations to take part in nursery practice and management.

5 - Forest knowledge dissemination:

Objective:

- The training and information sharing will assist community develop their production and improving their living conditions by forestry and agro-forestry activities.
- Collecting feed back information to find out problems and solutions.

Methods:

- Organize widely forestry knowledge extension programmes to farmers.
- Introduce forestry education in schools.

Actions:

- Establish demonstration and training centres in order to enhance community capacity on planting techniques, agro-forestry systems and benefits gained from these.
- Train community forestry extension workers.
- Organize regular community meetings on forestry topics.

6 - Finance support:

Objective:

- Increase investment resources to forestry activities in upland, remote areas.

Methods:

- The Government increase investment on ha of newly-established plantation, regeneration and forest protection and management.
- Explore other finance resources.
- Regular monitoring, evaluating on finance management of the locals and projects.

Actions:

- It is proposed that the Government should double the costs for newly-established plantation in critical and very critical protection forest areas in order to increase protection capacity of these forests.
- It is proposed that the Government should pay annually 300,000 VND/ha of very critical protection forest and VND 200,000/ha of critical protection forest to the contractors in 5 years. Later transferring into benefit sharing of forest products.
- Strict punishment to unobeyed actions of investment regulations.

Part III

Conclusion

The wide participatory of rural inhabitants to protection and establishment of forests is strategy of modern forestry in order to achieve sustainable forest development and management. Households, individuals and village communes who receive land and forest for protection, regeneration and plantation both allocated and contracted have rights to enjoy benefits from forestry based on the result of their investment. They become closer to forests as forests bring them benefits as desired. Vietnam Government has issued policies to facilitate this participatory such as forest and forest land allocation to households, individuals and all economic units, 327 programme, 5 million ha project. Due to social – economic conditions and conventional production techniques, living standard of upland people are still facing with difficulties which need the Government's support.

The study which was carried out in Mai Son is to identify the bottlenecks which hinder the rural participatory to forest management, at the same time giving some necessary solutions to make rural inhabitants active in participation of forest development and management. Since then, the planners and policy makers can produce appropriate production plans, utilizing efficiently natural and human resources for better economic development for better living conditions of rural upland people and also contributing to environment, watershed conservation and poverty reduction.

Table 1 - Ethnic groups and ethnological structure in Mai Son district (1/4/1999)

No.	Ethnic group	Population (people)	Percentage (%)
1	Thai	60,562	54.00
2	Kinh	33,626	30.00
3	H' Mong	12,329	11.00
4	Kho Mu	4,483	4.00
5	Muong	480	0.43
6	Xinh Mun	520	0.46
7	Dao	120	0.11
	<i>Total</i>	112,084	100.00

(Source: Statistics Section - People's Committee of Mai Son district)

Table 2 - Structure of labor force divided into careers and occupations in Mai Son

	Careers, occupations	Percentage	Notes
1	Agriculture, Forestry, Aquaculture	78.29	
2	Construction	6.35	
3	School children at labor age	5.22	
4	Culture, Social affairs, Education, Health care	4.92	
5	Other production activities	3.71	
6	Unemployment	1.36	
7	Communication and transport - Post office	0.25	
	<i>Total</i>	100.00	

(Source: Statistics Section - People's Committee of Mai Son district)

Table 3 - Area and structure of agricultural land in Mai Son

	Land type	Area (ha)	Percentage (%)
	Total natural area	141,026.0	100.00
	Agricultural land	17,006.0	12.06
1	Double rice - crop area	379.0	0.27
2	Single rice - crop area	895.0	0.63
3	slash - and - burn cultivation area	2,050.0	1.45
4	Other annual crops area	8,622.1	6.11
5	Miscellaneous garden	220.0	0.16
6	Perennial trees area	4,196.4	2.98
7	Pasture	374.0	0.25
8	Water bodies for aqua cultivation	296.5	0.21

(Source: Cadastral section - People's Committee of Mai Son district)

Table 4 - Structure of agricultural, forest and aqua product values in Mai Son (1998-1999)

Year Branch	1998		1999	
	Value (million dong)	Percentage (%)	Value (million dong)	Percentage (%)
1. Agricultural	104,385.4	96.54	124,266.0	95.51
2. Forestry	3,362.6	3.11	5,566.6	4.28
3. Aqua culture	380.0	0.35	278.4	0.21

Total	108,128.0	100.00	130,111.0	100.00
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(Source: Planning Section - People's Committee of Mai Son district)

Table 5 - Value and structure of total products in Mai Son in groups of branches

Groups of branches	1995	1996	1997	1998	1999
<i>I-Value: (million dong)</i>					
Total	119,985	133,998	155,710	186,718	219,042
1. Agricultural, Forest and aqua products	81,758	89,363	90,903	108,128	130,111
2. Construction, Industry	11,722	15,503	33,166	41,227	51,694
3. Others	26,505	29,132	31,641	37,363	37,237
<i>II- Structure (%):</i>					
Total	100.00	100.00	100.00	100.00	100.00
1. Agricultural, Forest and aqua products	67.14	66.69	58.38	57.91	59.4
2. Construction, Industry	9.77	11.57	21.30	22.08	23.6
3. Others	23.09	21.74	20.35	20.01	17.0

(Source: People's Committee of Mai Son district)

Table 6 - Area of forest land classified by status and utility (1999)

Forest status and forest land	Total (ha)	Area classified according to utility		
		Protection	Special-use	Production
Area of forest land	94,757	73,606.6	0	21,150.4
I-Forested area	25,712.3	19,215.8	0	6,496.5
1. Natural forest	22,935.3	16,944.7	0	5,940.6
1.1. Timber forest	17,841.4	13,760.8	0	4,080.6
1.2. Bamboo forest	1,877.2	1,250.6	0	626.6
1.3. Mixed forest	3,216.7	1,983.3	0	1,233.4
2. Forest plantation	2,777	2,221.1	0	555.9
II- Bare land	69,044.7	54,390.8	0	14,653.9
1. Bare land, sandy land (IA)	28,696.5	17,305.0	0	11,391.5
2. Bare land with bushes (IB)	30,853.7	27,591.3	0	3,262.4
3. Bare land with scattered trees (IC)	9,494.5	9,494.5	0	

(Source: Son La Forest Inventory and Planning Team)

Table 7 - Ethnic groups, population and labor force distributed in various hamlets
(recorded up to 31/12/1999)

Num.	Hamlets	Ethnic	Num. of household	Num. of people	Number of labor force		
					Total	Male	Female
1	Pa No A	H' Mong	59	399	189	90	99
2	Pa No B	H' Mong	21	129	56	25	31
3	Mong	Thai	77	438	227	110	117
4	Hoc	Thai	74	377	212	103	109
5	Heo	Muong	46	248	120	52	68
6	Luon	Muong	48	262	128	52	76
7	Pon	Thai	55	327	199	80	119
8	Vo	Thai	37	210	108	50	58
9	Tong Tai	H' Mong	45	244	116	56	60
10	Cap Na	Kho Mu	47	303	85	44	41
11	Huoi Cao	H' Mong	47	274	128	65	63
12	Pa Hoc	H' Mong	35	225	91	40	51
13	Pu Ten	Kho Mu	33	199	94	47	47
14	Me	Kho Mu	18	99	53	25	28
15	San	Thai	27	183	92	43	49
16	Pa Dong	H' Mong	76	553	230	110	120
17	Hong San	Thai	33	203	103	50	53
18	Kien Po	H' Mong	17	53	25	10	15
19	Huoi Duong	Kinh	14	54	26	10	16
Sum			809	4,780	2,282	1,062	1,220

(Source: People's Committee of Ta Hoc commune)

Table 8 - Population and population structure according to ethnic groups

Num.	Ethnic group	Number of households	Number of people	Structure
1	H'Mong	300	1,877	39.27
2	Thai	303	1,738	36.36
3	Kho Mu	98	601	12.57
4	Muong	94	510	10.67
5	Kinh	14	54	1.13
	Total	809	4,780	100.00

(Source: People's Committee of Ta Hoc commune)

Table 9 - Labor force of the ethnic groups in Ta Hoc commune

No.	Ethnic group	Total of labor people	Percentage (%)	Male	Female	Mean labor people per household
1	H'Mong	835	36.59	396	439	2.8
2	Thai	941	41.24	436	505	3.1
3	Kho Mu	232	10.17	116	116	2.4
4	Muong	248	10.87	104	114	2.6
5	Kinh	26	1.13	10	16	1.9

Total	2,282	100	1,062	1,220	2.8
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(Source: People's Committee of Ta Hoc commune)

Table 10 - Present conditions in land use in Ta Hoc

Land category	Total area	Land allocated to various land users and managers					To be allocated
		Total	Households	Economic organizations	People's committee of the commune	Other	
Total area	11,500	11,179.2	1,346.2	9,447.8		385.2	320.8
<i>I - Agricultural land</i>	<i>1,833.2</i>	<i>1,833.2</i>	<i>1,043.2</i>	<i>790</i>			
1. Water-rice	8.4	8.4	8.4				
2. Hill-rice	1,740.4	1,740.4	950.4	790			
3. Miscellaneous garden	48.1	48.1	48.1				
4. Water bodies	5.1	5.1	5.1				
5. Industrial crops	31.2	31.2	31.2				
<i>II - Forestland</i>	<i>8,659.7</i>	<i>8,486.1</i>	<i>303</i>	<i>8,183.1</i>			<i>173.6</i>
<i>III - Special-used land</i>	<i>385.2</i>	<i>385.2</i>				<i>385.2</i>	
<i>IV - Residential land</i>	<i>147.2</i>						<i>147.2</i>
<i>V - Unused land</i>	<i>474.7</i>	<i>474.7</i>		<i>474.7</i>			

(Source: Cadastral office of Son La province)

Table 11 - Sources of credit fund

Source	Borrowed	Duration	Interest
1. Hunger elimination fund	80,000,000	24 months	0.7%/month
2. War veterans association	60,000,000	24 months	0.8%/month
3. Women association	11,000,000	24 months	0.8%/month
4. Peasants association	200,000,000	36 months	0.8%/month
5. Project 747	473,000,000	60 months	0%/month

(Source: Peoples committee of Ta Hoc commune)

Table 13 - Forest and forestland classified as status

Status of forest and forest land	Total (ha)
Area of forest land	8,659.7
<i>I. Manmade forests area:</i>	<i>3,586.7</i>
1. Natural forest.	3,383.8
1.1 Timber forest	891.3
1.2 Bamboo forest	492.8
1.3 Mixed forest	1,999.7
2. Forest plantation	202.9
<i>II. Bare land:</i>	<i>5,073.8</i>
1. Bare land, sandy area (IA)	317.9
2. Bare land with bushes (IB)	3,958.6
3. Bare land with scattered trees (IC)	797.3

(Source: Son La Forest Inventory and Planning Team)

Table 12 - Result of production in Ta Hoc commune in 1999

Production activities	Unit	Unit Value (ton/ha)	Volume (ton)	Monetary value	Percentage (%)
I. Cultivation				6,036.0	79.89
1- Food crops				5,923.5	78.40
1.1 Rice of which: hill rice	533 450	2,500 @/kg	699 450	1,747.5	
1.2 Maize	1,200	1,100 @/kg	3,600	2,376.0	
1.3 Cassava.	1,200	200 @/kg	18,000	1,800	
2- Industrial crops.	105	300 @/kg	375	112.5	1.49
II. Livestock keeping				439.75	5.82
1. Cattle	229			149.5	
2. Pigs	3,250			48.75	
3. Goat.	50			7.5	
4. Poultry	15,000			180.0	
5. Aqua products				54.0	
III. Forest production				845.0	11.18
1. Forest planting and tending (ha)	101.6			103.0	1.36
2. Managed and protected forest (ha)	4,625.5			162.0	2.14
3. Exploitation.				580.0	7.68
3.1 Timber (m ³)	210			168.0	
3.2 Bamboo (culm)	90,000			162.0	
3.3 Firewood (ton)		4,845		190.0	
3.4 Other forest products				60.0	
IV. Handicraft production and Services				68.4	0.91
V. Other revenues				166.0	2.2
Sum				7,555.15	100.00

(Source: People's Committee of Ta Hoc Commune)

Table 14 - Area forest plantation established in 1996-1999 period /Unit: ha

Year	1996	1997	1998	1999	Total
Area (ha)	33.79	170.0	170.7	101.7	476.19

(Source: The Project 747)

Table 15 - Studies household in the hamlets and their economic condition

Hamlet	Ethnic group	Total household studied	Households with rather good economic condition	Households with rather average economic condition	Poor households
Me	Kho Mu	9	3	3	3
Mong	Thai	9	3	3	3
Pa Dong	H'Mong	9	3	3	3
Heo	Muong	9	3	3	3
Huoi Dang	Kinh	9	3	3	3

(Details, see appendix)

Table 16 - Education level of the studied households

Education level	Primary education	Secondary education	Upper secondary education	Illiteracy	Total

Number of people	106	25	2	120	253
Percentages	41.9	9.9	0.8	47.4	100

Annex 1 - Data of survey on population, educational level, property and housing

Item	Household group at Me hamlet			Household group at Mong hamlet			Household group at Pa Dong hamlet			Household group at Heo hamlet			Household group at Huoi Dang hamlet		
	R	A	P	R	A	P	R	A	P	R	A	P	R	A	P
1- Number of surveyed households	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2- Total population	15	14	19	18	20	16	26	24	23	15	16	14	10	9	14
Mean number of persons per household	5	4.7	6.3	6	6.7	5.3	8.7	8	7.7	5	5.3	4.7	3.3	3	4.7
3 - Total labor	5	6	8	7	6	6	10	11	11	6	6	6	7	5	6
Mean number of labor per household	1.7	2	2.7	2.3	2	2	3.3	3.7	3.7	2	2	2	2.3	1.7	2
4- Educational level															
4.1 - Level 1 (primary)	8	5	7	10	10	7	10	11	6	7	4	8	6	2	5
4.2 - Level 2 (secondary)	3	3	2	2		4	2	1		2	2		2	1	1
4.3 - Level 3 (upper secondary)									1	1					
4.4 - Illiterate															
5- Livestock keeping															
5.1 - Number of cow, buffalo, horse	6	1		9	6	5	10			14	11	3	4	4	3
5.2 - Number of pigs	3	2	2	9	9	4	4			6	9	3		3	7
5.3 - Number of poultry															
6 - Family's property															
6.1 - Households with TV set										3	1		1		
6.2 - Households with motor-bike	1			3	2	1	2		1				1		
6.3 - Households with boat										2	3				
6.4 - Households with radio			1	2	3	1		2	1	1	1	2	1		
7- Housing															
7.1 - Strongly built houses															
7.2 - Houses of medium strength	3	1		3	3	1	3	2	2	3	3	1	3	1	
7.3 - Temporary houses		2	32			2		1	1			2		2	3

Annex 2 - Data of survey on land-use, result of production, expenditure

Item	Household group at Me hamlet			Household group at Mong hamlet			Household group at Pa Dong hamlet			Household group at Heo hamlet			Household group at Huoi Dang hamlet		
	R	A	P	R	A	P	R	A	P	R	A	P	R	A	P
<i>I - Total area of cultivated land (m2)</i>	31500	38500	13000	51200	46000	38300	29000	464000	30000	37700	47800	37000	132700	92000	113800
1 - Mean area of cultivated land per household	10500	12833.3	4333.3	17066.7	15333.3	12766.7	9666.7	15466.7	10000	12566.7	15933.3	12333.3	44233.3	30666.7	37933.3
2 - Mean area of cultivated land per labor	6300	6416.7	1625	7314.3	7666.7	6383.3	2900	4640	3000	6283.3	7966.7	6166.7	18957.1	18400	18966.7
3- Mean area of cultivated land per person	2100	2750	684.2	2844.4	2300	2393.8	1115.4	1784.6	1153.3	2513.3	2987.5	2642.9	13270	6571.4	8128.6
<i>II- Mean income per household</i>															
1- Food crops (kg)															
1.1 - Rice	550	733.3	220	833.3	1300	83.3	740	933.3	546.7	440	1800	633.3			166.7
1.2 - Maize	866.7	1000	366.7	1933.3	1233.3	1300	1800	2866.7	6833.3	2333.3	1833.3	1606.1	11333.3	9666.7	5666.7
1.3 - Cassava	5833.3	7500	2700	466.7	4833.3	1833.3	1733.3	4600	3333	7666.7	5333.3	1866.7			466.7
2 - Industrial crops													40000	31666.7	23166.7
3 - Fruit tree				66.7		83.3									166.7
4 - Livestock keeping	1616.7	736.7		3966.7	1133.3	766.7	3200	1933.3	2140	3683.3	1610	980	256.7	166.7	940
5 - Forest production															
5.1 - Timber harvesting (m3)	1	0.7	0.27				0.3			0.78		1.49			
5.2 - Firewood (ton)	3.9	2.7	3.3	6.66	8.52	3.65	6.1	7.3	6.8	5.77	17.1	3.04			0.97
5.3 - Other forest product (1000@)	600	430	120	50	33.3		130	110		1916.7	350	2400			
5.4 - Sivilcultural activities															
- Planting (ha)	0.5	0.5	0.5	1.33	0.73	0.17	0.5	0.5	0.65	0.67	1.2	0.43			0.37

- Managed and protected forest (1000 ®)	40	53.3	26.7	333.3	153.3										
6 - Others (1000 d)	1420	200	893.3	2433.3	4876.7	400	616.7		480	4008	1600	22733			1420
<i>III - Mean expenditure per household (1000 ®)</i>							7781	7363.5	7151	7705	8127	7659.7	16555.3	15519.3	15002
1- Cultivation	185.3	225.8	91	274	210.7	137.3	168	209.3	313.5	164	200.3	26	9083.3	9268	8285.3
2 - Livestock keeping		100		373.3			113.3	516.7		232	100		1100	233.3	166.7
3 - Living	4880.3	4547.5	2659.3	7189.2	6749.5	3064	7479.7	6637.5	6837.5	7309	7826.7	8633.7	6372	6018	6550
4 - Others															

Annex 3 - Value of production and expenditure /Unit: 1,000 VND

Item	Household group at Me hamlet			Household group at Mong hamlet			Household group at Pa Dong hamlet			Household group at Heo hamlet			Household group at Huoi Dang hamlet		
	R	A	P	R	A	P	R	A	P	R	A	P	R	A	P
II- Mean income per household	8044.6	6273.3	3112.4	13095.7	7963.3	3342.5	8929.9	8942.7	6022.9	18929.8	15049.3	8934.2	24723.4	20300.1	16501.96
1- Food crops	2911.7	3683.3	1223.4	4676.6	5089.9	1621.6									
1.1 - Rice	1375	1833.3	550	2083.3	3250	208.3	1850	233.3	1366.75	1100	4500	1083.23			416.75
1.2 - Maize	953.4	1100	403.4	2126.6	1356.6	1430	1980	3153.37	1783.25	5833.25	4583.25	1766.75	12466.7	10633.4	6233.4
1.3 - Cassava	583.3	750	270	466.7	483.3	183.3	173.33	460	333.3	766.67	533.33	186.67			46.67
2 - Industrial crops													12000	9500	6950
3 - Fruit tree				33.4		41.7									83.35
4 - Livestock keeping	1616.7	736.7		3966.7	1133.3	766.7	3200	1933.3	1140	3683.3	1610	480	256.7	166.7	940
5 - Forest production	2096.2	1653.3	995.7	1985.7	1253.4	312.5									
5.1 - Timber harvesting	800	560	216				240			624		1192			
5.2 - Firewood	150.2	104	127	256.4	328	140.5	234.85	281.05	261.8	222.145	658.35	117.04			37.35
5.3 - Other forest product	600	430	120	50	33.3		130	110		1916.7	350	2400			
5.4 - Silvicultural activities															
- Planting	506	506	506	1346	738.8	172	505	505	657.8	678.04	1214.4	435.16			374.44
- Managed and protected forest	40	53.3	26.7	333.3	153.3			166.7							
6 - Others	1420	200	893.3	2433.3	4876.7	400	616.7		480	4008	1600	2273.3			1420
III - Expenditure							7781	7363.5	7151	7705	8127	7659.7	16555.3	15519.3	15002
1- Cultivation	185.3	225.8	91	274	210.7	137.3	168	209.3	313.5	164	200.3	26	9083.3	9268	8285.3
2 - Livestock keeping		100		373.3			113.3	516.7		232	100		1100	233.3	166.7
3 - Living	4880.3	4547.5	2659.3	7189.2	6749.5	3064	7479.7	6637.5	6837.5	7309	7826.7	8633.7	6372	6018	6550
4 - Others															

Annex 4 - Structure of income/ Unit: %

Item	Household group at Me hamlet			Household group at Mong hamlet			Household group at Pa Dong hamlet			Household group at Heo hamlet			Household group at Huoi Dang hamlet		
	R	A	P	R	A	P	R	A	P	R	A	P	R	A	P
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100	100	100
1- Food crops	36.19	58.71	39.31	35.71	63.92	54.5	44.82	66.5	57.82	40.96	63.89	34.0	50.4	52.4	40.3
1.1 - Rice	17.09	29.22	17.67	15.91	40.81	6.23	20.71	26.1	22.69	5.89	29.9	12.12			2.5
1.2 - Maize	11.85	17.53	12.96	16.24	17.04	42.78	22.17	35.26	29.6	30.82	30.45	19.78	50.4	52.4	37.8
1.3 - Cassava	7.25	11.96	8.68	3.56	6.07	5.49	1.94	5.14	5.53	4.25	3.54	2.1			
2 - Industrial crops													48.5	46.8	42.1
3 - Fruit tree				0.26		1.25									0.5
4 - Livestock keeping	20.1	11.74		30.29	14.23	22.94	35.83	21.62	18.92	19.46	10.7	5.4	1.1	1.8	5.7
5 - Forest production	26.06	26.36	31.99	15.16	15.74	9.35	12.41	11.88	15.29	18.41	14.79	46.3			2.5
5.1 - Timber harvesting	9.95	8.93	6.94				2.68	3.14		3.3		13.2			
5.2 - Firewood	1.87	1.66	4.08	1.96	4.12	4.2	2.63	1.23	4.35	1.4	4.37	1.3			0.2
5.3 - Other forest product	7.46	6.85	3.86	0.38	0.42		1.45			10.13	2.32	26.9			
5.4 - Sivilcultural activities	6.78	8.92	17.11	12.82	11.2	5.15	5.65	7.51	10.94	3.58	8.1	4.9			2.3
6 - Others	17.65	3.19	28.7	18.58	6.11	11.96	6.9		7.97	21.17	10.62	14.3			8.6

STUDY ON PARTICIPATORY FOREST CONSERVATION AND FOREST REHABILITATION IN DEGRADED FORESTLAND IN THE VANG VIENG DISTRICT (Lao P.D.R.)

CHANTHIRATH Khampha

1. / Introduction

1.1/ Topography of the study area

Vang Vieng is a typical mountainous district in the central part of Vientiane province of the Lao PDR, that occupies some 80 percent of the total district land areas of approximately 1750 square kilometers, corresponding to about 0.7 percent of the total land of Lao P.D.R. or about 11 percent of the province itself. Vang Vieng is about 150 kilometers from Vientiane City, the capital, and covers the main part of the Nam Xong watershed area. The district holds about 40,235 people, with a population density of 29.39 persons per square kilometer. The family size is about 6.14 persons per household on average. Being located in the central part of Vientiane province, it shares boundaries with Kasy district to the north, Mead and Fouang districts to the west, Keo Oudom and Hin Heup districts to the south and the Xaysomboun Special Zone to the east.

Vang Vieng district has 71 villages and is divided into five sub-districts which were organized for the purpose of development. Only one of the sub-districts, with 9 villages, is a target area of development by JICA (FORCAP). Though the sub-districts were organized for development, there is no administration office in any of them. One officer from the district administration office is assigned to head each sub-district. The roads No. 13A and No. 13B are the main facilities of transportation for the district, running from north to south and from west to east.

The study area is situated in the upper reaches of the Xong River. The elevation is high in the northeast parts, forming hilly and mountainous areas with a number of 2,000 meter-class mountains. The mountains in the eastern parts have elevations generally lower than 1,000 meters, and those in the southwest parts are hilly areas with elevations from 300 to 500 meters. The Xong River runs from north to south in most of Vang Vieng district. The east bank is marked by Limestone Mountains with a series of steep cliffs, the differences in relative height, which are as large as 1,000 meters.

The study area has the highest rainfall in Laos. According to data provided by the Lao Meteorological and Hydrological Department, the recorded annual rainfall level for the period 1989 to 1998 varied between 2,800 mm to 3,800 mm at Vang Vieng.

Rainfall is particularly high from June to August with a strong monsoon presence, resulting in monthly rainfall of around 700 mm. In some years, the monthly rainfall during this period exceeds 1,000 mm. Ninety percent of the annual rainfall is concentrated in a six month period from May to October. The dry season, with extremely low rainfall, is from November to April, although a mean monthly rainfall of 10 mm to 30 mm is still recorded.

The mean annual temperature in Vang Vieng district is approximately 25 degrees Celsius, approximately 1 degree lower than the mean temperature in the Vientiane municipality. April is the hottest month near the end of the dry season with a monthly temperature of around 28 degrees Celsius. The monthly temperature drops to some 20 degrees Celsius in December and January, which is the most pleasant period of the year.

1.2/ Population

According to data from the District Statistics Office, the total population of Vang Vieng district is about 40,235 as of 1999. This population corresponds to about 0.9 percent of the total population in the Lao P.D.R., or 14.6 percent of the province of Vientiane. The data below shows the distribution of the people following ethnic groups

and sub-districts in the study area. Vang Vieng sub-district is the most populated with about 15,404 people. (See Table 1.1)

Lao Loum is the dominant ethnic group with about 28,942 people; the second largest is Lao Soung with a population of about 6,434; and the Lao Theung group is third with about 4,859. From 1960 to 1970, most of the Lao Soung and Lao Theung came from the northeast of Laos as refugees during the Indochina war. Since the existing flat lands suitable for permanent agriculture were already occupied, the newcomers were without arable land, and they resorted to practicing slash and burn techniques for cultivation.

1.3\ Education

According to data from the District Education Office, there are 60 primary schools, 9 junior high schools, 11 nursery schools and only one high school in Vang Vieng district. The distribution of primary and secondary schools in the district is shown in Table 1.2. Also based on data collected from the District Education Office, male teachers are predominant over the whole district. Only in the primary school in Vang Vieng sub-district is the ratio of men and woman almost equal. It also has the largest number of teachers. (Table 1.3)

Data from the District Education Office shows that a large number of male and female students in each level are concentrated in the town of Vang Vieng compared to other sub-districts. However, the male-female student ratio changes when the students go up to higher levels. The number of female students' decreases, indicating the parents' investment in their daughters is lower compared with that of their sons. See Table 1.4 for details.

The data referred to above shows that the number of students decreases by three times in higher classes, especially in high school. Higher levels of study require more investment from students' families, and many families cannot support their sons or daughters to continue their studies.

1.4 / Hospitals and health centers

The Vientiane Provincial Hospital provides institutional health services in the district and five health centers (dispensaries) were established in each sub-district. The hospital has 30 beds for in-patients. Malaria, lung-disease, stomachache and bladder ailments are the major diseases treated. Some 20 kinds of drugs are kept at the hospital, and drugs other than those have to be purchased at one of the thirty-one pharmacies in the district, which are inspected every three months by the Provincial Health Office.

There is a health center in each sub-district except for the Vang Vieng sub-district where there is a provincial hospital. In each health center, two or three medical assistants serve directly their command villages. At the village level, volunteers take an active part in medical care and birth control under the guidance of the hospital and health center.

1.5/ Water supply and sewerage

According to the District Health Office, the utilization of the water supplies and gravity-fed pipe systems relying on small streams and other sources are shown in Table 1.5. The data shows that nearly half the inhabitants of the study area are still using sources of water other than water supply or water piped from streams. That is, water comes from earthen shallow dug wells, directly from streams and rivers, etc. In any of the above cases, neither filtration nor chlorinating is conducted, except for the water supply in the town of Vang Vieng.

No sewerage systems have been installed in the study area. Based on the data of the survey carried out by the District Health Office, about 31 percent of the inhabitants of the study area were using either the flushing type or dry-type toilets for excrement. Slopes generally drain to rivers, tributaries or just to backyards without any treatment. The use of septic tanks is not widespread.

2. / Objectives of the study

This study of the natural conditions and socio-economic aspects of the district was conducted with the following objectives:

- To clarify the economic conditions, such as income sources, labor opportunities, functions of the moneylenders and banks, etc.
- To clarify social aspects such as labor organization for agriculture and resource management, conditions in the community, local institutions and groups, the mutual aid system in daily life, the state of leadership, the functioning of informal leaders and outsiders, etc.
- To clarify cultural aspects such as social norms to establish and maintain organizational relationships, residents' recognition of their relationship to the forests and trees, cultural activities related to trees and forest, etc.
- To identify internal and immanent constraints for participatory forest management, in terms of economic, social and cultural aspects.
- To identify the main actors for participatory forest management such as individual households, small groups, the village community, etc.

3. / Economic conditions of the study area

3.1/ Income sources

Using data collected from the District Statistics Office, the District Agriculture and Forestry Office, and primary data, the main sources of income and main expenditures are listed as follows.

❖ *Main sources of income*

(a) Agriculture

The most important sources of income come from agriculture, and agriculture is the principal economic sector in the study area. About 88 percent of the working population are engaged in agriculture, which is broadly defined to include four categories: crop production, livestock, fisheries and forestry. In general, however, productivity is low and vulnerable to the vagaries of the weather. Most of the crops are cultivated for home consumption and small amounts of surpluses are marketed. Livestock is the second most important sub-sector in terms of economic return to the villagers. Returns from fisheries and forestry are considered to be smaller than from crops and livestock. However, in the Phatang sub-district, vegetables and fruits provide the most important secondary economic return to the villagers. (Table 3.1)

❖ *Crop production*

The most important crop grown in the study area is rice. This alone occupies about 90 percent of the total crop cultivation area in the district. Other crops cultivated are cassava, maize, watermelons and general vegetables, but generally on a small scale. Based on the information from the District Agriculture and Forestry Office, cash crops such as cabbages, watermelons, cucumbers and oranges have expanded in the study area with production directed in recent years for the Vientiane municipality markets.

Rice in the study area is cultivated in three production systems: wet season in lowland paddy, dry season in lowland paddy, and slash and burn paddy. Among these, wet season in lowland paddy is the major system. It produces about 89 percent of the total paddy in the district. Dry season in lowland paddy is practiced in a limited area. It produces only 1 percent of total paddy output in the district, indicating lower availability of water or fewer irrigation facilities for dry season cultivation. Slash and burn paddy is cultivated in a large area, especially in Somboun sub-district, which produces 10 percent of the district paddy. Average production during the wet season in

paddy fields varies from 1.8 to 2 tons per hectare, but varies between 0.8 to 1.2 tons per hectare in slash and burn cultivation.

❖ *Livestock*

Major livestock raised in the study area are cattle, buffaloes, pigs and poultry. These animals play an important role in the economic lives of villagers as well as in the district. Data from the District Agriculture and Forestry Office in 1998-99 reveals the livestock population in the district at 5,909 buffaloes, 7,705 cattle, 176 horses, 451 goats and 10,069 pigs. (Table 3.2) According to the above data, the number of livestock in Vang Vieng and Namon sub-districts is higher than in other sub-districts.

Many villagers keep cattle and buffalo as their assets. They sell those animals when they need cash income for particular occasions like a marriage ceremony, house construction, or maybe for purchasing rice in case of need. Selling pigs or poultry is done more regularly. However chickens and ducks are raised for home consumption more than selling.

Free grazing is a very common practice for cattle and buffalo. For pigs, rice bran is fed twice a day. Poultry are raised around home yards, and broken rice and rice bran is generally fed twice a day.

❖ *Fisheries*

Reliable data on the present fishery situation in the district, from the Statistics Office, are shown in Table 3.3 and are based on the results of field reconnaissance. In general, fisheries are practiced on a small scale in both capture fisheries and fish culture. The main places for fish capture are the rivers, reservoirs, swamps and paddy fields. Of these the Nam Ngum reservoir is considered to be the most important system in the district. Fish sales are done on a comparatively large scale in the Ha Hue market located just beside the reservoir. Fishing gear commonly used include several kinds of nets and bamboo baskets. According to the information gathered from the market, fish catches in the reservoir have been decreasing in recent years. Pond fish culture is also practiced, mostly under the paddy field / pond system. Usually fish are cultivated during the six-month period during the wet season.

(b) *Other sources*

❖ *Services and commerce*

According to the data obtained from the District Commerce and Tourism Office, a total of 214 establishments of traders/retailers, guesthouses, restaurants and natural tourism sites are listed as shown in Table 3.4. By reading this table, it can be seen that the major marketing centers in the district are in the Vang Vieng sub-district (Vang Vieng town). If compared with data from the Watershed Management study team in 1996, the number of establishments, traders/retailers and guesthouses has increased by about 52 percent.

The major commodities traded to other districts/province include: cattle/buffaloes, pigs, hides, paddy rice, cardamom, limes, oranges, and white palm seed. Live cattle and buffaloes account for 59 percent of trading activities. Other major activities are hides, paddy rice and cardamom.

From the beginning of the year 2000, the number of tourists visiting rapidly increased in the small town of Vang Vieng. The numbers of restaurants and guesthouses have rapidly expanded, creating good jobs as well as incomes for Vang Vieng citizens. The number and distribution of traders, guesthouses, restaurants and tourist sites are shown in the table below.

❖ *Industry and handicrafts*

According to the district's Industry and Handicraft Office, the total number of factories and handicraft establishments in the district is 382, of which 300 weave cloth and the rest are a factory. However, only one factory is categorized as large-scale with

more than 100 employees. Eight factories are medium scales with 10-99 employees - the rest are small-scale. (Table 3.5)

The one factory categorized as large-scale is the cement plant located in Vang Vieng sub-district. This factory was established in late 1994 with a maximum capacity of 250 tons per day with 24-hour operation, or 75,000 tons per year with 300 operating days. There is about 60 management staff, including section chiefs, and 180 permanent workers plus 150 temporary workers, who work in three shifts a day. Coal and fuel wood is used as energy sources for cement production. Every year about 2,800 cubic meters of fuel wood is consumed. Most of the fuel wood is collected from villagers in Somboun sub-district.

In addition to the cement factory there are many small factories like a limestone processing factory, a furniture manufacturer, a drinking water producer and so forth. Compared with five years ago, factory and other services facilities have increased very quickly. In the near future the second cement plant will be constructed with a capacity bigger than the first cement plant, which is a basic factor in the improvement of economic conditions in the study area. Besides the expansion of the industry sector, other sectors have also grown.

❖ *Socio-economic stratum*

The socio-economic stratum also affects farming systems. Poorer households tend to have less able-bodied labor, which affects their ability to clear shifting cultivation land and carry out the required weeding. As a result, the area for both the shifting cultivation and upland rice is less, resulting in substantial rice shortages for poorer families. Therefore there is a greater reliance among the poor in selling their labor to better-off farmers for cash or rice. On the other hand, the better off can clear more land, have better yields because of more labor, often hire labor for weeding and gain more income. Table 3.6 shows some differences of income generation in households in FORCAP target villages.

The above data show that the income generation of households in each village has different levels between three ranks. The main sources of income of the villagers were from selling livestock such as cows, buffaloes, pigs, ducks and hens. Moreover, in Phatang sub-district, their surplus also comes from watermelons, cabbages, and garden crops and fruit tree plantations, such as oranges. So far none get surplus from selling products from shifting cultivation, due to natural disasters or low production. The difference in economic levels varies, as clearly indicated in the table above. It is noticeable that the rich people have higher average incomes compared to medium and poor levels. The rich people receive their main income from business, but the poor people mainly depend on upland rice products.

❖ *Main cash expenditures*

Main cash expenditures are classified as follows: (1) food, (2) clothes, (3) education, (4) health care and (5) others. The average cash expenditure differs significantly in the villages, and is larger when the average cash income is large. However, there is little difference between sub-districts (Socio economic base line survey, JAFTA, 1996). In general, the proportion of food expenditures is high in most villages in which the average cash income is large. The cash expenditure is small in the villages in which the average cash income is small. In general cash expenditures among Lao Loum are larger than the cash expenditures of minority ethnic groups (Hmong and Khamu).

❖ *Labor opportunities*

According to the data from the District Statistics Office, the main occupation of families in the study area is classified as the poor farmer in both upland and lowland areas. The detailed data are shown in Table 3.7. The data show that farming makes up a higher proportion than other occupations at 3,593 instances. However, most of the

farmers are of low income. In some years their production is not enough, even for their own consumption. Based on distribution by sub-district, the shifting cultivators in Somboun sub-district make up the highest proportion. This means that these people are still highly dependent on the forest.

❖ *Banks and the function of money lenders*

An Agriculture Promotion Bank (APB) was established in 1993 to support agricultural production. The APB is a public financing institution that provides subsidized credit schemes to the villagers and promotes group-based loans. In general, recipients are requested to organize themselves into a group for a certain project for which a loan is needed. The loan amount varies from the minimum of kip 50,000 to a maximum of kip 500,000 for both short-term and long-term loans. Interest rates also vary, based on the type of project. For example, the annual rate for a loan for agriculture and livestock would be set at 10 percent; the rate for handicrafts would be 12 percent, and 18 percent for commerce.

However, the capability of an APB is still limited and does not function well due to lack of experience and limited funds. Besides, many farmers do not well understand the banking system, so they have some confusion on how to borrow and return the money to the bank. Sometimes the bank has not been able to collect both the capital and interest because of the farmers' failed agricultural production.

4. / Social aspects

4.1/ District organization

The District is a state administrative unit that materializes and carries out the strategies and policies of the government. Its organizational chart is the same as a provincial organization, comprised of many offices. There are two lines: (1) the horizontal line or administration belonging to the provincial authority; and (2) the vertical line or technical line belonging to the ministry. Village and community organizations are connected directly to the district authority. (See Figure 4.1: District Organization Chart)

The district is organized for each district in a province as follows: one district governor (chief of district) and one vice-governor (deputy chief of district). Under these positions are organizations and district sector offices such as: district administration offices, health offices, agriculture and forestry offices, information and culture offices, statistics offices, education offices, commerce and industry offices, finance offices, cooperation offices, security offices (army and police) and so on.

4.2/ Village institutions

The organization of the village institution is smaller and simpler than the district organization. It is the smallest unit of the state administration. Each village administration is comprised of one village chief and two vice-deputies that are elected by villagers from a list of candidates approved by the district. The government pays them for their official duties (i.e., 6,000 kip per month for a leader) (FAO, 1997) Representatives from community organizations (Elders Organization, Youth Organization, and Women's Union) are also a part of the formal village council. The village is divided into many units, a unit being called a "nouay." Each unit has a head and a vice head. One unit includes 8 to 12 households. The number of units depends on the size of the village. If there are at least 30 households, it can be called a village.

The village leadership consolidates villagers' opinions and makes decisions on issues concerning the entire village. The village leader acts as the formal representative

vis-à-vis district officials when placing proposals and requests concerning village development issues. (See Figure 4.2: Village Organization Chart)

4.3/ *Informal leaders and local institutions and their main functions*

❖ *Traditional leadership*

Apart from the officially elected leaders each village has a traditional leader and informal leaders who are usually elderly men respected by the whole community. Their influence in the village community is strong, especially concerning land distribution. Normally in remote areas informal leaders are no less important than the formal leaders, especially in the minority ethnic groups, e.g. Lao Soung (Hmong) in Phatao village and Loa Theung (Khamu) in Houay Xi village. The informal leaders of these two minority ethnic groups play an important role in their societies. Their position is to be the advisors to the formal leaders for the activities of the entire village. Sometimes they act as the decision-makers at the village level.

❖ *Village formal groups*

According to the results of the survey only some village formal groups have been organized in some villages in the study area. It indicated that local institutions and local people do not yet pay attention to this matter, therefore the problems of natural resource utilization and management are always occurring. The village informal groups in the study area are listed below:

❖ *Labor exchange groups*

Labor exchange groups are very common in villages where people practice slash and burn cultivation. Households are divided into several groups, and families in the same group help each other for land preparation (slashing, burning and planting). The labor exchange in general is designed to mitigate high labor demand during land preparation. It helps particularly young families, which do not have enough labor. Individual households, on the other hand, usually carry out weeding. The families with a small labor force often lack sufficient labor input to cover the whole plot. Families in the same group also assist each other in cases like house construction or repairs.

However weeding is carrying out through labor exchange among Lao Theung farmers probably because weeds are a major constraint to increasing the productivity of slash and burn cultivation and requires heavy input of labor to control.

❖ *Irrigation users' groups*

In lowland villages like in Phatang, Namouang and Namon sub-districts where irrigation systems are available, farmers who use irrigation water manage the system collectively. In the village study area no water fees are charged, and maintenance and repair works are done through their labor contribution.

❖ *Rice banks*

Some poor villages have a rice bank recently established by the district's welfare office. The objective of the rice bank is to give needy households with a rice shortage the opportunity to borrow rice or paddy at a lower interest rate (15 percent in kind) than what is charged by commercial lenders (between 200-300 percent). A committee headed by the vice-village leader that selects eligible households' handles the management of the rice bank. Generally, households that have defaulted are not allowed to borrow in the next year according to regulation.

❖ *Farmers' organizations*

In 1986 the village-based collectives that aimed at group-work in farming and the distribution of products totally ended. At present there are no farmers' organizations established in the study area under the government arrangement other than the village committee and village mass organizations like the village elders group, youth

organization and women's union. A farmers' organization focused on economic and social activities is not yet formulated in the study areas or in the province.

❖ *Women's Union*

The Women's Union is a political mass organization that assists the government to implement the strategies and policy of the government. In the vertical line the union is under the guidance of the District Women's Union. The union had more political character in the past but presently the activities of the unions are generally low, especially at the village level. Their main activity is to mobilize the women to provide food for official guests. Any woman more than 18 years old (in case of married women, more than 16 years old) can become a member of the women's union.

❖ *Mutual aid system in daily life*

Normally in remote areas a mutual aid system in daily life is very important and very common in both Lao Loum and minority ethnic groups. There are no big differences between ethnic groups when it comes to the mutual aid system in daily life. It is used in many activities in the village such as agricultural production, house construction or repairs, traditional ceremonies, rice or money lending when there are insufficiencies in foodstuffs and other public works. According to the results of the survey the mutual aid system in daily life in the community can be classified as follows:

- Individual activities where individuals or organizations take the initiative or management responsibility;
- Temporary group activities where individuals take the initiative while temporary groups of the family exchange labor;
- Fixed group activities where groups of individuals like members of the temple or school take the initiative or management responsibility;
- Community activities where the entire village takes the initiative or management responsibility;
- Wage labor where individuals are employed as wage laborers and individuals take part based on contracts.

Table 4.1 shows the participation of local people in various activities in their village.

❖ *Effects of development projects*

A number of both international and local development projects have been established wholly or partly in the study area. The largest project to date is the Lao-Japan Technical Forest Conservation and Afforestation Project that funded the degraded forestland rehabilitation and participatory natural forest conservation in the Somboun sub-district with 9 target villages. This project has been concerned with basic support to both local authority and local people for natural forest conservation, degraded forest rehabilitation and integrated rural development.

Other international projects operating include the Upland Agriculture Project, CAA, CUSO, and HCR rural development projects. After several years of implementation many aspects have changed. For example, the local people switched their system of agricultural production from once per year to twice a year. The use of slash and burn cultivation has been reduced, involving the rural people better protects forest resources, and local people's incomes have gradually improved.

Cultural aspects, too, have changed – like the mutual aid system that was once very common among any of the ethnic groups. Food gotten from hunting or fishing was often shared with each other, meant usually just for family consumption. But now, commercial use is the main objective and use of the sharing system has gradually diminished.

Therefore, the increase of natural resources, especially forest resources, is a main factor in the sustainability of forest resources. Since the project was implemented, various organizational groups like the Forest Volunteer Group, the Village Forestry and PSS groups were reorganized to improve the participatory forest management.

5. / Cultural aspects

5.1\ *Social norms for establishing and maintaining organizational relations*

In the Lao P.D.R. the establishment of organizations and administration have to follow the laws and regulations of the government. All organizations both formal and informal must be permitted and approved by the authorities concerned.

5.2\ *Residents' recognition of forests and the trees*

According to the results of the survey, the local people understand well the importance of the forest and trees in their daily lives. Most of them know that the forest is the main source of their income. Even in the past when practicing the customary slash and burn cultivation, they tried to do their best to conserve and manage the forest. In recent years both lowland and upland villages have established village rules and regulations to protect their forests. Several kinds of forests with multi-purposes have been established like the forest areas designated as village protection, village utilization, sacred forest and so on. Many farmers include tree planting in their slash and burn cultivation. Only two years after the Profits Sharing System was introduced, one hundred households had already participated in rehabilitating degraded forest. Even the lowland paddy field farmers tried to plant trees or keep trees around their paddy field and the head of the stream. However, difficulties in the management of forests continue. Some small forest user groups still do not understand the importance of forest resources. Illegal cutting and over-extractions continue to happen and remain the main cause of deforestation in the study area.

5.3\ *Cultural activities related to trees and the forest*

The main activities related to trees and forests is the pattern of farming, which can be divided into three systems:

❖ *Traditional use of forest for slash and burn*

About 1/3 of the total households in the study area are engaged in traditional slash and burn for cultivation. Normally the land to be used is selected by the villagers in consultation with the village leadership, and it lies within the village boundaries or traditional village areas. Households are usually grouped together, perhaps 5 to 10 families, for exchanging labor for slashing, burning, planting and fencing, although other operations such as weeding are usually done separately. Land preparation is done from January to February (slash) followed by burning at the end of March after the slashed plants have dried. The remaining plants are then collected and re-burned. Fencing is done in late April and early May. Planting is done from May to June by making holes in the ground with a stick and dropping 5 to 7 seeds into each hole at the rate of 50 to 60 kilograms per hectare. Other crops are commonly grown within and around the rice crop, such as maize, cucumbers, eggplants, pumpkins, chilies and beans.

Fertilizer and manure are not used in slash and burn cultivation areas, and only local varieties of rice are grown. Rats often affect yields, and birds, grasshoppers and other insects contribute as well to field losses reported to be as much as 30 percent in some cases.

The period where fields lay fallow now in the study area is from 4 to 5 years, representing a reduction from the previous 10 years or more. The major reasons for this reduction were attributed to increasing human population coupled with the introduction of forest preservation regulations by the government.

❖ *The customary use of trees for house construction and repairing*

The customary use of forests and trees for house construction or repairing is conducted in the village production forest. To be allowed to cut trees, villagers must obtain a permit from village head and pay a fee, depending on the species.

Society and the law recognize the customary use of trees, as has been practiced for a long time. According to Article 30 of the Forestry Law (1996), customary use should not damage the forest or forest resources, or affect the rights or benefits of individuals or organizations. The customary use of the forest, forest lands and products must be in accordance with village regulations determined by the village authority.

❖ *Protecting the forest*

The forest and trees in sacred areas, including cemeteries, are protected. They cannot be used for any purpose. Tree cutting is not allowed. The local people believe that if the trees were cut down, it could bring bad things to the village. Angry spirits could make the villagers ill or even die. So if anybody does something wrong in these areas they are fined by the village organization, and those responsible have to pay money for a ceremony. However, these forests are usually very small in or close to each village. Sometimes a village has deemed a single tree as sacred, and residents are to protect it forever. This practice, therefore, is a good thing for traditional forest conservation as well as tree protection

❖ *Non-timber forest products*

Problems emerging in the study area raise a number of issues concerning common property. One of the issues is determining the level at which property is held in common. While there are reasons for establishing and demarcating common property (particularly forest land) and resources for each village to manage separately, there are also some resources better managed jointly between villages or alternatively by smaller groups within each village.

A major problem faced in the study area is lack of clear recognition and support by district or provincial authorities for community rights over resources, even though the communities have in fact been managing forest land and water resources since the area was first settled. Without external guarantees, it is very difficult for leaders of local communities to exert authority. In the past, the forest was managed according to customary community rights, not dependent on clearly drawn boundaries or written codes of conduct. All the forests and land were common property, used and managed by all in the community. Rules and regulations emerged gradually over time, with the general consent of villagers, as problems appeared. However with the sudden arrival of outsiders with different production systems not bound by the established rules in a situation of increasing resource scarcity, the pace of competition has accelerated. This has led to over-exploitation, not only by newcomers, but also by original villagers who want to reap benefits before the resources are depleted entirely.

❖ *Possession rights and management responsibilities of land and forestlands*

Based on law, land and forestland belongs to the Lao national community. All Lao inhabitants have the right to use it for production and management. Table 5.1 shows the possession of each type of land/forestland and its accompanying management responsibility.

Alongside land and forest law, the customary use of forest products by local inhabitants that live around or inside the forest is still allowed to some degree. Through contract making between local authorities and users, both land and forestland is well managed in a sustainable way. Under this contract, local people can possess land and forestlands and take the responsibility of its management.

6./ Internal/Immanent constraints on participatory forest management

6.1/ Constraints on participatory forest management

According to survey results the most immanent constraints on participatory forest management are divided into several aspects.

❖ *Physical constraints*

The topography of two-thirds of the study area is hilly, one of the main physical constraints to increasing crop production, especially rice. Flat lands suited to lowland rice cultivation with irrigation are limited. Otherwise, appropriated systems of agriculture in upland areas are not fully developed and access to each valley is poor, sometimes only by footpath. Therefore only slash and burn cultivation is the main occupation to engage the life of the local people. In recent times with a short rotation of 4 to 5 years, most farmers do not even produce enough rice for themselves.

❖ *Economic constraints*

About 88 percent of the working population are engaged in agriculture - most of them poor farmers with primitive systems of production. Most crops are cultivated just for home consumption. Only small amounts of livestock and forest products produce an economic return for the villagers.

The main constraints here are:

- Limited flat land suitable for agricultural production;
- Agricultural productivity is low and vulnerable to the vagaries of the weather;
- High dependency on forest resources;
- Primitive systems of agricultural production are commonly practiced, especially slash and burn for upland cultivation;
- Other economic sectors are well developed like industry or other small-scale processing plants;
- The market system is not well developed;
- Natural resources (forest resources) are not well protected or managed.

❖ *Social constraints*

Institutional and technical constraints

The biggest problems for participatory forest management are institutional - relevant to the planning, design and demarcation of the forest, and cooperation among forest users. The main constraints are:

* Institutional weakness is evident from the absence of adequate institutional arrangements and the lack of a set of well-established procedures to assure that forestry resources concerns are integrated into overall development plans;

* Inappropriate systems of land use management at both district and village levels, coupled with unclear zoning between agricultural land and forestland, as well as other lands, and a lack of coordination between organizations concerned, especially at the local level;

* Monitoring and evaluation of these activities has not been functioning properly, aggravated by the frequent transfer of forest officials;

* Villagers as designated are not carrying out Enrichment and regeneration activities in the classified forest areas;

* Strict fines or penalties that do not follow village forest rules and regulations and awards for those forests that are well protected and managed; and

* Insufficient budgets and qualified technical staff for providing timely and efficient public service to the forest management and conservation.

❖ *Cultural constraints*

The main cultural constraints are:

- The customary rights of rural people to use forests for slash and burn cultivation;
- Over-extraction and uncontrolled use of forest resources;
- Local people do not understand government policies on forest protection and forest management. They wonder, "What right do they have?" and "What responsibilities do we have?" This lack of awareness has created misunderstandings about participatory forest management.

❖ *Problems with present land use*

Poverty is the main factor that has led to the degradation of forest resources, forcing a trade-off of long-term sustainable resources use for the short-term consumption of resource stocks.

Major problems in each village were similar: (1) a lack of agricultural land, and (2) the low productivity of the agricultural land. These problems were identified in many villages in relation to paddy cultivation in lowland paddy and in slash-and-burn land. This shows that the biggest concern of the villagers with the present land use is the increase of paddy production.

Other problems such as forest degradation and a frequent occurrence of disease in livestock were pointed out in many villages, although the latter problem has no direct relation with present land use. The decrease in fish resources in the Nam Ngum reservoir is also an important part of the economics of the study area.

6.2/ Countermeasures and strategies for the management of forest resources

The significant depletion of forest resources in the study area is a result of an unsustainable high level of wood extraction and encroachment by the farming population, driven by extensive local revenues. Our survey indicated that the cash income of the villagers in the study area depends heavily on revenues generated by forest resources.

Both the central government and local authorities are aware of this and decided to focus on the following systems for forest resources management and measures to be applied:

- Reduce and completely terminate the slash-and-burn cultivation technique and work with the villagers to follow village regulations on forest protection while promoting other income generation activities, and applying modern farming techniques including the introduction of new seeds to increase yields;
- Assist local people in rehabilitating degraded forestland by planting trees, especially on bare hills and grassland, through the funding system, while measures for forest fire protection are strictly applied;
- Clear demarcation of production, community and protection forest areas as well as a clear demarcation between forest and agriculture land;
- The grassroots should materialize government policies on forest conservation and forest rehabilitation;
- Appropriate forest utilization techniques for forest sustainability must be applied;
- Motivate local people that live around or inside the forest to participate in forest management by improving silvicultural techniques;
- Institutional strengthening by: (i) reorganizing the village forest community in each village; (ii) establishing effective enforcement and control mechanisms to minimize illegal cutting in each community; (iii) strictly fine or penalize people that break village forest rules and regulations and give awards to those that well protect and manage the forest.
- Involve local communities in forest resource management through: (i) granting of long-term use and access rights to forest land areas traditionally controlled by a given community in exchange for adherence to resource use and management plans; (ii) assistance for low land farmers (irrigation investment, research and extension) to help increase yields so as to stop encroachment on neighboring uplands; (iii) development and gradual introduction of more sustainable upland production systems to limit the expansion of shifting cultivation areas into forestland.

7./ Main actors in participatory forest management

7.1/ Main actors in participatory forest management in the study area

According to the results of the survey in the study area there are many main actors participating in forest management, such as: village forest volunteers, profit-sharing groups, the village community (village forestry groups), school-run plantations, private forest rehabilitation activities in degraded land, and other user groups.

❖ *Village forest volunteers*

The village forest volunteers are semi-official staff assigned by the village and approved by the district agriculture and forestry sector. The main duties are to inspect, control and produce plans for managing the village forest, and also to act as an intermediary between the district forest sector and the village organization. If this organization does well, it can help local authorities to protect and manage their forests well.

❖ *Village forestry community*

The “village forestry community” or village forestry is “a partnership between the state and organized villagers for the management of designated forests in order to sustain the flow of benefits, which are fairly distributed to the villagers and the rest of the national community” (Department of Forestry, 1997). There are five key elements in this definition:

- The term partnership means that each partner has decisions to make and execute. It is important that the process of decision-making, planning, and execution is participatory and transparent. Most of the planning and operational decision-making activities need to be based on a bottom-up approach.
- Villagers have to organize themselves for the partnership.
- Specifications must be done of the land allocated and designated, i.e. with their boundaries delineated, mapped, and approved by the state authorities.
- The word “sustain” refers to the general objective of sustainable forest management; the villagers will define more detailed management objectives.
- The word “fairly” refers to the distribution of benefits according to the “inherent” rights, investment and effort put in by various parties into forest management and protection.

However, it must be understood that different types of village forestry approaches are likely to be needed for various forest categories and socio-economic and environmental conditions. Basically, the village forest community has been already established in some villages in the study area, but the reality of this process is that they seem to not function well.

❖ *Individual / collectives for degraded forest and grassland rehabilitation*

Since 1997 a participatory forest conservation and afforestation project was introduced called the “Profit Sharing System” in degraded forests (PSS).

The PSS is “a system of which a plantation is jointly established by the state and citizen(s) with mutual agreement of profit sharing.” In other words, the District Agriculture and Forestry Office (D.A.F.O.) as the representative of the state will provide the initial funds, sometimes items in-kind, such as seedlings and barbed wire for fencing and technical know-how. The PSS participants (collectives, individuals and organizations) involved in tree planting will bear the responsibility of the site preparation, planting and maintaining the plantation with their own resources. The area to be established for a plantation must be degraded forestland, barren hills and grasslands officially recognized or allocated by the local authorities. When the plantation becomes mature, i.e. reaching the suitable age for timber harvesting, D.A.F.O. and PSS participants will estimate the profit to share between the partners. The profits will be shared by percentage based on the agreement. Through two years of

PSS implementation, more than one hundred families in the study area have participated in tree planting and the trend is expanding on a large scale in 15 target villages. About 25 hectares of demonstration forest of FORCAP has already been established in the study area with the purpose of training and demonstrating tree growing to the local people. By the completion of the project, around 500 hectares of demonstration forest will be established.

❖ *Village forest community for utilization*

It was reported that all the villages in the study area have natural forest for the use of all villagers. As for the status of the types of forest in the study area, district land and forestland allocation unit delineated the boundaries for all villages by the involvement of local people. The forest is used mainly for timber for house construction, fuel wood harvesting and non-timber collection. In the survey, the existence of village regulations on the use of forest was confirmed in each village. The land area of these types of forest depends on the area of each village. The government allocated the right to use the degraded forestland, bare hills or grassland to the villagers for tree planting based on their capability in labor and financial resources. For individuals, the government will allow the use of three hectares of land for one laborer in a family. In case of the need for a wider land area, the interested persons can rent or lease from the government. The owner has the right to use, inherit or transfer, and sell all products from the plantation. However, in the case of sale they have to pay a production tax.

ENDNOTES

- (1) Jafta Kokusai Kogyo Co., Ltd. *The Study on Watershed Management Plans for Forest Conservation in Vang Vieng District*, Sept. 1998.
- (2) The Forestry Law, 1996.
- (3) Decree No. 169 / PM, 6 Nov. 1993, Regarding the Administration of Forest and Forestland, Lao P.D.R.
- (4) Decree No. 186 / PM, Oct. 1994, regarding the division of land and forests for tree planting and forest preservation.
- (5) District Statistic Office, 1999, regarding a socio-economic survey.
- (6) The 5th Roundtable meeting, 1994 regarding socio-economic development, Lao P.D.R.
- (7) Ministry of Agriculture and Forestry, 1996, regarding national evaluation meeting on land and forestland allocation.

Table 1.1: Distribution of people of each ethnic group in the district

No	Sub-district	Distribution of people following ethnic groups							
		Lao Lum		Lao Theung		Lao Soung		<i>Total</i>	
		F	M	F	M	F	M	<i>F</i>	<i>M</i>
1	Phatang	1,757	1,858	580	520	1,093	1,071	3,430	3,449
2	Vang Vieng	6,561	6,524	691	683	451	494	7,703	7,701
3	Namouang	1,573	1,674	103	99	342	367	2,018	2,140
4	Namon	2,137	2,147	226	266	1,304	1,308	3,667	3,721
5	Somboun	2,351	2,360	855	836	2	2	3,208	3,198
	Total	14,379	14,563	2,455	2,404	3,192	3,242	20,026	20,209

Source: District Statistics Office, 1999

Note: M = male

F = female

Note: All District Offices denoted are for Vang Vieng District

Table 1.2: Distribution of primary and secondary schools in the district

No	Sub-district	Number of schools				Remarks
		High school	Junior high school	Primary school	Nursery school	
1	Phatang	0	2	13	5	
2	Vang Vieng	1	2	17	5	
3	Namouang	0	2	10	0	
4	Namon	0	1	12	1	
5	Somboun	0	2	8	0	
	Total	1	9	60	11	

Source: District Education Office, 1999

Table 1.3: Distribution of teachers in the Vang Vieng district

No	Sub-district	Number of teachers in Vang Vieng district								Remarks
		High school		Junior high school		Primary school		Nursery school		
		Male	Female	Male	Female	Male	Female	Male	Female	
1	Phatang	0		20	8	45	23	0	9	
2	Vang Vieng	42	20	38	28	76	81	0	17	
3	Namouang	0	0	16	1	42	21	0	0	
4	Namon	0	0	15	3	52	14	0	2	
5	Somboun	0	0	16	3	48	10	0	0	
	Total	42	20	105	43	263	149	0	28	

Source: District Education Office, 1999

Table 1.4: Distribution of students at each level in the district

No	Sub-district	Number of students								remarks
		H.S		J.H.S		P.S		N.S		
		M	F	M	F	M	F	M	F	
1	Phatang	0	0	253	158	698	611	98	100	
2	Vang Vieng	695	420	606	502	1466	1314	104	99	
3	Namouang	0	0	106	73	572	507	0	0	
4	Namon	0	0	295	173	838	734	40	32	
5	Somboun	0	0	250	125	802	705	0	0	
		Total	695	420	1,510	1,031	4,376	3,871	242	231

Source: District Education Office, 1999.

Table 1.5: Water supply in the study area

No	Sub-district	Water supply systems %			Remarks
		Water supply	Water piped from streams	Other sources	
1	Phatang	0	88	12	
2	Vang Vieng	45	15	40	
3	Namouang	0	33	67	
4	Namon	0	19	81	
5	Somboun	0	91	9	
		9	49.2	40.2	

Sources: District Health Office

Table 3.1: Distribution of agricultural land in the district

No	Sub-district	Distribution of agricultural land						Remarks
		Paddy field		Slash and burn land		Total agricultural land		
		Wet paddy	Dry paddy	P.S.B	R.S.B.	Paddy field	Slash and burn	
1	Phatang	528	0	123	0	528	123	
2	Vang Vieng	1,389	22	26	79	1,411	105	
3	Namouang	562	34	0	119	596	119	
4	Namon	607	7	0	158	614	158	
5	Somboun	125	2	135	170	127	305	
		Total	3,211	65	284	526	3,276	810

Source: District Agriculture and Forestry Office, 1999.

Note: P.S, L. = Permanent slash and burn
R.S.B. = Rotation slash and burn

Table 3.2: Distribution of livestock in Vang Vieng district

No	Sub-district	Number of livestock							Remarks
		Elephant	Buffalo	Cattle	Horse	Goat	Pig	Poultry	
1	Phatang	0	721	753	0	51	1,465	19,640	
2	Vang Vieng	1	1,678	2,472	24	207	3,045	37,874	
3	Namouang	0	761	785	0	2	892	16,075	
4	Namon	0	2,151	2,041	151	96	2,935	23,625	
5	Somboun	0	598	1,654	1	59	1,732	12,277	
	Total	1	5,909	7,705	176	451	10,069	109,491	

Source: District Agriculture and Forestry Office, 1999

Table 3.3: Distribution of fishpond and grazing areas in Vang Vieng district

No	Sub-district	Distribution of fish pond and grazing area					Remark
		Fisheries		Grazing area		Other (ha)	
		Site	Area (ha)	Site	Area (ha)		
1	Phatang	6	4.00	0	9.00	0	
2	Vang Vieng	75	83.50	N.A	46.00	154.00	
3	Namouang	94	18.23	-"	21.00	167.00	
4	Namon	93	20.18	-"	61.55	30.17	
5	Somboun	71	14.55	-"	44.50	35.94	
	Total	339	140.46	0	182.05	387.11	

Source: District Agriculture and Forestry Office and District Statistics Office, 1999

Table 3.4: Distribution of establishments of traders, guesthouses, restaurants and tourism sites

No	Sub-district	Number of guesthouses, hotels and tourism sites						Remarks
		Hotel / Guesthouse		Restaurant / Shop		Tourism site		
		Hotel	Guesthouse	Restaurant	Shop	Natural / Caves	Culture	
1	Phatang	0	0	1	0	6	0	
2	Vang Vieng	1	21	19	116	8	0	
3	Namouang	0	0	0		3	0	
4	Namon	0	0	0	6	0	0	
5	Somboun	0	2	6	25			
	Total	1	23	26	147	17	0	

Source: District Industry and Handicrafts Office and District Statistics Office, 1999

Table 3.5: Distribution of factories and handicraft establishments in the district

No	Location	Factory					
		Industry		Processing Factory		Handicraft	
		Cement factory	Limestone factory	Drinking water	Other	Weaving	Tailor
1	Phatang	0	0	0	N.A	177	0
2	Vang Vieng	1	5	2	15	934	5
3	Namouang	0	0	0	N.A	92	0
4	Namon	0	0	0	N.A	491	1
5	Somboun	0	1	0	0	301	0
	Total	1	6	2	15	1995	6

Source: District Industry and Handicrafts Office, 1999

Table 3.6: Cash income of nine villages in the FORCAP target area

Village	Economic ranking	Number of households interviewed	Average income / capital / year	Average income of forest products / capita / year	Remarks
Nam phao	Rich	10	3,668,300	64,300	
	Medium	10	3,000,000	N.A	
	Poor	10	1,260,300	83,700	
Houay Xii	Rich	10	4,010,000	10,000	
	Medium	10	2,100,000	50,000	
	Poor	10	1,620,000	N.A	
Nam path Tay	Rich	10	2,756,000	33,000	
	Medium	10	704,000	5,000	
	Poor	10	2,385,000	50,000	
Houay Mo Neua	Rich	10	2,530,000	N.A	
	Medium	10	1,770,000	24,500	
	Poor	10	810,000	30,000	
Houay Mo Tay	Rich	10	12,300,000	68,000	
	Medium	10	2,985,000	N.A	
	Poor	10	2,640,000	N.A	
Tha Heua Neua	Rich	10	8,050,000	N.A	
	Medium	10	1,790,000	90,000	
	Poor	10	860,000	N.A	
Tha Heua Tay	Rich	10	11,000,000	N.A	
	Medium	10	5,660,000	N.A	
	Poor	10	810,000	20,000	
Houay Pamom	Rich	10	8,100,000	330,000	
	Medium	10	2,140,000	N.A	
	Poor	10	2,184,000	N.A	
Pha Koup	Rich	10	9,752,000	130,000	
	Medium	10	5,270,000	N.A	
	Poor	10	5,000,000	36,000	

Table 3.7: Main occupations of families in the district

No	Sub-district	Main occupation of families							
		G.O.	F.	F.S.B.	S.B.	G.	L.R.	T.	W.
1	Phatang	122	947	46	210	25	0	8	16
2	Vang Vieng	553	1,390	62	186	15	7	215	213
3	Namouang	87	432	85	45	1	0	8	18
4	Namon	230	668	13	141	3	1	42	41
5	Somboun	39	156	29	320	24	13	329	56
	Total	1,031	3,593	235	902	68	21	602	344

Source: District Statistics Office, 1999

Note: G.O. = Government officer
 F. = Farmer
 F.S.B. = Farmer + Slash and burn cultivation
 S.B. = Slash and burn cultivation
 G. = Gardener
 L.R. = Livestock raising
 T. = Trader
 W. = Worker

Figure 4.1: District organization chart

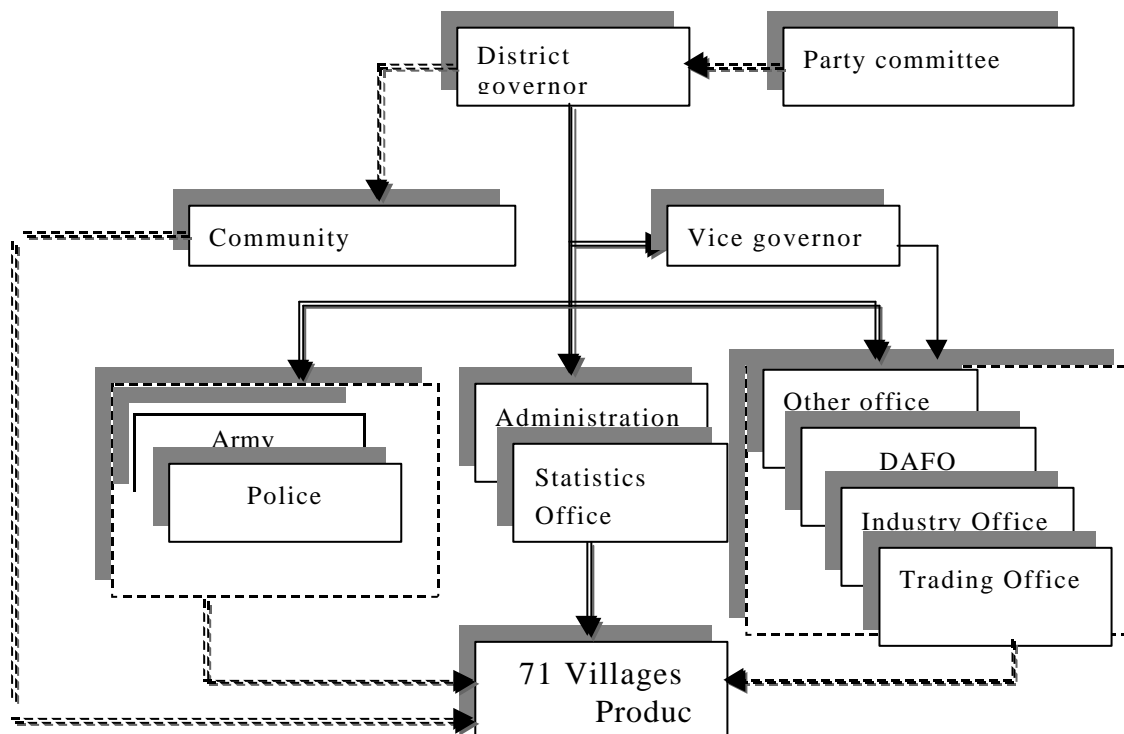


Figure 4.2: Village organization chart

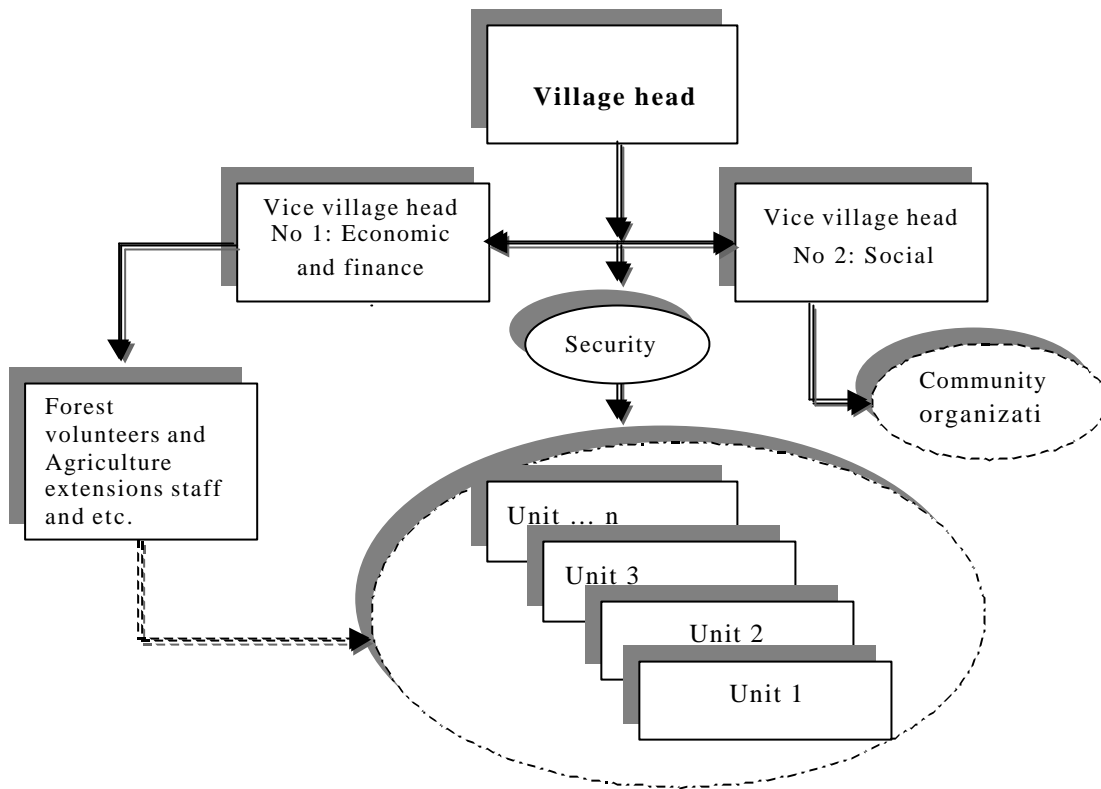


Table 4.1: Mutual aid system in daily life

Type of activity	Type of mutual aid systems				
	Individual	Labor exchange	Fixed group	Community	Wage
- Farm forestry	Yes	Yes	None	None	Yes
- Group forestry	None	None	Yes	None	Yes
- Community forestry	None	None	Yes	Yes	Yes
- Public forestry	None	None	Yes	Yes	Yes
-Private agriculture farm	yes	Yes	None	None	Yes
- Private house construction	Yes	Yes	None	None	Yes
- Public works	Yes	None	Yes	Yes	None
Festival / ceremony	Yes	Yes	Yes	Yes	None

Table 5.1: Combination of possession of land and forestland and management responsibilities

Type of land/ forestland management	Possession of land/ forestland			
	Individual/ Organizatio n	Village/ Community	Outsiders	State
Agriculture land/farm forestry	Yes	Yes	Yes	Yes
Group forestry	Yes	Yes	Yes	Yes
Village/community forestry	None	Yes	None	Yes
Public forestry	None	None	None	Yes
Private forestry	Yes	None	Yes	Yes

List of sub-district names and village names

No	Sub-district	Village name / No of household		Remark
		Village name	No of household	
1	P H A T A N G	Somsavath	99	
		Phahom	87	
		Naphadeng	61	
		Phatang	217	
		Thin One	64	
		Houay Nam Yen	30	
		Keo Kouang	93	
		Somsinxay	42	
		Thamxang	15	
		Nadao	94	
		Nong Boua	30	
		Phathao	196	
		Phone Ngam	90	
		Phoxay	57	
		Total	1,175	(14 villages)
		2	V A N G V I E N G	Phoudindeng	100
Viengsamay	105			
Viengxay	157			
Houay nhe	75			
Houay Ngam	167			
Phone Xong	44			
Nakhoun	77			
HouaySangao	225			
Phone Pheng	208			
Pak Po	101			
Vieng Keo	194			
Phone Xou	123			
Phone Soung	68			
Vang Vieng	182			
Sysavang	111			
Mouang Xong	185			
Seng Savang	101			
Hin Khanh Mak	189			
Vang Xong	39			
Nakhe	60			
	Nadouang			101
Total		(21 villages)		
		Namouang	60	
		Nampe	89	
		Phone Xay	33	

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		Nady	27		
		Napho	55		
		Na Nhao	31		
		Phone Sang	59		
		Na Xay	33		
		Ngiou Neua	42		
		Nathong	80		
		Phone Ngam	41		
		Naboua	33		
		Naxom	93		
			Total	(11 villages)	
4	N A M O N E	Na Ngeun Tay	107		
		Na Ngeun Neua	61		
		Phone Nhang	41		
		Nakhom	49		
		Nalao	110		
		Ngiou Tay	73		
		Phone Keo	202		
		Houay Sane	51		
		Nam Path	24		
		Namon Neua	146		
		Vang Heua	139		
		Nam Ngath	N.A.	New village	
		Phone Savang	139		
		<i>NamonTay</i>	191		
		Som Sa At	N.A.	New village	
Vang Mieng	127				
	Total		(16 villages)		
5	S O M B O U N	Phakoop	61		
		Namphao	200		
		Houay Xy	60		
		Namphath Tay	42		
		Houay Mo Neua	52		
		Houay Mo Tay	82		
		Tha Heua Neua	176		
		Tha Heua Tay	156		
		Houay Pamom	193		
			Total		(9 villages)

ECONOMIC, SOCIAL, AND CULTURAL CHARACTERISTICS OF VANGMA VILLAGE IN SANGTHONG DISTRICT, LAOS IN TERMS OF PARTICIPATORY FOREST MANAGEMENT

Khamvieng Xayabouth¹

GENERAL INFORMATION

The area in this study is located in the Vangma village, of the Sangthong District, in the Vientiane Municipality. The village area covers approximately 3000 hectares.

The mean annual temperature is about 25°C. The absolute minimum temperature is 2°C and absolute maximum temperature is 41°C. Annual rainfall varies from 1300 to 2100 mm. Precipitation levels peak during June to August because of the rainy season. Geological formations consist mainly of red and gray sandstone dating from the Precambrian era. Soil texture is different from place to place, varying with altitude, and can be classified as follows:

- At the altitude of 300 to 400 m the soil is fertile and very fine in texture at a depth of 0.5 to 2m. The pH level ranges from 6 to 7
- At the altitude of 400 to 500m the soil is also fine in texture at a depth of 1.8 to 2m. The pH levels range from 6.5 to 7.5.
- At altitudes above 500m, the soil is fertile and has a relatively dense forest cover at a depth of 0.5 to 1m. The pH levels range from 5 to 6.

Vangma village is a remote village attached to the Sangthong District, in the municipality of Vientiane. Accessibility to the village by road is poor, so people usually travel by ferryboat along the Namsang River to exchange goods. However, during the dry season when the water level subsides, transportation becomes more difficult.

Villagers in Vangma village rely mostly on forest resources for their living. Forest covers approximately 97.85% of the total village land area. There are four types of forests in this area: Secondary forest, mixed deciduous forest, dry evergreen forest and bamboo forest. Typical tree species found within this area include *Lagerstroemia angustifolia*, *Peltophorum rasyrachis*, *Cratoxylon spp.*, *Azalia xylocarpa* and *Irvingia harmadiana*.

I. ECONOMIC ASPECTS

1.1 Population and Occupation

1.1.1 Population

The total population of the village is 437 people, with a gender distribution of 160 females and 277 males. Most of the people fall within the age group of 16 to 45 years (see Table 1). The population growth rate in this village is in accordance with the country's average population growth rate of about 3% per annum.

The total number of the households is 58 and the average size of each household is 8.3 persons, which is higher than the national average of 6 persons per household (Table 02).

1.1.2 Occupation

Most of the people living in this area are farmers. They engage mainly in lowland and upland rice cultivation. Other occupations in the village include fishing and running small household businesses, but those activities only supplement farming. People engage in these activities only after they have completed their seasonal farming duties, so we will not count these activities as primary occupations.

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1.2 Income and Expenditure Sources

1.2.1 Income Sources

Villagers get most of their income from the sale of rice products (both of upland and lowland paddies) and livestock. Those families who sell rice account for 69% of the total population of households. The sale of livestock is the second most important financial contributor and accounts for 66% of the household income. The average annual income in the village is relatively high at about 873,063 kip per family, which is equivalent to approximately \$114.42 USD. The average annual income of other rural areas in the country is about 750,000 kip, or about \$98.29 USD (1 USD = 7630 kip in December 1999).

1.2.2 Expenditure Sources

The results of the present study are reflected Table 3, which shows data calculation of the main expenditures per household per annum. It indicates that the major expenditure is for dietary ingredients such as salt and seasoning, and for clothes. Minor household expenditures include household business, meat and/or fish, eggs and milk. Some families have no income sources yet their expenditure figures are still high. This means that these people are living on a purely subsistence level of financial imbalance (income vs. expenditure).

This study found that the average household income of 873,063.20 kip is slightly higher than the average household expenditure of about 830,429.02.

1.2.3 Labor Opportunities and Decision Making in the Household

With regards to gender equality in the village, women perform tasks and contribute to decision making as much as the men do. Child labor is also common here. Women here have less opportunity than men do to pursue an education due to traditional limitations and family requirements. As agriculture is the primary employer, manual rather than mechanical labor is used for NTFP collection and for handicraft production. Other pursuits, such as hunting or fishing, typically find women less involved.

Decision making styles in the Vangma village are consistent with other parts of the country. Men are considered the undisputed heads of the family and thus make all the important decisions. Women contribute supporting ideas in the decision making process, as is indicated in Table 4. With regards to the selection of new rice fields, decisions are made by men about 60% of the time. When it comes to decisions about household management, decision making is roughly equal. Women make the decisions when it comes to saving money, but men make decisions about expenditure.

1.2.4 Labor Distribution Within the Village

Decisions about the distribution of labor in the village are based on discussions amongst villagers. It is done this way to strengthen cooperation within the village community and to provide basic management skills to villagers. Therefore, the presence of a village committee is necessary. A village committee would be constituted of a village headman or deputy headman, village forest volunteers and a village senior.

This committee would be responsible mainly for coordination and mobilization of laborers who are interested in volunteering to work with the project in the study area. This committee would serve as a conduit for the transfer of information, in addition to arranging and selecting people who are suitable for working in accordance with the criterion and requirements of the project work. The villagers already have strong local traditions of cooperation and mutual help, which have served them for centuries. For example, whenever a resident has a large task to undertake and requires assistance, many other villagers contribute their help. Agreements for providing such assistance are made at village meetings.

1.3 Food Availability

Most of the villagers derive their food sustenance from their own farm products. However, some families live mainly on food obtained from the forest through hunting, fishing, and collecting non-timber forest products for their own consumption or for barter. They are thus dependent on nature, the forest and the river for their livelihood.

Primary food supplies such as rice, meat or vegetables are in short supply here. Thus villagers try to produce rice for their own consumption and for the surplus income they might obtain from selling the rice. Natural threats to the food supply include floods, droughts and insect plagues. The field survey indicates that wood fuel is extremely important in the daily needs of the villagers. An average of 8.48 m³ per month is needed for the whole village. Petroleum fuel is also very important for the villagers, as they require daily transportation in order to exchange their goods and for communication with the outside world.

1.4 Land Use and Production

1.4.1 Agriculture

Most of the people in the village are farmers. The main agricultural practices here are crop cultivation and animal husbandry, which are also the main sources of income in the village. About 21.5% of the total land area is used for cultivation. Their annual yield is relatively low with an average of 2.31 tonnes per hectare for upland rice and 1.15 tonnes per hectare for lowland rice paddies.

Due to the lack of precipitation during the dry season and the lack of any irrigation system, local people tend to rely on rain-fed agriculture along the river and in the valley. As a result, rice is normally cultivated only once a year, from July to November. After the harvest, the fields are left for cattle and buffalo grazing. Fishponds are not common in this village because, due to limited water availability, they are not sustainable during the dry season.

1.4.2 Crop production

Rice is the major crop in this area and is cultivated for the village's own consumption and for the cash income of any surplus. The average farm size of a low land paddy field is 0.4 hectares per household with a yield of about 1.15 tonnes per hectare. In addition, the average size for upland rice cultivation is 2.16 hectare per household with a yield of about 2.15 tonnes per hectare. Normally villagers will rotate their upland crops every 2 to 3 years, depending on the family farm size. However this area is used for additional rice production or for other consumable crops. The common crops are cassava, banana, sugarcane and vegetables but on a smaller scale. Most of the land is used for swidden crops because the potential for expanding lowland fields is limited.

1.4.3 Livestock

Animal husbandry is another subsidiary income for the villagers and also provides a good source of the family's dietary needs. Cattle, buffalo, pigs and poultry are the major livestock here. The field survey found that there are 5 buffaloes and cows, 98 pigs and 1,463 chickens in the village, which is considered a high total figure when compared to other village households. The villagers consider cattle and buffalo as their assets. These animals are occasionally sold but rarely consumed by the villagers. Pigs are more regularly sold. Poultry are more consumed than sold, especially during the beginning of the new school session each year. Within the village, grazing land is limited. However, it is common practice for villagers to feed their livestock on free grazing lands. During the dry season rice straw is fed to the cattle. Pigs and poultry are raised around the compound.

As mentioned earlier, fishponds are not commonly found in this village. Fishing is normally done during the rainy season along the Namsang River. This activity is however secondary to any other source of villagers' incomes.

1.4.4 Land Tenure

There is no legal title on land in the village, although tax is paid annually on different land types. However land can be inherited, transferred, leased or sold to another Lao national. All these transactions are legitimately recognized by the state. Land in this particular area has been transferred through inheritance, bought or sold. In addition new families who are without land are given a piece through agreements amongst the village headman and the village community. Table 05 shows the number of households with different sizes of land ownership. This indicates that lowland paddy fields are limited in comparison to upland fields. However, some households have both upland and lowland paddy fields. On the other hand few of them have little, if any, land suitable for cultivation.

1.4.5 Crop Patterns

As mentioned earlier, the major crop cultivated in this village for both the upland and lowland areas, is rice. However, additional crops such as cassava, maize (in slash and burn areas) and vegetables are also found cultivated in lowland paddy areas during the dry season, after the harvesting of the rice. Some fruit trees are also grown in home gardens and former slash and burn sites.

Major activities undertaken in a calendar year are shown in Table 06. A number of activities take place at the same time. There are fewer activities towards the end of the year because of the post-harvest lull.

II. SOCIAL ASPECTS.

2.1 Institutional Arrangements

The institutional arrangement in this village is similar to that of other villages in Lao P.D.R. There is one village headman and one or two deputies within the village. The village is divided into units, which mainly depend upon the size of the village. Normally one unit consists of 8 to 10 households.

The village organization is responsible for education, health, agriculture, forestry and security. There is one person designated responsible for each field and for being a coordinator with the district organization level or higher. These people are either volunteers to the position or are appointed by consensus of the village community. The village headman or district organization supervises this village staff directly. Thus, the designated candidate reports to the village headman and to the district organization.

In addition, there are several community organizations. The major groups are the Women's Union, the Lao Youth Organization, the Elder's group and the Student's Parents association. The community organizations work closely with the village under the direct supervision of the village headman and/or the district organization.

2.1.1 Characteristics and Responsibilities of Various Groups within the Village

The village headman is an elected position, voted in by the villagers every two years. The function of the village headman is to serve as coordinator for the board of villagers and to report all activities and requests of villagers to the district authority. Moreover the village headman conducts and transfers information, including political issues to the villagers, as directed to by the district authority or by higher authorities.

In addition two Deputies serve as assistants to the village headman. They are mainly responsible for economic issues, and particularly for finding income sources, such as in

agricultural or forestry related activities. The Nuay are assistants to the deputy headmen, and are responsible for gathering the village members to the meetings.

Apart from the above noted authorities, there are other groups in the community, such as the Elder's group, which is a community association and consists of village elders who give advice to the village headman and solve informal conflicts among villagers. School groups or associations contain student's parent representatives, who promote education to the children and are responsible for school repairs and financial contributions to the school or to the teachers. Women's group members work as assistants to the village headman in terms of front door reception for the village and for promoting women's education and female participation in all social activities in the village. The Lao Youth Organization also provides assistance to the village headman in terms of internal security and village defense.

2.2 Living Conditions

2.2.1 Health Care

There is no public health care center in or near this village. People must travel quite a distance to Ban Nasa or even in Phialath where the district offices are located. However, some of the villagers use their own traditional treatment methods for curing illnesses. The most common diseases are Malaria and Diarrhea. Only a few families live with minor diseases, which are often due to drinking untreated water directly from the Namsang River.

2.2.2 Infrastructure

The village infrastructure is very poor. There are little or no access roads in the area. The primary means of communication is by way of water, via the ferry. During the dry season communication becomes even more difficult. Thus, the Namsang River plays a vital role in communication and transportation for the villagers. Moreover, the rest of the infrastructure is also poor. There is only one primary school in the village, no irrigation, electricity, proper water supply or sanitation services.

III. CULTURAL ASPECTS.

3.1 Ethnic Group and Religion

Two main ethnic groups are found in this village. They are the Lao Lum (Lowlander Lao) and the Lao Kang (Midlander Lao). The Lao Lum comprises 68 % of the population and the remaining 32 % are Lao Kang. With regard to religious composition, most of Lao Lum are Buddhist, while some of them belong to the Taidam sub-ethnic group, who celebrate their New Year at the same time as Chinese. A number of the Lao Kang are of animist beliefs with a few of them who are agnostic.

3.2 The Forest and Residents Concepts of It

In the past, villagers have encroached on the forest freely for construction and trade materials. This has led to degraded forest conditions. In addition tree species of high value and NTFP are rare. Fuel wood is becoming scarce, so villagers searching for another source must travel a great deal to find fuel.

Besides land tenure, traditional rights to use forest resources have been granted within the village boundary. The villagers interpret this as rights to fulfil their requirements for building materials, fuel wood and other food sources. These rights are equitably applied within the community. Differentiation in terms of forest or land utilization depends mainly on the availability of the labor force of each individual family.

Since villagers are aware of the dangers of resource depletion, the village headman and the community have protected a few patches of forest to be conserved for watersheds, soil erosion

control and maintenance of their cemetery. Control of tree felling has been imposed on outsiders, who have to pay royalties and resource taxes at the rate of 10 kip per bamboo culm to the village headman. Harvesting of woody plants is not recorded because there is less pressure than from felling. Villagers do not pay royalties because resources within their boundary are considered village property. This kind of thinking has prompted the villagers to initiate the creation of a communal forest that can be used in perpetuity.

In reality all forest resources and lands belongs to the state, and the government possesses full mandate to allocate and utilize them. However, to avoid possible conflicts from arising, the government has allowed people to use the forest to fulfil their need for such forest products as building materials, food, fuel wood and fodder.

Despite claiming the forest area within the village boundary as their own, villagers have designated two areas as communal forest. One is on the hill and another is along Namsang River. Villagers are not allowed to cut trees in these areas. Even so, there are no rules and regulations imposed by them regarding the use of these forest types. Villagers meanwhile, affirm that communal forests are very useful to them.

3.3 The Utilization of Forest Resources by Local Villagers

Forest products are the main source of support for the local population's basic livelihoods, so the forest plays a crucial role in the economy and life of the villagers. It is not only the Ban Vangma villagers but villagers in other parts of the country who have also relied on the forest for all of their history. For them the forest is a source of food, medicine, energy and income.

In the past, most of the primary forests were soon reduced to unstocked, secondary forests due to intensive logging operations. As a result of this, the government has imposed a logging ban. In the meantime, the remaining secondary and unstocked forests are subject to accelerated degradation due primarily to the expansion of agricultural lands as spurred on by the increase in population.

However, participation in and implementation of natural resource management is currently a government policy priority. To reduce the trend toward natural resource destruction, local support is the main requirement for the goal of sustainable and effective resource management.

The results of the present study showed that the total annual consumption of fuel wood is 491.18 m³ for the whole village. The amount of consumption varies among households depending on the size of family, but an average of 8.48 m³ is required for each family. The common species of trees used for fuel wood are Mai Tiou (*Cratoxylon spp.*), Mai Khom (*Zizyphus spp.*) and Mai Hia (*Cephalostachyum virgatum*). Selection of a fuel wood species depends on availability rather than specific selection of a species fuel wood for harvesting.

Hunting is another activity villagers engage in to supplement their diet and increase their cash income, however most of the wildlife species are protected from hunting or do not exist in the area. In addition Sangthong District has also imposed a policy of confiscating hunting rifles in order to protect wildlife species.

IV. INTERNAL/IMMINENT CONSIDERATIONS FOR GAINING PARTICIPATION

In general, the villagers are not constrained by social, cultural or economic reasons that would prevent them from benefiting from the development this project would bring. This particular survey found that most of the villagers have entirely supported all activities located in their own or in a neighboring village' area.

However, one must keep in mind that the villagers hold some traditional cultural beliefs that outsiders should respect. For example, they do not fish, carry out field activities, hunt, or slaughter livestock during Buddhists' days on the lunar calendar. There are two such days in each month.

In addition, limited educational opportunities and background are the largest obstacle for the villagers to be able to get a clear picture of new concepts in natural resource management. Persons in the age category of 46 and over possess very low education levels, varying from primary schooling to illiteracy. Moreover, the struggle to secure food and the scarcity of

resources are such major problems in this village community that there could be some cooperation problems in terms of protection of forest resources as there will always be encroachment into the forest and illegal harvesting.

There has been a long history of slash and burn cultivation practices by these villagers. Therefore it is at times very difficult for them to stop because they may have no other alternative but to slash and burn in order to secure an income. But the main constraint in this village is rapid expansion of the population combined with the lack of sound land allocation practices and zoning of cultivation and management.

In conclusion, the main factors preventing the villagers from participating in forest management are economic ones. As mentioned earlier most of the people lack alternative or permanent jobs to secure their income or earn a living. Social considerations do not create any barriers for genders participating in forest management activities because the Lao village women already have heavy workloads in their families. They are responsible for both productive and reproductive activities. They are active agriculturists, sharing cultivation and forest gathering tasks with the men in their families and they are almost solely responsible for garden cultivation and small animal husbandry. Women in most ethnic groups engage in craft production for family use and sometimes for sale. Beyond this, Lao women generally hold principal responsibility for household maintenance and childcare, though female children and grand parents may help with these tasks as well as those of gathering fuel wood, gardening and collecting wild vegetables.

V. MAIN ACTORS IN FOREST MANAGEMENT

Based on present forest law and decree No. 0259/MAF, the implementation of all forest management plans requires the collaboration and contribution of all concerned authorities. Namely these are the Department of Forestry; the Ministry of Agriculture and Forestry; the Vientiane Municipality (PAFO); the Santhong District Agriculture; the Forestry Office (DAFO) and local villagers who are located in or near the project site.

At the district level, the detailed task of management and coordination is the responsibility of the DAFO at the district level. At the local level responsibility lies within the village forest management committee, as noted earlier. Implementation of proper forest management will allow the villagers to gain social and economic benefits in return for their support and participation in the project. Most of the work to be done will be contracted to both communities and individual households through agreements with the village forest committees. Thus, the village forest committee is best suited for implementing participatory management of forest resources at the village level.

Table 1: Number of males and females compared by age class.

Total Population	Age Categories in years				
		0 - 5	6 - 15	16 - 45	46 - 60
437	86	144	155	30	22
Percentage	20	33	35	7	5

Table 2: Number and size of households.

Total population	No. of households	Average
437	53	8.3

Table 3. Main expenditures per household.

Expenditure Item	Average Payment (kip)
Food items	
Ingredient	9,388.97
Meat/fish	19,033.46
Eggs	1,704.54
Milk	0
Consumer goods	
Clothes	46,680.84
Education	245,730.59
Healthcare	479,482.45
Business	28,408.17
Total	830,429.02

Note: 1US\$ = 7630 kip.

Table 4: The differences in decision making by men and women.

Activities	Male	Female
General crop planning.	57	43
Labor management.	70	30
Timing of planting, weeding, fertilizing and harvesting.	67	33
Use of labor in the household.	70	30
Management of money.	48	52
Selling of cultivated products.	49	51
Selling of feeder livestock.	55	45
Selling of livestock produce.	40	60
Saving of Money.	10	90

Table 5: Size of land ownership.

No. of households	Land Use					
	Upland field (ha)			Lowland paddy field (ha)		
	< 1	1.5 - 3	> 3	< 0.5	0.5 - 1	> 1
58	9	31	15	5	12	7

Table 6: The calendar of major work activities.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Paddy farming	_____											
Swidden	_____											
Gardening	_____											
Livestock care	_____											
Fishing	_____											
Hunting	_____											
Handicraft production	_____											
NTFP collecting	_____											
Fuel wood collecting	_____											

Note: NTFP means Non Timber Forest Products

PUBLIC PARTICIPATION IN FOREST POLICY IN DEVELOPED COUNTRIES: WHAT THESE EXPERIENCES SUGGEST FOR FUTURE PUBLIC PARTICIPATION

Hiroaki Kakizawa¹

1. Introduction

Public participation has become an essential element in decision-making that affects natural resources, reflecting the increasing interest of the public in environmental issues and the evolving relationships among stakeholders.

In the United States, formal public participation in environmental decision-making started in 1970 when National Environmental Protection Act (NEPA) was enacted and environmental assessment became obligatory. Since then public participation environmental decision-making has been introduced in various parts of the world. Although the intentions of introducing public participation are to resolve conflict, to achieve consensus and to make better decisions, it become clear that the establishment of a participatory system does not necessarily guarantee that these goals will be achieved. Poorly organized public participation can add fuel to conflict and create mistrust between an agency and the public and also between participants.

The purpose of this paper is to examine the public participation system in forest management decision-making in developed countries, to evaluate its implementation, and to clarify what can be learned from these experiences.

First, this paper discusses the public participation system in the planning process relating to national forests in the United States. U.S. national forests have the longest history of formal public participation in forest policy, and incidentally, one of the best-developed systems but so far it has not worked optimally. Indeed, in the early 1990s, in its own evaluation the U.S. Forest Service summed up the results of public participation in the 1980s as “a failure.” We will focus our discussion how this outcome came about.

Second, this paper will discuss “informal” participation. In many cases, public participation and its processes are defined by laws and regulations that agencies include in manuals for their staff. But public participation will not function if staff do no more than adhere strictly to these laws, regulations and manuals, because the fundamental component of public participation lies in the interpersonal relationships that develop between the people involved. Formal and fixed forms are often not functional. In this sense, the informal process plays an important role in public participation. We will discuss the effectiveness and limitations of informal participation.

Third, we discuss public participation under new resource management regimes. Most developed countries formulate new policies of resource management, which hopefully will sustain a healthy and productive ecosystem that will in turn meet the diverse economic, social and ecological needs of today and in the future. In the United States this approach is called “ecosystem management” and we will use this term here. Because principles of ecosystem management are different from those of traditional resource management, we should examine its effect on public participation.

2. Public Participation in U.S. National Forests

2.1 Public participation system of U.S. National Forests

The National Environmental Policy Act of 1970 obliges the federal government to conduct an Environmental Impact Assessment of every federal action, which has some effect upon the environment. This process of assessment is required to be open to the public and should involve opportunities for public participation.

The U.S. Forest Service, which manages National Forests, introduced environmental assessment, as required by NEPA into the planning process of National Forests. The framework for

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this planning process is provided by the Forest and Range Renewable Resource Planning Act of 1974, the National Forest Management Act of 1976, and the Planning Regulation. As indicated in Figure 1, the structure of the planning system consists of three levels. In this section our discussion focuses on the Forest Plan, which is the most site-specific approach and for which public participation was the most intensively conducted. The process involved in making a Forest Plan is shown in Figure 2.

Before starting the process, the National Forest Agency organizes an interdisciplinary team (ID Team) consisting of specialists from various fields. The ID Team first identifies issues in the Forest Plan upon which citizen participation should focus (scoping process). The ID Team then makes alternative plans based on the issues identified, and analyzes the environmental impact of each alternate plan. These alternate draft plans along with their environmental impact statements are made available to the public. The public then has opportunities to give input. The ID Team then analyzes the responses and comments from the public, and can write the final plan with its associated environmental impact statement (EIS). The individual forest supervisor then prepares the final plan and the EIS for approval by the regional forester. The final plan and its EIS are again made available to the public and any person or group who opposes the forest plan may appeal to the regional forester. If the regional forester denies an appeal, groups may appeal to the chief of the Forest Service, and if the chief denies the appeal, then opposing groups have the option of seeking judicial action.

The Forest Service was eager to involve public participants and considered it would “help the Forest Service reach better decisions” and overcome conflicts that had arisen between the Forest Service and the public. The Forest Service prepared a “public participation handbook” to help the staff of the National Forest Service actually conduct public participation. Based on these regulations and manual, the National Forest Service provided information to the public and invited responses through various mechanisms – public meetings, public hearings, open house discussions, and so on. What were the results of these efforts?

In 1991, 15 years after the enactment of NFMA, 114 of 123 National Forests had reached a final plan, while 9 others were still in the planning stages. Of the 114 finalized Forest Plans, 65 had cleared appeals and lawsuits, but the other 49 were under appeal or involved in lawsuits, 1000 appeals in all, at that time (USDA Forest Service 1991). In many of the National Forests, public participation could not resolve the conflict on national forest management. On the contrary, it is said that through this planning process, conflicts even deepened and public trust in the Forest Service has decreased quite rapidly. In responses to questionnaires, only 3% of the people who participated in the forest planning process felt that their comments were reflected in the plan (Russel et. al. 1991). One could conclude that public participation as introduced into Forest Service planning has failed so far.

2.2 Why was public participation a failure?

2.2.1 Institutional problems

Planning system was centralized

Under the current planning system, each National Forest is not given full discretion to produce its own Forest Plan. The Forest Plan has to be consistent with a Regional Guide and the timber harvest targets which are allocated by the Regional Office. This means that National Forests could not respond to public opinions which were incompatible with the regional plans or timber targets, even if those opinions were supported by a majority of citizens (Hirt 1994). This may be one reason why the citizens who had made the comments became frustrated, and distrustful of the National Forest Service.

The distrust was particularly serious between National Forest Service and environmental groups. The National Forest Service had increased their timber production since the 1950s and heavily stressed timber management through the 1960s, 1970s and 1980s. Environmental groups were strongly opposed to timber-oriented management and tried to change the direction of National Forest Service management through the planning process. Some National Forest Service staff members were also suspicious of timber oriented management and tried to shift towards more ecologically

based management which was in cooperation with citizens' groups. However, the allocated timber harvest target could not allow them to change the direction of management. Environmental groups felt that the public participation system did not mean real participation, and that National Forest Service really did not intend to listen to the public, thus leading to even less trust in the National Forest Service.

Lack of sufficient opportunities for participation

As described in Section 2.1 below, opportunities for the public to participate in the planning process are limited to comments at the scoping stage and on the draft plan. The rest of the process was carried out internally within the National Forest Service, and the public could not have access to it. In this system, it was impossible for the ID Team to maintain mutual communication with the public throughout the process, or to reach a consensus among the different stakeholders. As a result, the final plan often could not reflect the real intentions of the public or satisfy the stakeholders (Wondolleck 1988).

For the public, such limited participation meant that they could not understand how their comments were examined and reflected in the plan. This made the public feel that most of the planning process was hidden from them, and that participation really meant nothing but one-way communication from the public to the National Forest Service. When the public felt that their comments were not well reflected or ignored, their distrust of the National Forest Service and the public participation system itself increased.

Complex planning process

Almost 30 years have gone by since NEPA was established, and regulations and manuals concerning EIA and planning systems have become more and more precise. The planning process has become more complex (Russel et al., 1991). This makes it difficult for the general public to understand the planning process itself and prevents effective and timely participation in the process.

2.2.2 Problems of agency personnel

Biased in favor of timber management

Because the Forest Service was traditionally organized by foresters educated as timber managers, and who considered the main purpose of forest management to be the product (i.e., timber), decision-making was strongly biased in favor of the timber harvest. (Kennedy 1988) This bias increased even more with political pressure supported by the timber industry. It was mentioned several times that the Forest Service could not properly deal with management issues other than timber. In such a situation, it was impossible to analyze and reflect public comments fairly.

“We know best” attitude of personnel

The staff members of Forest Service are specialists in various fields and tend to have an attitude of knowing best about forest management. They consider the public unknowledgeable and their input not worth reflecting in the plan (Magill 1991). Such an attitude implied ignorance in anyone with a differing view toward forest management.

Could not deal with social issues and different values

Forest management is invariably related to social and economic issues, as well as the peoples' evaluation of the environment and resources. However, most of the staff members were educated as natural scientists and did not receive training to deal with social issues and the values of people. Although individuals participate in the planning process from a distinct social and economic background with their own value system, the staff tended to ignore such background or values, and only examined the comments themselves (Blahna and Yonts-Shepard 1989). As a result, the staff failed to understand the real issues.

The lack of proper training also led the public to avoid entering the political field. They considered politics dirty and unprofessional. As a result, even though they had to act within a certain political arena, they could not properly participate in the political game or contribute to the resolution of conflicting issues (Magill 1991).

“Can do” attitude of personnel

Another problem was that staff members were loath to challenge citizen's comments. As public land managers who should serve all citizens equally, they tried to act as “good” public land managers. When citizens requested something, personnel had a tendency to provide a positive response, leading to high expectations. They tried to satisfy everyone, although this approach was impossible to succeed. As a result, citizens who heard positive answers from the staff but could not get satisfying results developed distrust for the staff.

2.3 Lessons from U.S. Forest Services experience:

Decentralization needed

When a planning system is totally controlled from a remote office, it is very difficult to achieve meaningful public participation at the local level. An output target should not be pre-determined. Management entities at the local level should be given enough discretion to reflect the public's view in the decision-making process.

However, decentralization does not mean that local managers can have complete freedom. Resources should be managed so as to ensure their sustainability and preserve the health of the ecosystems. We must emphasize that a decentralized system can only work and succeed when both staff and the public have a good understanding of resource management and are able to make rational decisions.

Combine ecological, social and economic issues

Natural resource management issues cannot be separated from their social and economic components. Therefore, social, economic and ecological issues should be considered collectively in the planning process. Environmental assessment focuses primarily on ecological issues, but the social and economic impact must also be assessed.

Mutual communication and education is needed

In general, the Forest Service staff considered public input only as “comments.” They collected and analyzed these comments according to the manuals provided by the agency. There was little mutual communication between staff and the public. Without mutual communication, it is impossible to understand one another, and without mutual education it is impossible to reach a consensus or arrive at some agreement in a conflict. To achieve mutual communication, it is critically important to establish trust between staff and the public.

Opportunities for participation should be open throughout the whole process

To guarantee mutual communication, participation should be required for the duration of the process, from the beginning to the end. There should not be a “black box” which is not open to the public. The planning process must be opened up to enhance public participation.

New role for natural resource managers

The above discussions indicate that a different role is required of the resource manager. Traditionally, the resource manager was considered an almighty specialist who had the best knowledge and techniques to manage forests. However, modern natural management requires a broader range of knowledge and collaboration with the general public. In such a situation, the resource manager needs the ability to coordinate various field specialists and to communicate with the public. The new role of the forest manager should be that of “coordinator” or hopefully even conservation “leader.”

Training and support of individual staff members needed

To change the resource manager's attitude towards the participatory process cannot be accomplished by issuing an “order” or a “manual.” Retraining is needed, especially in the area of the social sciences and communication skills.

The agency should also be prepared to give appropriate support to the resource manager when

requested, because public participation is a complicated task and unexpected situations often arise. It is also useful to provide opportunities for resource managers to discuss their experiences.

It is often pointed out that a diversity of employees is important to promote change in an organization's culture. Homogeneity often leads to single-constituency commitments that make an agency less sensitive to alternative views and cause resistance to change. In the case of the U.S. Forest Service, with an increasing number of wildlife biologists who appreciate ecosystem conservation, the agency's culture has changed, taking conservation issues more seriously and becoming more flexible to alternative views. It is important that an agency be open-minded to the diversity of views of its employees.

Collaborative decision-making needed

In conclusion, in order to reach better decisions and prepare better plans, it is necessary to have mutual communication and encourage serious discussion between the stakeholders and the specialists from various fields. In other words, shared decision-making is critically important. Collaborative decision-making rests on continued and open participation by all stakeholders and the public. Participation should be organized so as to promote mutual communication and education.

3. Effectiveness and limitations of informal participation

Many researchers and resource managers who are involved in public participation emphasize the importance of informal participation (Walker and Daniels 1997). For example, lessons we have learned from the experience of the U.S. National Forest planning system include the importance of two-way communication and collaborative decision-making. These goals cannot be achieved only through a formal process and measures provided by regulations and manuals.

In this section, through case studies we will examine the effectiveness and limitations of informal participation. The first case study is of the environmental planning process of local governments in New Zealand under the Resource Management Act of 1991, under which many local governments introduced informal participation. The second case study is on voluntary negotiations between stakeholders concerning forest practice regulations in the U.S. State of Washington, which seeks to resolve conflicts and make regulations on a consensus basis.

3.1 Informal public participation under the Resource Management Act

3.1.1 Resource Management Act of 1991

In New Zealand, the fourth Labor government which came to power in 1984 carried out fundamental policy reforms in an atmosphere of neo-liberalism. Reforms ranged from deregulation of the economy to radical restructuring of the public sector bureaucracy, including reform of the environmental sector. Environmental policy reform comprised two approaches: restructuring the agency framework and creating a locally based comprehensive environmental planning system.

The new environmental planning system was established by the Resource Management Act (RMA) of 1991 (Figure 3). The regional council, organized on a watershed area basis, is responsible for managing air, water and soil, and is required to make regional policy statements. The district council, which is a community-based local authority, is responsible for land use management, and is required to make district plans. Although the RMA strictly required that planning principles should not be on regulations but on their effect as reflected in the neo-liberal policy standpoint, each local government can use much of its own discretion concerning what kind of plan to make (Memon 1993).

The planning process described in the RMA is rather simple. Local governments prepare a draft plan and statement to be made available for public discussion. Local governments then analyze the public input and draw up a final plan (Ministry for the Environment 1995). Many local governments recognize that environmental planning touches sensitive issues and that mutual agreement is critically important. They try to organize public participation so that they can achieve mutual communication and consensus among local people. Local governments frequently use informal types of public participation which consist of two categories: the informal "process" of participation, and the informal "measure" (or mechanism) of participation.

Under the RMA, public participation is required only for the draft plan and statement stage. During the other stages although it is not required to open the process to the public, many of local governments do provide opportunities to participate. These kinds of opportunities for participation constitute the *informal process* of participation.

The RMA only requires that submissions be collected from the public in written form or through hearings. However, other kinds of measures for participation also exist, such as workshops or open houses. Many of the local governments also use these measures to establish effective participation. These kinds of measures constitute *informal measures* of participation.

3.1.2 Informal participation process

Although the RMA requires participation only after the drafting stage for plans, many local governments in New Zealand organize public participation from the very beginning of this stage. For example, the North Plymouth district council began their district planning process with small group meetings. These meetings were organized for each small community regarding each issue of concern, such as landscape management and natural vegetation protection which have repeatedly been requested by participants. Through these meetings, local people identified the issues, which the plan should focus upon, and reached some measure of consensus on how the issues should actually be approached. Then people selected by these small groups held meetings to have more intensive discussions that would reflect the responses of the earlier small group meetings concerning the district plan. The district council then made up a draft plan, which they again opened for public discussion in another series of small group meetings. With this process, the New Plymouth district council succeeded in reaching mutual understanding and trust between the local people and the agency, and achieved consensus on their district plan.

As discussed in the previous section, public participation should be from the beginning to the end of the process. This means that it is not enough for the agency to merely carry out the program as described in regulations and manuals. The New Plymouth district council organized public participation throughout the process and tried to achieve substantial participation. Public participation should be organized in such a way as to guarantee people substantial opportunities to participate and to share in decision-making.

3.1.3 Informal measures of participation

The formal measures of public participation, such as public hearings are often too ceremonious and rigid to facilitate real participation and discussion. The hearing is formally announced to the public, and held before council members, where registered participants state their opinions. All these processes are recorded and filed as formal documents. Many local people are likely to hesitate to participate in such formal meetings, and even if they participate, such meetings often do not achieve progress in changing opinions. In such a situation it is often impossible to have mutual and constructive communications or discussion.

Many local governments introduced informal types of participation to supplement and reinforce the formal measures. For example, the small group meetings, which were introduced by the New Plymouth district council are typical of informal participation. These meetings were held in a friendly atmosphere in the form of neighborhood meetings without rigid procedures. People could participate freely and communicate "from the heart." In such a friendly atmosphere, participants could develop mutual trust and achieve consensus on the plan. Although "formal" decisions, could not be made at these meetings they could establish mutual understanding and agreement among local people and provide a substantial basis for planning.

3.2 Effectiveness and limitations of Environmental Alternative Dispute Resolution

3.2.1 Definition

Alternative Dispute Resolution (ADR) is a new way of resolving environmental disputes, which avoids litigation and gives citizens a more active role in decision-making (Amy 1986). Its three key characteristics are (1) voluntary participation by the parties involved in the dispute, (2) direct or

face-to-face group interaction between the representatives of these parties, and (3) mutual agreement or consensus reached by the parties, on the process to be used and on any settlement that may emerge (Crowfoot and Wondolleck 1990).

As mentioned, formal public participation tends to be a one-way communication between the agency and the public, and not very effective in reaching mutual communication and agreement. But in ADR, the citizen's role is more direct, and alternatives can be developed and evaluated collaboratively.

While the social demands for forest conservation are increasing, there are disputes over what shape private forest management should take, and over its conversion to a broader based management reaching to the whole eco-system, as is occurring in various parts of the world. Today, degrading forest ecosystems have become a worldwide problem. Moreover, the primary focus of ecosystem conservation has changed from partial preservation to a more inclusive approach, one in which the whole watershed area is looked upon as a collective unit. It is necessary to link the resolution of individual disputes with the more general forestry practices along with watershed conservation. However, forest ecosystems are complicated and their characteristics vary from region to region, and often there is insufficient scientific data available about the forest ecosystems. Forest ecosystem conservation cannot be accomplished without improving the management practices of forest owners. Alternative Dispute Resolution is one effective technique to assist in encouraging and implementing desirable forest management practices. The next section examines the ADR process used to resolve conflicts that involve forest practice regulations and how to establish better management practices.

3.2.2 TFW process, one example of ADR

In the State of Washington, environmental groups and native peoples have been demanding more stringent regulations concerning ecosystem conservation and salmon habitat conservation. Their opposition to forest owners who disagree with private forest practice regulations has intensified since the 1970s. In 1986, environmental protection groups, native peoples and forest owners began negotiations to find a solution to this conflict.

With the involvement of a mediator, these groups held intensive discussions. Specialists and researchers from each of the above groups shared their scientific findings, and tried to find meaningful management practices which would protect the health of the forest while maintaining the vitality of forestry. Based on their findings, representatives of each group negotiated to achieve mutual agreement. After 3 months of discussion (during the last 7 days they locked themselves into a hotel to focus on the work) they produced the Timber/Fish/Wildlife agreement (TFW) which outlines the fundamental directions of sound forest practice regulations (Dick 1987).

Since then, they have continued discussions on this agreement. Adaptive management was a key component of this agreement. The participants sent specialists and researchers to the forest area being debated. They in turn accumulated data through monitoring, then proposed a direction for forest practice which had firm scientific background. In effect, discussions by the participants of this process actually brought in regulations for improved forestry practices. In this TFW process, environmental ADR functioned not only as a means of resolving individual disputes, but also helped to construct a better system to regulate forest management.

3.2.3 Limitations of ADR

The participatory process of ADR, combined with adaptive management, could be effective in the field of forestry practices regulation but some drawbacks have yet to be overcome.

The first problem is that each group participates with equal status in the ADR, despite the fact that their resources are not equal. For example, a forest owners' group has rich financial resources, and can hire many good scientists and lawyers for advice along with staff specialized in this process. On the other hand, environmental groups which often lack stable funding sources frequently cannot match the forest owners in hiring specialists or full-time staff. As a result it is hard for environmental groups to participate in all the scientific discussions, or use their bargaining powers against owner groups. ADR works best when the resources of participants are almost equal.

Another problem is that ADR tends to be disregarded merely as the disgruntled voices of the general public or a minority opinion. Whenever the state government amends forest practice regulations, it follows a formal process mandated by the state environmental analysis procedure—providing alternatives, opening for public comments, analyzing these comments and making final regulations. Because the TFW is a voluntary process, the outcome of the TFW process has become just one of many alternatives. However, if this alternative had been created and agreed upon by most of the important stakeholders, it would usually be adopted as the final outcome without any change. Comments from the public are rarely reflected in the formal process. The general public or minority groups who are interested in the regulation of forest practices were not able to effectively participate in TFW nor have their opinions reflected in the formal process, yet TFW has become the core of the forest policy making process for the State of Washington. An imperfect voluntary process has been substituted for the formal process (Freidenburg 1989). This creates a new problem as regards the legitimacy of policy.

ADR is certainly a strong tool for public participation and the resolving of conflicts, but it also has its drawbacks. Finding a better way to combine the formal and informal policy process is a problem for the future. Concerning TFW, a watershed council was organized in each watershed area recently, and an attempt is being made to manage resources from the bottom up by forming partnerships between diverse groups. Connections with partnerships based on such an area may offer a possibility for overcoming the limitations of ADR.

4. Public participation in the era of ecosystem management

4.1 Public participation in the era of ecosystem management

Recently the paradigm of natural resource management has shifted to one of ecosystem-based management. Ecosystem-based management is defined as “integrating scientific knowledge of ecological relationships within a complex sociopolitical and value framework with the general goal of protecting the native ecosystem integrity over the long term” (Cortner and Moote 1998). Three basic themes have emerged to characterize it: holistic integrated science, adaptive institutions, and collaborative decision-making. These three characteristics are closely related to mechanisms of public participation. In this section this paper examines the challenges facing public participation under ecosystem management.

Public participation and holistic, integrated science

Recent developments in ecosystem science reveal the importance of an integrated, holistic approach toward resource management. Based on these scientific findings, ecosystem management is required to manage not just a small section of forest, but a large-scale ecosystem by integrating the various components of the ecosystem—water, soil, wildlife, etc. This is a major shift from traditional resource management which focused only on the separate components of ecosystems.

Under traditional resource management, in general, public participation is organized for the community or traditional administrative unit, around single issues. However, the ecosystem extends beyond the community and administrative unit, and contains an intertwined mass of issues. For example, the U.S. Forest Service instituted the Northwest Forest Plan to protect the habitat of endangered species. In this plan, a ‘province’ is organized as an implementation unit based on ecological integration. A citizens’ advisory committee is established for each province to provide advice and public input to management, but so far these committees have not functioned well. The reasons why the system has not worked are that the geographical area of a province is so large—about 1 million hectares—and that the plan covers the entire ecosystem of such an area. It is often difficult for the public to get a good understanding of the ecosystem of the province and to make valid suggestions. Moreover, because the boundaries of the province are inconsistent with those of the administrative unit, the public which is accustomed to think and act within the boundaries of these units, has difficulty grasping the extent of the so-called province (Kakizawa 1997).

The public participation system should be reconsidered to fill the gap between the ecosystem approach and the public perceptions. Measures to provide the public with enough scientific knowledge, and to help the people think in terms of ecological boundaries or organize better

ecological boundaries which can more easily be appreciated by the public, should be considered.

Public participation and adaptive institutions

Because our scientific knowledge of ecosystems is limited, and because the ecological and social system is so complex and dynamic, uncertainty will always be inherent in ecosystem management. In order to operate under such conditions of uncertainty, institutions should be flexible, and able to adapt to changes in ecological conditions, social values and available data and knowledge. Management should be organized on a cycle, which includes planning, implementation, monitoring and evaluation as shown in Figure 4.

Adaptive institutions operate with adaptive management and require a new type of public participation. Under this institution, public participation is not just a one-time process, but lasts for the whole life of management. Participation is not just for planning and implementation, but also involves monitoring of implementation and evaluation of the results. This kind of participation certainly challenges both the public and the administration. For the public, an adaptive institution presumes a heavy workload in order to continuously participate in the never-ending process, and more scientific knowledge to evaluate the results of monitoring. For the administration, maintaining the compatibility and stability of the policy within the rigid financial and regulative framework is an ongoing challenge.

Participation and collaborative decision-making

As mentioned before, ecosystem management crosses political, administrative and ownership boundaries. In such a situation, management decisions should be made collectively by all parties because no single entity has jurisdiction over all aspects of an ecosystem. Challenges include involving all parties in management decisions, creating mutual understanding and achieving consensus about the direction of management.

4.2 Successful case studies

Although ecosystem management is a brand-new concept, and its implementation is quite difficult, already some successful examples exist. Below are cases from Japan and the United States.

4.2.1 Building bridges between urban dwellers and forests: a forest volunteer support program for local Japanese governments

One of the difficulties for large-scale natural resource management issues, such as watershed management, is to form collaborative relationships among the different communities in an area. In this respect, the key to successful resource management is to develop urban communities, which have adequate human and financial resources to understand and contribute to the benefit of rural communities and their resources

During the 1930s, some Japanese urban local governments developed cost-sharing programs with rural communities in the upper reaches of watersheds for the protection of forests for water conservation. However, these programs aimed only to transfer money from urban to rural areas without any mutual understanding between the peoples of these communities.

Since the late 1980s, some local governments started programs to provide urbanites opportunities to volunteer for forest work, such as tree-planting, thinning, brush clearing etc. These programs also included support for urbanites to establish their own volunteer organizations and to cooperate with forest owners and rural communities. Figure 5 shows a typical program, which indicates the intention to involve a broad range of people and to promote their activities, providing different kinds of programs to meet the different interests of people. The growing interest of urbanites in forest conservation has made these programs successful.

The important point is that through these volunteer activities, urbanites can obtain knowledge about forests and forest management. The mutual understanding between urban and rural people can be developed and their joint sense of purpose can eventually set the foundations for large-scale natural resource management. Admittedly forest management cannot succeed by relying only on volunteer work. The best function of a forest volunteer support program is to educate urbanites and enhance collaboration between urban and rural communities (Yamamoto 1994).

4.2.2 Applegate Partnership in the U.S.

The Applegate Watershed encompasses about 200,000 hectares in Southwestern Oregon. Logging has been a prominent activity in this area, and during the 1970s and 1980s, local environmental groups concerned about logging activities began challenging the conventional methods of extracting resources. By the mid-1980s, such challenges had grown into major battles between the federal agencies, logging industries, and local environmentalists (Preister 1994).

In the spring of 1992, one of the leaders of a local environmental group was concerned that conflicts kept developing and decision-making relating to resource management was becoming virtually impossible. He hosted a gathering of people from a wide range of backgrounds and affiliations to talk about the possibilities of joining one another in developing a community-based solution to the crisis. At this meeting a distinct sense of common concern emerged and it was agreed that a working group would develop a joint management plan for the whole area.

They tried to create a working group, which represented various interests in the area, and the core of people who finally formed the nine-member board called themselves the Applegate Partnership. The group started meeting twice a week to achieve mutual agreement on strategies for the partnership. Their fundamental strategies are as follows: to create an ecosystem assessment and monitoring plan; to create an inventory of community skills and resources and develop an information and feedback system to facilitate community participation; and to develop new implementation mechanisms that will enable local land managers to help generate more economic opportunities in the local community (Stuetevant and Lange 1995).

The important point is that this partnership is a bottom-up process and its focus is to reconcile the economic and social revitalization of a community with the restoration of environmental health in the area. And through the ecological and community assessment, the partnership gradually caused the local people to sense that the entire Applegate watershed is a "community" geographically connected by the watershed and sharing concerns and opportunities for collaboration.

These two examples indicate that even in large-scale ecosystem management, a sense of "place" is critically important. The fact that the public could feel that they belonged to that area and considered ecosystem issues as their own created the dividing line between success and failure.

5. Conclusions

Drawing on the experiences of public participation efforts in the United States, New Zealand and Japan, three important elements emerge for consideration in future programs of public participation.

(1) In order to achieve smoother decision-making and better plans, it is necessary to have mutual communication and encourage serious discussion among stakeholders and specialists from various fields. In other words, it is essential to introduce shared decision-making. In contrast, public participation based on one-way communication often creates distrust between the agencies and the public.

(2) Informal participation should also be used effectively. Informal participation promotes mutual understanding and presents substantial opportunities for people to share in decision-making. However, heavy reliance on informal participation could raise problems of political legitimacy. Future challenges include seeking better ways to combine the formal and informal policy processes.

(3) Under ecosystem management, three challenging issues exist for public participation: (a) public participation systems should be reconsidered to fill the gaps between scientific ecosystem approaches and the public perception and awareness; b) public participation requires adaptive institutions that have flexibility in responding as new issues arise; mechanisms put in place should last for the whole duration of a management task and be flexible to respond to results of monitoring outcomes of decisions; and (c) management decisions should be made collectively by all parties. To resolve these problems, locally based approaches appear to be most effective.

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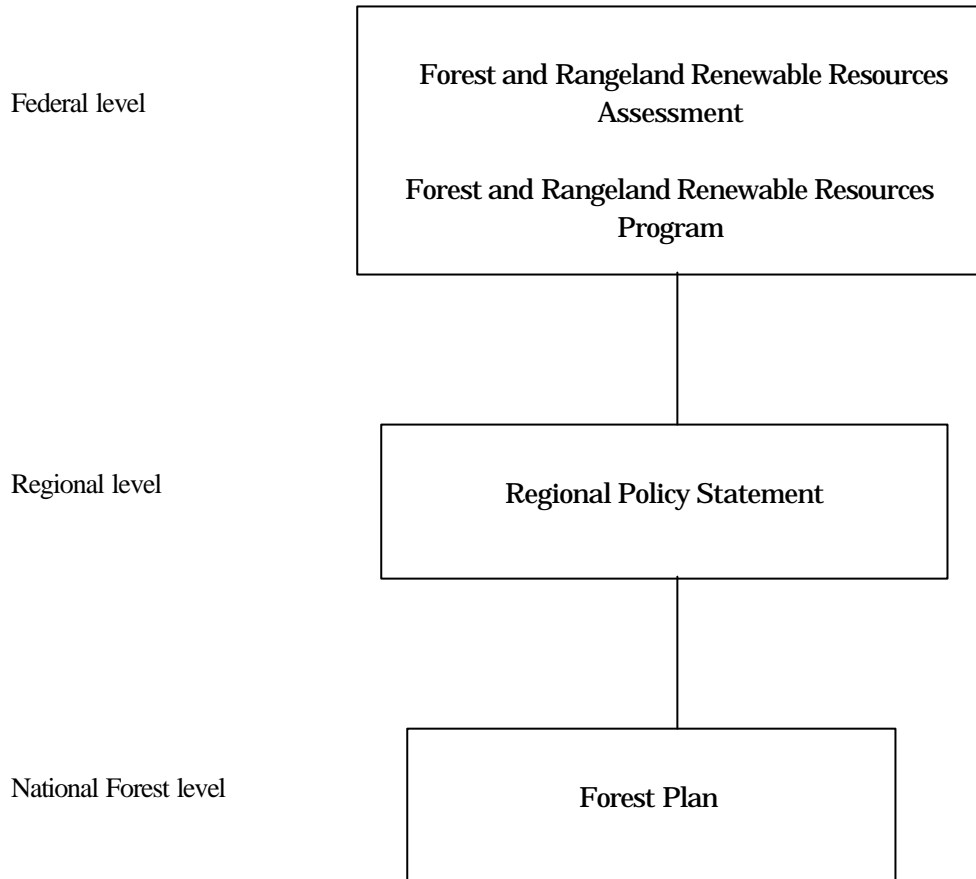


Figure 1 Structure of Planning System of U.S. National Forests

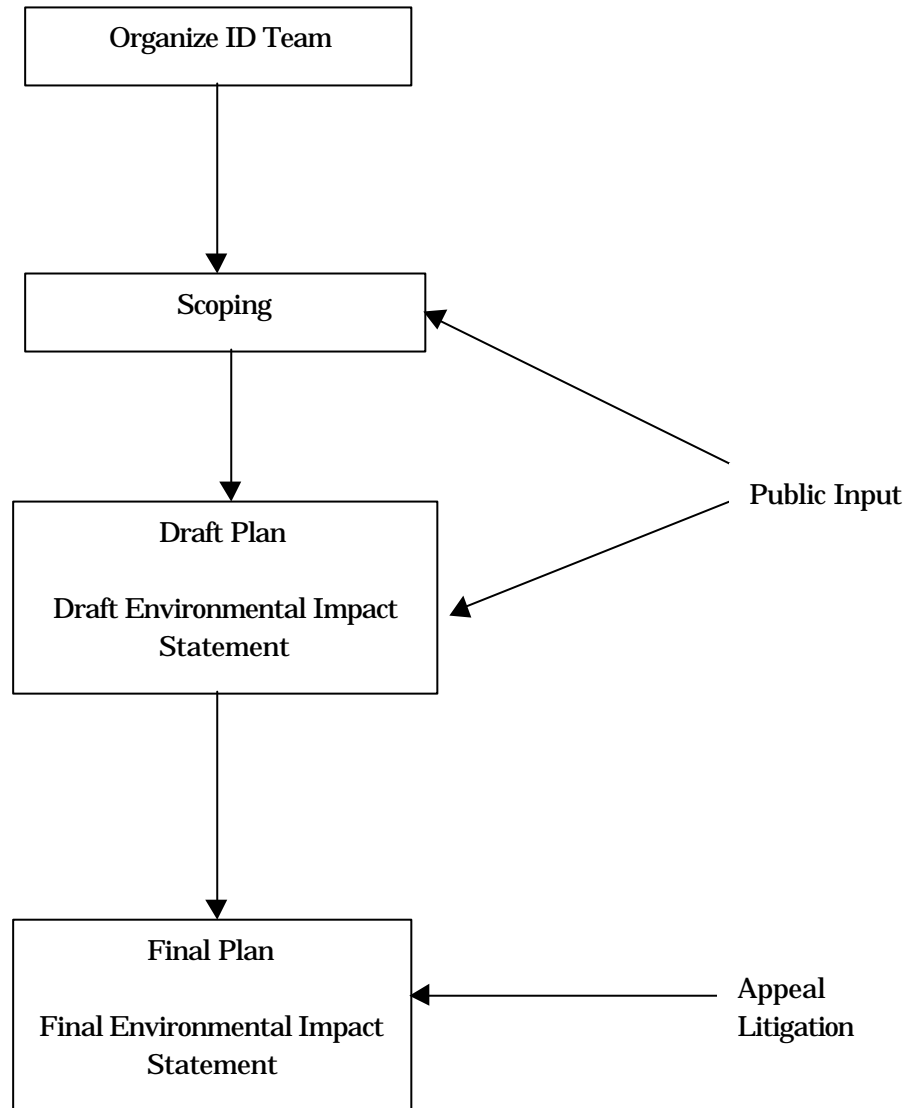


Figure 2 Planning Process of Forest Plan

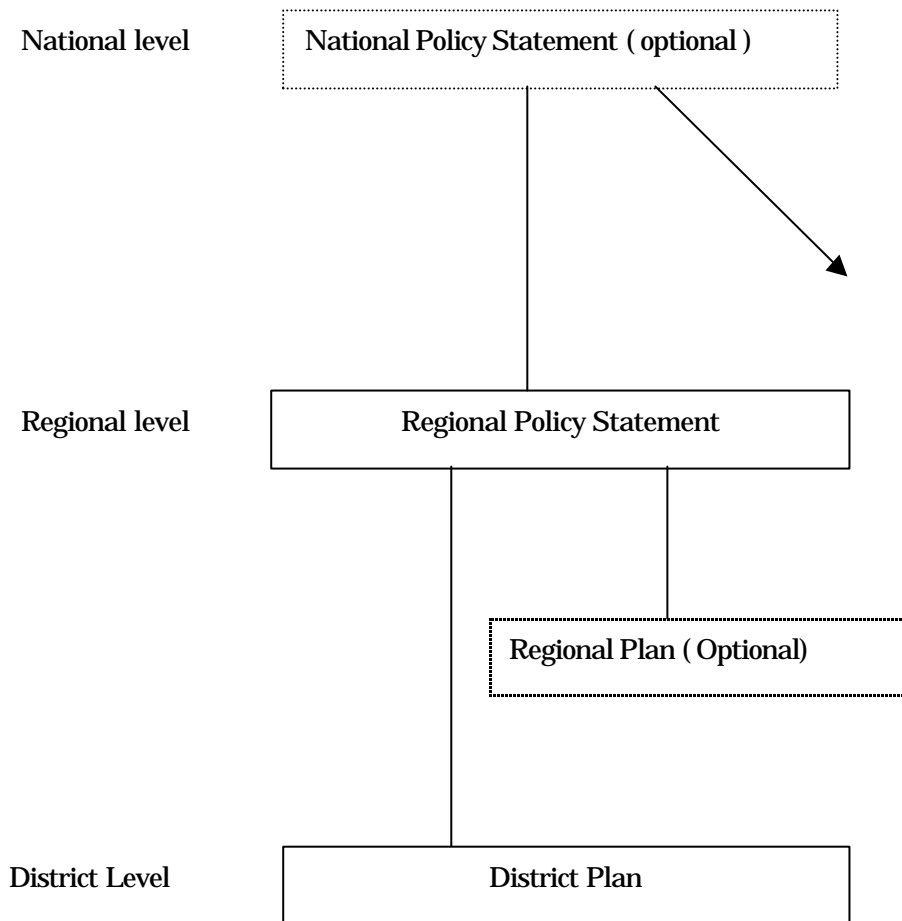


Figure 3 Environmental Planning System Under the Resource Management Plan of 1991

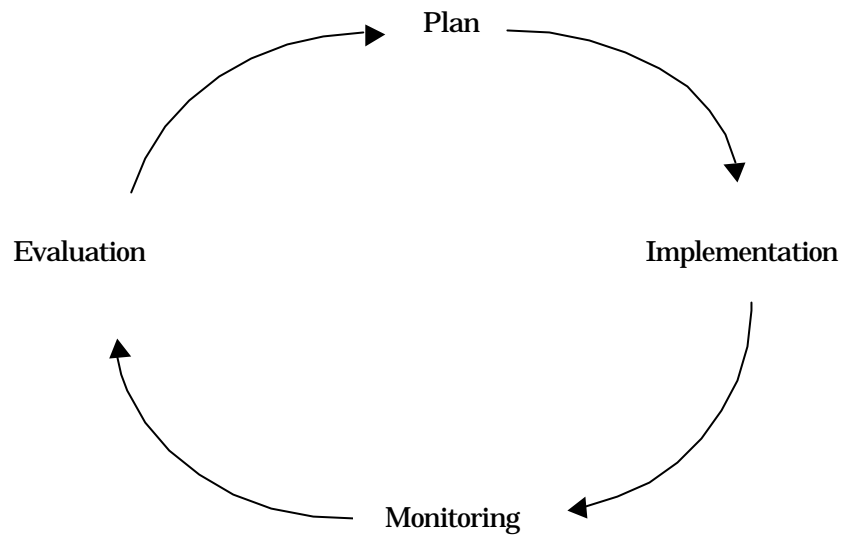


Figure 4 Adaptive Management Model

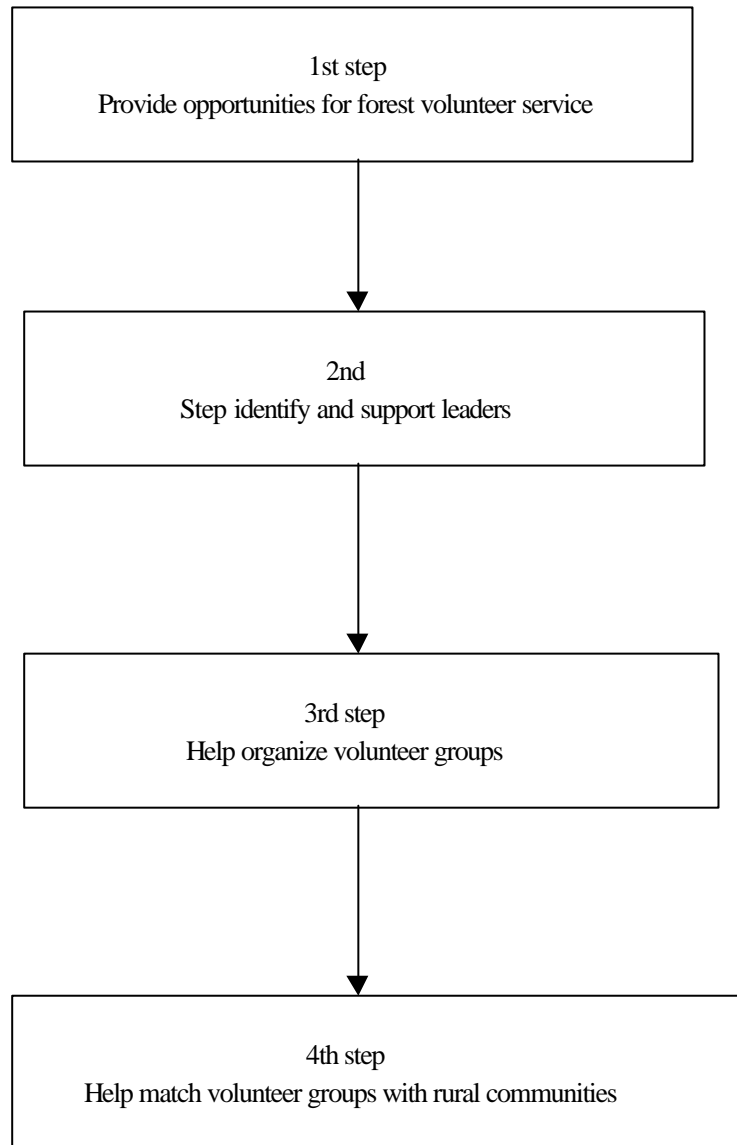


Figure 5 Volunteer Support Program for Hyogo Prefecture

USING ENVIRONMENTAL RESOURCE ACCOUNTS TO LINK ECONOMY WITH ENVIRONMENT IN THE FOREST SECTOR

Nobuyuki Yamamoto¹

1. INTRODUCTION

In a previous study, "Steps toward strategies for forest conservation - Part 4," the author explained the general structure of forest resource accounts and land accounts. In addition, the paper discussed the significance of forest resource accounts in the trade model. The gist of the paper is outlined below.

In order to analyze and gain an understanding of timber trade problems, it is useful to apply a quantitative method. Indeed, the quantitative model is effectual for viewing the trade problem, because in many cases we can identify commodity markets that can be quantified. However, once we attempt to consider linkages between trade and the environment, various limits to the quantitative model emerge. Forest resource accounts resolve these problems to some degree, because they supplement a lack of data and offer consistent environmental data for trade models.

This report has the same theme as mentioned above. To carry out this aim, it is necessary to make the environmental accounts to link the natural environment with the world market. However, this is just the starting point. In this paper, we would like to analyze some case studies in both developed and developing countries. They help identify which accounts we need in order to construct our model.

This paper can be divided to two parts.

First, we will discuss the latest trend of environmental accounts in European countries. As is generally known, some European countries, including the Nordic countries, France, and Germany, have contributed to the development of environmental resource accounting for some time. International organizations in Europe such as United Nations Economic Commission for Europe (UN/ECE) or the Statistical Office of European Communities (EUROSTAT), have also given hearty support to the initiatives of those countries. The first part of this paper will focus especially on environmental resource accounts related to the forest sector, including water and waste accounts.

Second, we will examine the application of environmental resource accounts in developing countries, using China as an example.

A. ENVIRONMENTAL RESOURCE ACCOUNTS RELATED TO FOREST SECTOR

The previous study by the author discussed the fact that land accounts are an important factor in order to link economy with the natural environment in an accounting system. However, there are many important factors in addition to land, such as waste, water, biodiversity, recreational resources, etc. To represent a comprehensive framework that includes the economy and the natural environment in the forest sector, these accounts must also be prepared. We will discuss these problems in Sections 2 and 3 below, and particularly, examine in detail waste and water accounts that have been developed in Europe.

2. WASTE ACCOUNTS

2.1. Norwegian Waste Accounts

Work has been in progress for six years to establish a European Statistics Regulation on Waste Management. The final draft consists of three different modules: waste generation/recovery, waste collection and waste disposal. Each module defines the subjects of coverage, waste categories, characteristics and quality. As shown in Table 1 the Regulation now contains 42 categories.

Recent progress on waste statistics in many European countries is connected with the movement mentioned above. A few countries including Norway and Germany have constructed detailed waste

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accounts.

The waste statistics have been primarily based on traditional data collection by postal surveys among municipalities, waste treatment and disposal plants, and industrial firms. However, the statistics need to be organized to deal with overlapping and missing data. In an attempt to improve this, Statistics Norway is establishing new waste statistics that are based on traditional resource accounting principles

This section will discuss the trial of the Norwegian waste accounts. The development of natural resource accounts started in Norway as early as in the 1970s. Since Nordic countries have large forest areas and produce large outputs of forest products, these countries paid considerable attention to forest resource accounts from early on and this effort continues to this day. The example of Norwegian waste accounts is particularly useful.

2.2. Methods for Norwegian Waste Accounts

Two different methodologies are complementarily used to estimate the amount of waste in the Norwegian waste accounts. One relies on knowing certain characteristics about the materials that are included in the waste. Knowledge of the supply of these goods allows one to estimate the amount of waste produced. This inference approach is referred to as the “supply of goods methodology.”

Another method for estimating the amount of waste is to actually weigh the waste before its disposal. Weighing waste is usually combined with using sorting analyses to find the amount of waste in specific material categories. As a lot of waste is not weighed, additional statistics and estimation methods must be employed to obtain a comprehensive overview of the waste flows. This is referred to as the “waste statistics methodology.”

The two methodologies have different approaches to estimating the waste amounts because they emphasize different characteristics of the waste. Naturally, this influences the type of results obtained. Whereas the supply of goods methodology typically generates product-type-distributed results, the waste statistics methodology is more appropriate in determining waste disposal distributions.

2.3. Supply of goods methodology

For many products there is a rough correspondence between the quantities supplied as new products and the waste generated from those same products. In the waste accounts the supply of goods is calculated, and thereby the amount of waste generated for many materials and products is estimated. The supply of goods is calculated according to the following equation:

$$\text{Supply of goods} = \text{primary products} + \text{imports} - \text{exports} + \text{net stock change} \quad (\text{Equation 1})$$

Equation 1 is best suited for products that consist mainly of one material and that have short lifetimes. It has been employed with good results for paper, which has mainly a short lifetime. Figure 1 shows the main flows of paper and cardboard in Norway.

As previously mentioned, there is often a correlation between the supply of goods and the generation of waste, but in many cases a long product lifetime implies a time delay. It is then necessary to calculate the supply of goods previously in order to calculate the amount of current waste. In waste accounts, this kind of lifetime correction is made with the following equation:

$$\text{Quantity of Waste (year } X) = \text{Supply of goods (year } X-T) \quad (\text{Equation 2})$$

T is the product's lifetime plus any time in stock before and/or after consumption. Thus, lifetime data on products are needed. However, it is often very difficult to verify a product's lifetime, because it may vary.

In these cases, a way to adjust for the lack of historical data on a product's production, import and export may be to develop historical values for the supply of goods by means of collecting historical data for an “auxiliary variable” that correlates well with the supply of goods. Figure 2 shows the main flows of glass in Norway. This equation also will be applied to wood materials for building.

Equation 1 assumes that all supplied goods end up as waste, although this is not always the case.

In the paper/cardboard waste accounts, for example, the supply of toilet paper is excluded because most toilet paper goes down the drainpipe and not regarded as waste. In the accounts of wet-organic waste, this issue is very important since most wet-organic supply is food or feedstuffs, most of which is eaten and does not end up as waste. Figure 3 shows the main flows of wet-organic material in Norway. In the wet-organic waste accounts, a reformed version of equation 1 was employed:

$Waste\ generated = primary\ products + imports - exports - food\ intake - seeds + net\ stock\ change$
(Equation 3)

Primary production, imports, exports, seeds and net stock changes are extracted from existing statistics in Norway. Food intake is the sum of estimated food intake by humans, domestic animals and pets. Ideally, evaporation losses should be included in the wet-organic waste accounts, but due to the lack of evaporation loss data, this is not done. An alternative may be to make a rough estimation of the average evaporation loss and reduce the estimated waste amount by that factor.

2.4. Waste statistics methodology

As concern about waste issues has increased, new and better waste statistics have been developed, making the use of the “waste statistics” methodology more feasible.

The two methods focus on slightly different waste quantities. The “supply of goods” methodology estimates what is commonly referred to as “waste generation,” whereas the “waste statistics” methodology estimates the amount of waste disposed of or treated. Theoretically, the difference between these quantities is the amount of waste outside the waste treatment system, e.g. illegal landfilling, backyard composting, casual dumping, etc. One of the drawbacks of this method is the difficulty in adequately estimating the uncertainties in the results. So the quality of data is ensured through both contact with professional circles and detailed published documentation.

2.5. Paper Accounts in Norway

Calculating the supply of goods according to equation 1 was well suited for paper waste, because most paper products consist mainly of a few kinds of material and have a relatively short lifetime. Results of the calculations of the supply of goods for paper products are presented in Table 2 calculated using the “supply of goods” methodology. It shows that the amount of paper used for printing has increased, whereas there has been a decrease in the amount of packaging from 1988 to 1995. Other paper products include greaseproof paper, coffee filters, dress patterns and so on.

The results of the calculations using the “waste statistics” methodology have a great deal of correlation with one using the “supply of goods” methodology. After correlating very well up to 1992, the results then diverge to reach a difference of 200,000 tonnes in 1995. The waste statistics methodology employed the same material composition for all years. The results therefore reflect the increase in the amounts of other wastes except paper in Norway from 1988 to 1995.

2.6. Accounts for Wet-Organic Waste in Norway

Table 3 is constructed solely using the “waste statistics” methodology. The main trends observed were that more wet-organic waste is being recycled, less is landfilled, and that the amount of wet-organic waste has increased in other economic activities except in manufacturing.

3. WATER ACCOUNTS

3.1. Water Accounts in Australia

Water production is one of the main utilities that forests produce. When we look in the forest sector for linkages between the economy and the environment, it is important to note these links between water and the forest. From this point of view, we have two types of environmental resource accounts. One is the physical accounts that represent the amount of water produced from a forest and

consumed by various economic sectors. The other is the monetary accounts that represent expenditures needed to manage the forest that produces the water. Here, we focus on the physical accounts.

The Water Accounts for Australia is a physical account that consists of a number of tables developed by the Australian Bureau of Statistics (ABS). It represents physical information on water resources collected from each state and territory in Australia that monitor and assess water resources. The aim of the project is to provide a mechanism to tie together data from different sources into a consistent information system. The ABS intends to present data on a financial year basis and eventually link it to monetary data in the Australia's national accounts and on the water industry. This model of the country's water resources was developed based on the physical resource accounts concepts from the United Nations System for Integrating Environmental and Economic Accounts (SEEA).

3.2. Structure of A Water Assets Table

An asset table shows the long-term availability of water resources in each river basin or groundwater province, using assessments made at particular points in time. So a time-series of asset tables can, in theory, be compared to demonstrate the changes in resources. An example of asset tables and a water balance analysis have been compiled for just one state, Victoria, due to unavailability of data for most of Australia.

As shown in Table 4, the surface water asset table includes measures of the volume of water allocated for economic and environmental use, and the volume of unallocated resources. It is expected that average annual water resources will give an indication of the long-term availability of water. One limitation of this approach for surface water allocated for environmental purposes is that many river basin allocations are based on passing flows at particular times during the year, not on the amount per year. Note that passing flow allocations for environmental purposes will not be identified by this approach.

Sustainable yield is a better measure of groundwater resources than the volume in-storage route, because the volume of water stored in groundwater systems. This "sustainable yield" is defined as the level of extraction; similar to the case of fossil fuels. There is concern that groundwater may be at risk from inefficient or excessive use, and modeling of some regions of Australia does indicate declining yields of water, showing that extractions probably exceed rates of recharge. The volume in-storage is an estimate and not necessarily fully available in all of Australia. Table 5 details the structure of the groundwater asset table being compiled for Victoria.

3.3. Annual Water Balance for Victoria

Table 6 details the water balance for Victoria only, again, because no other states have the information to compile such a table.

"Net anthropogenic changes" is defined as the volume of water diverted for economic use from surface/groundwater resources and subsequent return flows. Water used for economic purposes includes activities such as hydro-electricity generation, recreation, navigation, etc. Inter-basin transfers of water are also measured in net anthropogenic changes and are included where transfers originate or are destined for a region outside the area. Measuring changes in the storage of lakes and dams produces numbers on volume for the start and the end of the accounting period.

3.4. Water Flow Tables

The water flow tables indicate the physical amount of water supplied from the environment for use by industry, households, government and the amount available for return flow to the environment. The flow table provides the mechanism that links water resources to economic accounts.

The flow tables will adopt the Input Output framework (based on SNA93), which will describe the movement of water from the environment as an input into economic activity, as well as the return flows from production and consumption activities back into the environment. Input Output analysis can be used to identify the total volume of water used directly by an industry.

Tables 7 and 8 detail the supply and use tables which track the use of water from extraction from the “environment” through to consumptive use, regulated discharges to the environment, and reuse.

Industry data will be aggregated according to the ABS's Input Output Industry Group Classification (IOIG). The commodity water will then be split into the IOCC (Input Output Commodity Classification) for water mains (IOCC 37000010) and self-supplied water (surface and groundwater combined).

B. ENVIRONMENTAL RESOURCE ACCOUNTS IN DEVELOPING COUNTRIES

A comparison in the author's last report between forest resource accounts in Indonesia, the Philippines and Thailand, and the difference between their forest sector structures led to an understanding of the usefulness of the forest resource accounts in the developing countries.

In the next section, we look at the development of resource accounts in the People's Republic of China, where interest has been growing.

4. DEVELOPMENT OF RESOURCE ACCOUNTS IN CHINA

4.1. China's Agenda 21

In 1992, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro adopted five important documents, including the Rio Declaration and Agenda 21. These documents express new thinking about sustainable development in human society. Agenda 21 calls for all nations to develop and put into effect their own national strategies, plans and policies for sustainable development.

After UNCED, it was decided in the People's Republic of China that the State Planning Commission and the State Science and Technology Commission should take the lead in organizing all appropriate ministries, departments, and NGOs to work together to formulate China's Agenda 21. Out of that process the “White Paper on China's Population, Environment, and Development in the 21st Century” was produced. In 1994, China's Agenda 21 was approved by the State Council of the People's Republic of China. Meanwhile, Priority Programs were worked out to support the implementation of China's Agenda 21.

China's Agenda 21 clarifies China's sustainable development strategies and policies. As shown in Table 9, its 20 chapters can be divided into four major sections. The first section deals with overall strategies for sustainable development (Chapters 1, 2, 3, 5, 6 and 20). The second section discusses aspects of the sustainable development of society (Chapters 7, 8, 9, 10 and 17). The third section focuses on sustainable development of the economy (Chapters 4, 11, 12 and 13). The last section is concerned with the protection of resources and the environment (Chapters 14, 15, 16, 18 and 19).

China's Agenda 21 will function as a guide for implementing medium and long-term plans on economic and social development. Its goals and contents will be embodied in the Ninth Five-Year Plan (1996-2000) and the Plan for 2010.

The Priority Program, directly derived from China's Agenda 21, was compiled by the State and Technology Commission and the State Planning Commission with input from about 52 ministries and agencies, including input from the public. After being revised, there are now 128 project plans, most of which are included in either the national or local government's Ninth Five-Year Plan for economic and social development. Table 10 shows the context of the Priority Program for China's Agenda 21.

4.2. The Present State of Resource Accounts in China

In the Priority Program for China's Agenda 21, Priority 5, “Conservation and Sustainable Utilization of Natural Resources,” includes Project 5-1, “Natural Resource Accounting: Research and Experimental Application,” as shown in Table 11. This project seeks to develop methods for natural resource and environmental accounting, and then apply them on an experimental basis in order to lay the groundwork for an integrated national environmental and economic accounting system. This project was developed in accordance with Program Area 4D of China's Agenda 21, “Establishing the System for Integrated Environmental and Economic Accounting,” as shown in Table 12. The Chinese

government plans to cooperate extensively with international institutions in order to enhance existing data collection and information systems for the sustainable use of natural resources, as proposed in Chapter 14 of China's Agenda 21 under the title, "Conservation and Sustainable Use of Natural Resources."

In cooperation with the UN, Canada, and U.S. organizations, China has conducted key research projects on natural resource accounting, particularly in the forestry sector. It is also developing and implementing pricing systems for forestry, water, land, mineral, and marine resources. These activities will be implemented by the Ministry of each resource and environment sector under the coordination of the State Planning Commission, the State Science and Technology Commission and the State Statistical Bureau. With assistance from the UN Statistics Office and UNEP, China will participate in technical exchanges and cooperation with other countries in the area of establishing an Integrated Environmental and Economic Accounting (IEEA) system.

4.3. The Future of Resource Accounts in China

Project duration is for five years and is as follows:

1) Coordinate groups of experts from every resource and environmental sector who will conduct research and carry out experimental pilot projects.

* Organize an expert committee on natural resource and environmental accounting, composed of 8 groups with expertise in water, land, forestry, grassland, biological, mineral, ocean and recycled resources.

* Establish a leading group for experimental applications, including representatives from every resource and environmental sector ministry.

2) Expand theoretical and methodological research to develop necessary concepts and systems of natural resource and environmental accounting.

* Lay a foundation for integrated environmental and economic accounting through material measurements, statistical analysis and use of market price and resource charges, and by examining the dynamics of resource stocks, flow and valuation.

* Emphasize consideration of environmental resource accounting issues during research on natural resource accounting.

* Develop and propose concepts, classifications, theoretical frameworks and principle methods for natural resource and environmental accounting.

* Research and design a material statistical index system to correspond to the natural resource accounting system.

* Develop and refine a natural resource pricing system and a standard system of charges for environmental services in light of market conditions in China's economy.

* Build a more complete natural resource and environmental accounting framework and explore methods of integrating it into the national environmental accounting system.

3) Design and conduct experimental pilot projects to apply the concepts of natural resource and environmental accounting to forestry and mineral resources in selected areas.

* Conduct experiments in forestry and mineral resources and environmental accounting in selected areas in Heilongjiang, Shanxi, Xinjiang, Sichuan, Guangdong, Guangxi, Fujian, Shandong, and other provinces and regions.

4) Capacity-Building

* Train 20 researchers in various subjects from 1995-1996.

* During 1997-1999, train 40 researchers from the provinces and areas selected for experimental study on how to conduct the pilot projects.

* Provide necessary communication equipment such as a 486-PC computer, a HP printer, a duplicator, and a fax machine.

Currently China does not yet have a complete natural resource accounting system, although

concern with resource accounts has been growing. Also, in the sense that the Input-Output table consists of not only tables based on SNA but also many physical material tables based on the Material Products System (MPS), China's resource accounts have significance for the theoretical development of the physical accounts. In the future we would like to pay attention to the development of environmental resource accounts in China.

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Table 1. List of waste categories used in the draft regulation

Substance aggregation of EWC (The codes refer to the transformation table)		Separation of hazardous waste and non-hazardous waste necessary?
Code	Waste type	
01.1	Spent solvents	No
01.2	Acid, alkaline or saline wastes	Yes
01.3	Used oils	No
02.0	Chemical reaction waste	Yes
03.0	Chemical preparation waste	Yes
05.0	Infectious waste	No
06.31	Metal packaging waste	no
06.0 ex 06.31	Other metal waste	no
07.11 + 07.12	Glass packaging waste	no
07.13	Other glass waste	no
07.21	Paper and cardboard packaging waste	no
07.22 + 07.23	Other paper and cardboard waste	no
07.3	Rubber waste	no
07.41	Plastic packaging waste	no
07.42	Other plastic waste	no
07.51	Wood packaging waste	no
07.52 + 07.53	Other wood waste	no
07.6	Textile waste	no
08.3	End of life vehicles	no
08.51	Waste batteries and accumulators	yes
08.52	Spent catalysts	no
08.0 ex above	Waste electrical and electronic equipment	yes
09.0	Manure and slurry	no
10.1 + 10.2	Animal-, crop- and food waste	no
10.3	Park and garden waste	no
11.1	Mixed waste from household activities	no
11.2	Mixed materials	no
11.3	Treatment residues	yes
12.0 ex 12.3	Sewage sludge and cesspit contents	no
12.3	Dredging spoil	no
13.1	Construction and demolition waste	no
13.12	Asbestos waste	no
13.2 + 13.4	Mineral waste	no
13.3	Combustion wastes	yes
14.0	Solidified and vitrified wastes	No

Source: Joachim Thomas, 1998.

Table 2. Supply of goods composed of paper and/or cardboard by product type.

unit: tonnes

	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
Total	914 961	869 694	918 037	938 739	952 148	943 933	943 398	942 863
Printing	459 756	410 095	444 337	439 246	443 324	462 428	478 169	493 911
Packaging		277 473	269 857	281 244	272 059	275 859	288	230 113
							819 259	
							466	
Buildings	1 599	1 765	1 791	1 955	1 747	1 783	2 002	2 222
Sanitary and Household products	107 183	95 891	101 999	99 751	96 668	93 002	89 787	86 572
Other	68 950	92 086	88 666	125 729	134 550	97 901	113 973	130 046

Source: Same as for Figure 1

Table 3. Wet-organic waste in Norway, by disposal and economic activity

	unit: tonnes							
	Household s	Manu- facturing	Constructio n	Service activities	Fishing	Agricultur e	Other	Total* ¹
1993								
Total	358 325	463 750	2 666	68 968	462 000	37 000	20 350	1 413 058
Feed stuffs (recycling)	7 666	173 783	-	13 285	178 000	34 500	-	407 234
Composting	9 088	1 354	165	1 149	-	-	391	12 147
Incineration	66 080	10 131	500	11 201	-	-	3 814	91 725
Landfill	278 134	277 287	2 021	43 780	-	2 000	-	603 223
Dumping	-	-	-	-	268 000	-	-	268 000
Other/unspecif ied disposal	-	1 600	-	-	16 000	500	16 298	34 398
1994								
Total	375 709	440 239	2 899	74 015	530 000	42 000	22 128	1 486 990
Feed stuffs (recycling)	7 947	182 560	-	14 570	216 000	40 500	-	461 577
Composting	17 875	2 329	189	1 976	-	-	673	23 042
Incineration	69 951	11 101	547	12 274	-	-	4 179	98 052
Landfill	282 735	243 093	2 184	45 686	-	1 000	-	574 697
Dumping	-	-	-	-	297 000	-	-	297 000
Other/unspecif ied disposal	-	1 600	-	-	17 000	500	17 443	36 543
1995								
Total	393 608	416 728	3 132	79 234	602 000	53 000	23 905	1 571 607
Feed stuffs (recycling)	8 742	192 488	-	16 027	293 730	46 000	-	556 987
Composting	41 428	4 883	215	4 143	-	-	1 411	52 079
Incineration	73 873	12 085	596	13 361	-	-	4 549	104 464
Landfill	272 519	206 156	2 345	46 237	-	2 000	-	529 257
Dumping	-	-	-	-	287 270	-	-	287 270
Other/unspecif ied disposal	-	1 600	-	-	21 000	5 000	18 128	45 728
1996								
Total	396 632	393 217	3 166	79 632	596 000	63 000	24 164	1 555 811
Feed stuffs (recycling)	8 333	195 794	-	15 277	292 950	54 679	-	567 033
Composting	64 000	9 162	213	7 775	-	-	2 647	83 796
Incineration	110 684	17 974	886	19 873	-	-	6 766	156 183
Landfill	218 043	169 406	2 102	37 503	-	2 377	-	429 431
Dumping	-	-	-	-	282 050	-	-	282 050
Other/unspecif ied disposal	-	1 600	-	-	21 000	5 943	15 022	43 565

Note: * 1 Including park and garden waste/Source: Same as for Figure 1

Table 4. Surface water asset table

River basin level total	Resources Available (unit: mega-liters)			Total Assets (Mean Annual Runoff)
	Economic Allocated	Environmental Allocated Unallocated		
1985 Assessment				
Volume Change				
1998 Assessment				

Source: Sarah Coleman, 1999

Table 5. Groundwater asset table

Groundwater province level total	Sustainable Yield*1					Total
	Fresh	Marginal	Brackish	Saline		
1985 Assessment						
Volume Change						
1998 Assessment*2						

Notes: *1. Classified based on the salinity of the groundwater

 *2. The later assessment is not necessarily available for 1998.

Source: Same as for Table 4

Table 6. Annual water balance table for Victoria

PARAMETERS	Resources Available (unit: mega-liters)			
	1993-94	1994-95	1995-96	1996-97
A. Inflows				
A.1 Precipitation				
A.2 Natural inflow from adjacent basins (if applicable)				
A.3 Total inflows (A.1+A.2)				
B. Net Anthropogenic Changes				
B.1 Net Economic Changes[B.1(i) – B.1(ii)]				
i. Water used for economic purposes				
ii. Return flow discharges				
B.2 Water transfers [B.2(i) - B.2(ii)]	n.a.	n.a.		
i. Water transfers into the measurement region				
ii. Water transfers from the measurement region				
B.3 Total net anthropogenic changes (B.1+B.2)				
C. Net Changes in Storage				
C.1 Changes in the storage in lakes and dams				
C.2 Net groundwater recharge	n.a.	n.a.	n.a.	n.a.
C.3 Other volume changes nec				
C.4 Total net changes in storage (C.1+C.2+C.3)				
D. Outflows				
D.1 Evapotranspiration				
D.2 Basin outflow (mean annual runoff)				
D.3 Total outflows (D.1+D.2)				

Note: n.a: not available

Source: Same as for Table 4.

Table 7. Supply table structure

Supplier	Mains water ^{*1}	Self-supplied water ^{*2}	Effluent reuse ^{*3}	Regulated discharge
Environment		X		
Agriculture				
Forestry and fishing				
Mining				X
Water supply, sewerage & drainage	X		X	X
Households				
Total Supply	X	X	X	X

- Notes:
- *1. Input output commodity code (IOCC) for water. Includes water measured within the system of the economy through an economic transaction.
 - *2. Includes surface and groundwater and is that volume of water directly extracted from the environment. All self supplied water is supplied from the environment.
 - *3. Who is supplying treated effluent for subsequent reuse.
 - *4. Who is supplying the discharge of regulated water.

Source: Same as for Table 4.

Table 8. Use table structure

User	Mains water ^{*1}	Self-supplied water ^{*2}	Effluent reuse ^{*3}	Regulated discharge ^{*4}
Environment				X
Agriculture	X	X	X	
Forestry and fishing	X			
Mining	X	X	X	
Water supply, sewerage & drainage	X	X	X	
Households	X	X		
Total Use	X	X	X	X

Notes: Same as for Table 7

Source: Same as for Table 4

Table 9. China's Agenda21

Chapter 1	Preamble
Chapter 2	Strategies and Policies for Sustainable Development
Chapter 3	Legislation for Sustainable Development and Its Enforcement
Chapter 4	Economic Policies for Sustainable Development
Chapter 5	Financial Resources and Mechanism
Chapter 6	Education and Capacity Building for Sustainable Development
Chapter 7	Population, Consumption and Social Services
Chapter 8	Eradication of Poverty
Chapter 9	Health and Sanitation (a)
Chapter 10	Development of Sustainable Human Settlements
Chapter 11	Sustainable Agriculture and Rural Development
Chapter 12	Sustainable Development of Industry, Transportation and
Chapter 13	Sustainable Energy Production and Consumption
Chapter 14	Conservation and Sustainable Use of Natural Resources
Chapter 15	Conservation of Biodiversity
Chapter 16	Combating Desertification
Chapter 17	Disaster Mitigation
Chapter 18	Protection of the Atmosphere
Chapter 19	Environmentally Sound Management of Solid Wastes
Chapter 20	Public Participation in Sustainable Development
Appendix	List of the Leading Groups for China's Agenda 21

Source: Alessandro Lanza ed., 1999

Table 10. The priority program for China's Agenda 21 (revised and expanded version)

Introduction

Priority 1 - Capacity Building for Sustainable Development

Priority 2 - Sustainable Agriculture

Priority 3 - Cleaner Production and Environment Industry

Priority 4 - Clean Energy and Transportation

Priority 5 - Conservation and Sustainable Utilization

Priority 6 - Environmental Pollution Control

Priority 7 - Combating Poverty and Regional Development

Priority 8 - Population, Health and Human Settlements

Priority 9 - Global Change and Biodiversity Conservation

Appendix: The Complete Project List for the Priority for China's Agenda 21 (First Tranche)

Source: China's Agenda 21, 1999

Table 11. Priority 5 - conservation and sustainable utilization of natural resources
(revised and expanded version)

5-1	Natural Resource Accounting: Research and Experimental Application
5-2	The Construction and Demonstration of Soil Erosion Control System in China
5-3	Conservation and Sustainable Utilization of Wetland Resources
5-4	Management and Reclamation of Mine Tailings
5-5	Sustainable Resource Development in Tarim Basin
5-6	Waste Tires Reclamation and Marketing Secondary Resources
5-7	Establishing a dynamic monitoring network of ecology and the environment in China
5-8	Remote sensing monitoring on coastal urbanization and the environment
5-9	Conservation of dinosaur eggs in Xixia, Henan province and research on global change Resulted from the paleo-environment
5-10	Integrated Management of China's Coastal Zone
5-11	Conservation and Management of the Mangrove and Coral Reef Ecosystems in China
5-12A	Changed Eco-tourism
5-12B	The Conservation of Eco-Tourism in Secondary Forest in Jinggang Mountain
5-12C	Construction and Demonstration of Sustainable Tourism in Dahong Mountain
5-12D	Development Planning and Environment Conservation of the Shichahai Lake, A Historical-Cultural Area in Beijing
5-13A	Demonstration of Eco-Environmental Protection and Sustainable Resource Use in the Qinghai Lake Region
5-14	Restoration of Forests and Pilot Project on the Agroforestry System in the Changbai Mountains
5-15	Development and Protection of Peat Resources in Heilongjiang Province

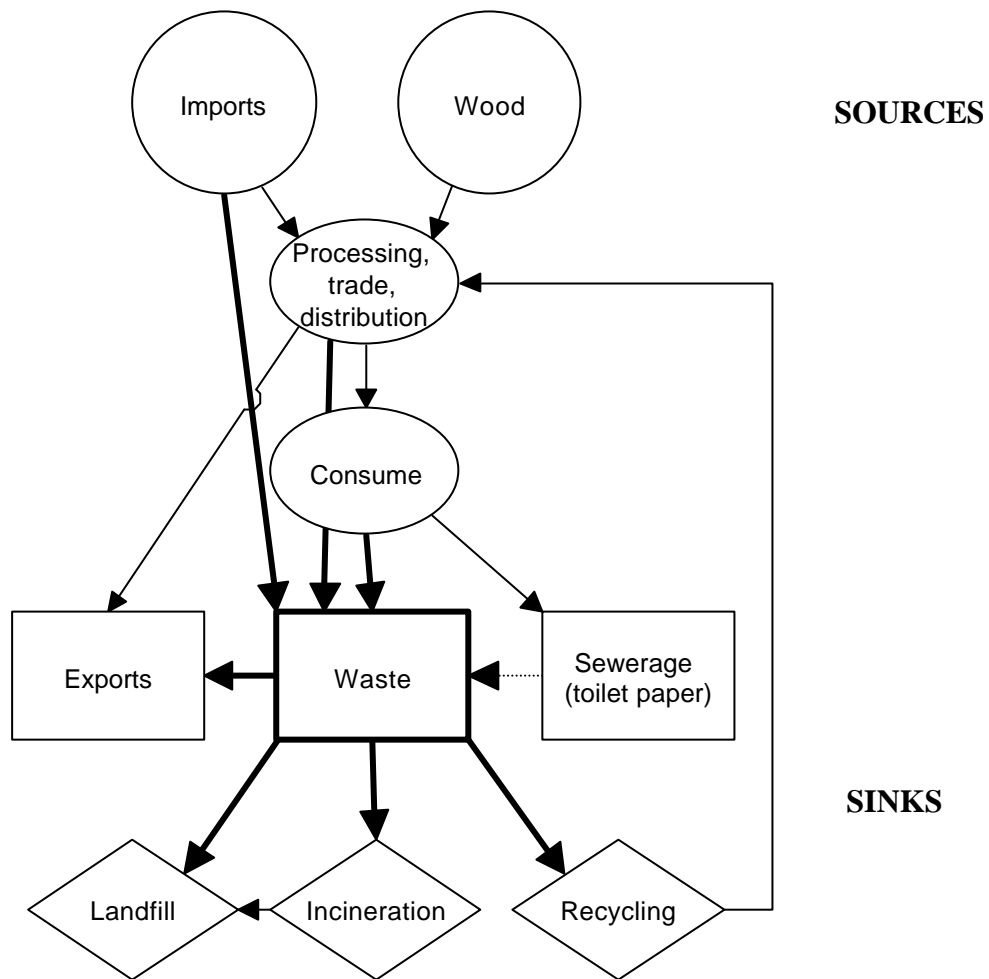
Source: Same as for Table 10

Table 12. Chapter 4 “Economic Policies for Sustainable Development” in China’s Agenda 21

-
- A. Establishment of the Socialist Market Economy System
 - B. Promotion of Economic Development
 - C. Effective Use of Economic Instruments and Market Mechanisms for Promoting Sustainable Development
 - D. Establishment of an Integrated Environmental and Economic Accounting System
-

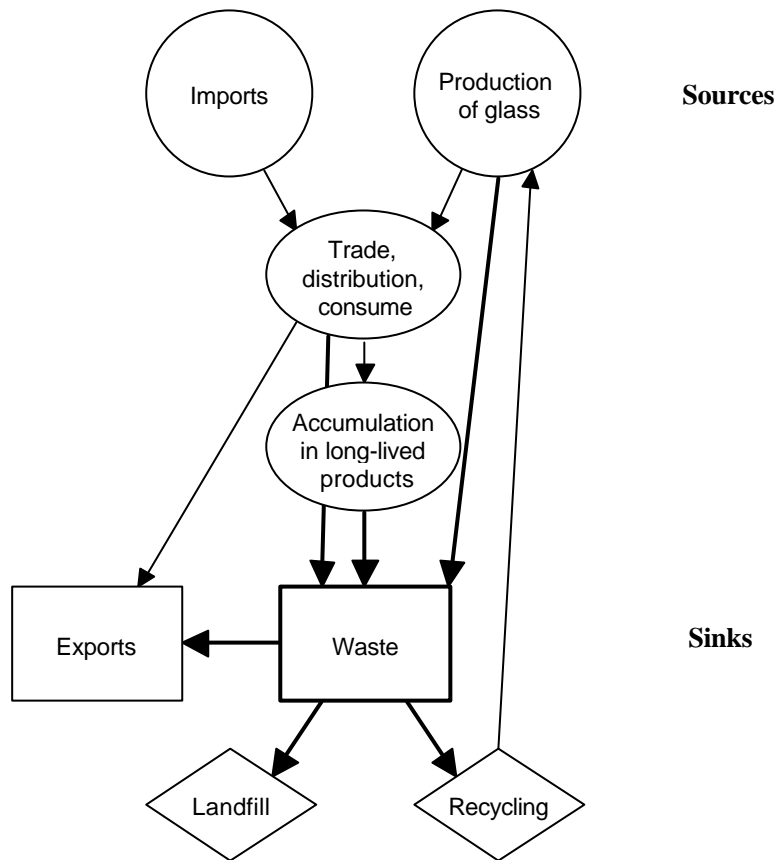
Source: Same as for Table 10

Figure 1. The main flows of paper and cardboard in Norway



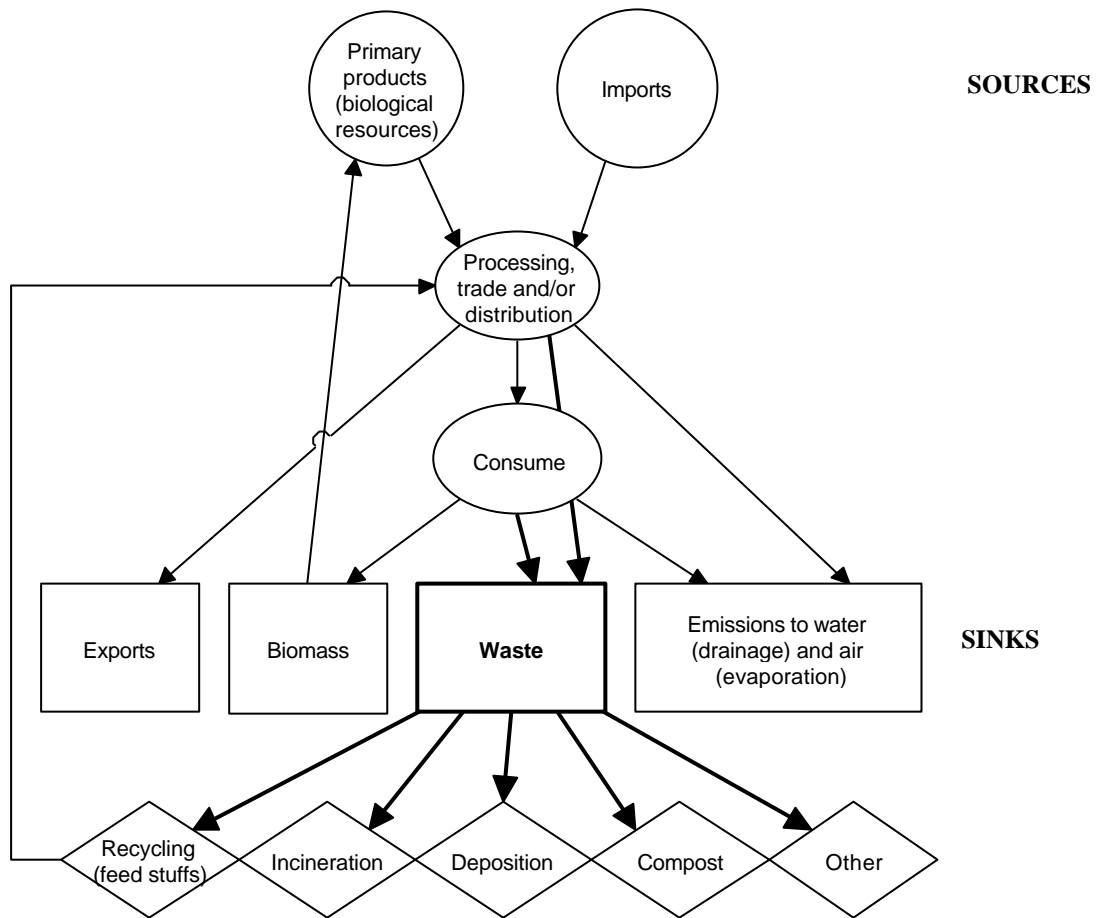
Source: Øystein Skullerud, 1998

Figure 2. Main glass flows in Norway.



Source: Same as for Figure 1

Figure 3. The main flows of wet-organic matter in Norway



Source: Same as for Figure 1

SUSTAINABLE FOREST MANAGEMENT AND FOREST CERTIFICATION IN MALAYSIA

Yasushi MINOWA¹

1. Background of Forest Certification and International Initiatives

In the latter half of the 1980s, it became clear that forests, especially tropical ones, were being destroyed at alarming rates. The response led to initiatives such as boycotts and campaigns to reject the use of tropical timber products. These initiatives grew popular in Europe and North America. However, these movements were criticized because they impeded attempts to develop sustainable forest management practices. Green Consumerism, a movement to promote purchasing of goods that are less detrimental to the environment, expanded in many countries as well. Thus as one way of achieving sustainable forest management, certification and labeling of forest products was proposed by such groups as environmental non-governmental organizations (NGOs).

The aim of certification and labeling of timber and timber products was to contribute to and promote sustainable forest management by using the purchaser's power to choose. Certification and labeling gave buyers evidence that the timber or timber products they purchased were obtained from producers who practiced sustainable forest management.

1.1 The Process of Forest Certification

There are two components to the certification process: the assessment of forest management practices; and product certification and/or chain of custody assessment.

The first component entails evaluating the quality of forest management according to a predetermined set of economic, social, environmental and ecological criteria, indicators, activities and management specifications. This covers forest inventory, management planning, silviculture, construction of forest roads and other related forest management operations.

The second component involves the flow of forest products from the tree in the forest, through the milling and manufacturing processes, to the finished product. This includes log transportation, log storage, primary processing, intermediate product transport and storage, various phases of further processing, transportation and distribution, and finally the distribution of end products to consumers in retail outlets.

Several independent processes have developed criteria and indicators to promote sustainable forest management (SFM). These are listed below.

The International Tropical Timber Organization (ITTO) has 5 criteria and 27 sample indicators for the national level and 6 criteria and 23 sample indicators for the forest management unit (FMU) level.

The Helsinki Process (which covers 38 countries in Europe) has 6 criteria and 27 quantitative indicators, and a number of qualitative indicators.

The Montreal Process (for boreal and temperate forests outside Europe) has 7 criteria and 67 indicators.

The Tarapoto Proposal (for Amazon Forest) has 7 criteria and 47 indicators for the national level and an additional 4 criteria and 22 indicators for FMU level.

The FSC (Forest Stewardship Council) has 10 principles and 52 criteria.

The UNEP/FAO Initiative (which covers 27 countries in Africa) has 7 criteria and 47 indicators.

The FAO/UNEP Initiative (which covers 30 countries in the Near East Forestry Commission) has 7 criteria and 65 indicators.

The FAO/CCAD Initiative (which covers 7 countries in the Central American Commission) has 4 criteria and 40 indicators at the regional Central American level, and 8 criteria and 52 indicators at the national level.

Many distinct systems originated in various countries, but the main ones that have developed sufficiently to set international standards are the Environmental Management System (ISO14000

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series) and the Forest Stewardship Council (FSC).

1.2 ISO Environmental Management System (ISO 14000 Series)

The ISO (International Organization for Standardization) was set up in 1947 to establish international standards and adjust national ones. The ISO is included in the governmental or corporate structures of 118 countries. The ISO provides standards mainly for industrial products, and in recent years has also added standards on a cross-sectoral basis. The ISO 14000 series includes environmental management system standards, as provided by the ISO.

(1) ISO 14000 series

Reacting to concerns about the earth's environmental problems, the ISO set up a technical committee, TC 207, to develop ways to decrease the pressure of a company's activities on the environment and to establish international standards for environmental management. The ISO 14000 is a series of standards that provide businesses with a structure for assessing the environmental impact of their activities. ISO 14001 acts as a basic framework, ISO 14004 is a guideline, and ISOs 14010-14012 are indicators for audits established and initiated by the ISO.

The characteristics of the 14000 series are as follows.

The 14000 series was made to be applicable to all industrial sectors.

Companies must undertake these standards themselves: the environmental goals to be achieved are not predetermined.

It includes methods of operating and organizing to accomplish these goals, such as documenting, standardizing and auditing.

The first of the ISO 14000 series of standards for environmental management were published in September of 1996 and rapidly became well known and applied. The total number of certifications awarded by the end of 1998 was 7,887, compared to 4,433 issued up to December 1997. This reflects a significant increase of 3,454 certifications, or 78%. Up to the end of 1998, 7,887 environmental certifications were held in 72 countries. During that period, ISO 14000 was implemented in 17 additional countries. Japan showed the highest increase with 829 new certifications awarded. Germany followed with an increase of 299 and the United Kingdom was third, with an increase of 277 certifications. (See Tables 1 and 2.)

(2) Application of ISO 14000 series in the forest sector for Sustainable Forest Management.

Recently, the FSC was set up by environmental NGOs to actively promote sustainable forest management by authorizing confirmation groups. In contrast, some timber exporting countries such as Canada and New Zealand prefer the ISO 14000 series for maintaining timber export markets but oppose the activities of the environmental NGOs.

1.3. FSC (Forest Stewardship Council)

In October 1993, the FSC was set up as a non-profit NGO to conserve forests through timber certification and labeling. It included representatives from environmental institutions, the timber trade, forestry professions, and other organizations from 25 countries. The main purpose of the FSC is to accredit certification organizations and to allow them the use of the FSC logo. The FSC does not itself carry out any certification. (See Tables 3, 4, 5 and 6; Figures 1 and 2)

The FSC's basic elements are as follows:

To respect and observe the law and FSC principles.

Right of possession, right of use and responsibility.

Rights of aboriginal people.

Relation to local society, rights of labor.

Benefits from forests

Influence of the environment

Control of planning and management

Maintaining and evaluating

Conservation of natural forests

Afforestation

1.4 Comparison of International approaches for Forest Certification and Labeling

(1) Characteristics of the FSC

Applied range: All forest types.

Degree of achievement: The international principles and standards set up by the FSC take into account degrees of achievement and local standards.

Procedure: FSC takes into account principles of procedure, such as management planning, monitoring and evaluation.

Goal: The degree of achievement is confirmed by established standards, considering the local situation, with a recognized certification organization by means of applied forms for principles and standards to be enacted by FSC.

Participants: Environmental institutions, occupational groups, forestry professions and the timber trade.

Product labels: Labels indicate forest products that are made from certified forests. These products are monitored until the final stages of marketing (i.e., until they are consumed) and the FSC label is used as their standard trademark.

Advantages: Degrees of achievement are clearly defined. Labels are standardized. It is easily to communicate the aims of the labeling system to consumers.

Disadvantages: Regulations and procedures are not yet adequate and risk being influenced by certification organizations. The weight of decision-making parties is unequal: the ratio of economic sector organizations to the environmental and social sectors is 1 to 3. Credibility is not yet fully established.

(2) Characteristics of the ISO 14000 series

Applied range: All industrial sectors, all forests type

Degree of achievement: Commitment to degrees of achievement by the organization is needed. They are later evaluated and then audited by a third party.

Procedure: The ISO 14000 series provides guidelines for a system to implement organizational plans for the environment and proper forest management.

Goal: The degree of achievement is compared to independent internal standards and a commitment is required to accept environmental audits.

Participants: Governmental departments in each country, forestry professions and the timber trade.

Product labels: Certification labels are now under consideration.

Advantages: Applicable to all industrial sectors. This system allows for continuous development of environmental management. It has general credibility.

Disadvantages: Degrees of achievement risk being influenced by the independent environmental goals of a company. The issue of labels is currently under consideration. At present there is no way to indicate by labeling which products or companies are certified and which are not.

2. Forest Resources, Management and Harvesting in Malaysia

2.1 Forest Resources

The tropical rain forest of Malaysia is primarily comprised of biologically diverse lowland and hill dipterocarp forests. These forests are of vital ecological and economic importance to the country. Other forest types found are the mangrove and peat swamp forests, montane oak forests, and montane ericaceous forests. Apart from the economic importance of producing poles and charcoal, the mangrove forests situated in the coastal areas also play a vital role in the protection and conservation of the natural coastal ecosystem, fisheries and other marine life. The peat swamp forests found in inland swampy regions yield several species of high quality timber.

The total area of forests in Malaysia is estimated to be 20.6 million hectares or 62.6% of the total land area. Malaysia has a total of 14.3 million hectares of this land designated as Permanent Forest Estate (PFE) which is under sustainable management. Approximately 10.6 million hectares

of the PFE are production forests while the remaining 3.7 million hectares are protection forests. Malaysia also has 4.8 million hectares of agricultural tree crops which are mainly rubber, oil palm, coconut and cocoa. Thus, at the end of 1997 the total area under tree cover in Malaysia was estimated to be 25.4 million hectares or 77.2 % of its total land area. Besides this, the Forest Department in Malaysia has set up pockets, known as Virgin Jungle Reserves (VJR) of virgin forest. These are established to serve as permanent nature preserves and natural arboreta, as controls for comparing harvested and silviculturally treated forests, and as undisturbed natural forests for general ecological and botanical studies. Since their inception in the 1950s, a total of 72 VJR covering 21,284 hectares were established throughout Peninsular Malaysia while in the state of Sabah, a total of 48 VJR were established, covering an area of 90,442 hectares.

2.2 Forest Management

Since the establishment of the Forestry Department in 1901, the forests in Malaysia have been systematically managed. In Peninsula Malaysia, the Dipterocarp production forests of the PFE are managed under two systems, namely the Modified Malayan Uniform System (55-year cutting cycle) and the Selective Management System (30-year cutting cycle). The MMUS consists of removing, in one single felling, the mature crop of all trees of a 45 cm diameter at breast height (DBH) for all species while the SMS entails the selection of optimum felling regions based on pre-felling forest inventory data. The cutting limit prescribed for the group of dipterocarp species would be not less than 50 cm DBH, while the cutting limit prescribed for the group of non-dipterocarp species would not be less than 45 cm DBH. In the state of Sabah, the dipterocarp forest is selectively harvested on a 50-year cutting cycle and only trees of 60 cm DBH and above are removed. In the state of Sarawak, the cutting cycle prescribed for the dipterocarp forest is 25 years where the prescribed cutting limits for the dipterocarp and non-dipterocarp species are 60 cm DBH and 45 cm DBH and above, respectively.

2.3 Forest Harvesting

Forest harvesting and related infrastructural developments in both the PFEs and other forest areas are coordinated and regulated in accordance with prescribed forest management and harvesting plans. This is to maintain a favorable level of log production and to minimize damage to regeneration consistent with the need to safeguard environmental quality and ecological balance. In general, forest harvesting in Malaysia is carried out using a combination of crawler tractor and winch lorry. Under this harvesting system, the crawler tractor skids the logs from the cutting sites to the skid trails where the winch lorry continues the transportation to the roadside landings. The skidder does not pick up its load from the cutting sites, generally, because of adverse soil and terrain conditions. Low impact logging (e.g., helicopter logging) and reduced impact logging (e.g., ground skidding) are also carried out in the sector of Sarawak and Sabah respectively.

3. Formulation of Criteria, Indicators, Activities and Management Specifications

Malaysia is a timber producing member country of the ITTO. Malaysia has taken steps to elaborate and operationalize the ITTO Guidelines for Sustainable Management of Natural Tropical Forests and the ITTO Criteria for Measurement of Sustainable Tropical Forest Management in managing its natural forest, to ensure it is sustainably managed by the year 2000. To that end, a National Committee on Sustainable Forest Management in Malaysia was established in February 1994. Furthermore, to support the Committee's activities, the 10 State Forestry Department also established a Working Party on Sustainable Natural Forest Management in February 1994 in Peninsula Malaysia at the Forestry Department Headquarters. The Committee has formulated a total of 92 activities to operationalize the ITTO's 5 criteria and 27 indicators for sustainable forest management at the national level. It has also adopted a total of 84 activities to be carried out at the Forest Management Unit level under the ITTO's 6 criteria and 23 indicators. In addition, the Committee has applied 7 indicators, identified at the national level, to the Forest Management Unit level. In formulating the activities of national and Forest Management Unit levels, the National Committee on Sustainable Forest Management in Malaysia took into consideration the Principles and Criteria for Natural Forest Management of the FSC (Forest Stewardship Council) and the Deutsche Tropenwald Initiative, and also took into account the Principles and Recommendations in

the ITTO Guidelines on the Conservation of Biological Diversity in Production Forests. The achievement targets of 92 activities at the national level and the 84 activities at the Forest Management Unit level were set up by individual State Forestry Departments in Malaysia. In the future, these Criteria and Indicators formulated on forest management certification would be reviewed and regularly revised by new sustainable forest management concepts.

The activities formulated for measuring sustainable forest management at the Forest Management Unit level are as follows:

Identify the areas for forest plantation of wood and non-wood forest produce outside the PFE.

Determine the optimum concession length.

Harvest and replant the forest plantation.

Project the level of wood production from conversion forests, plantation forests and perennial agricultural tree crops (rubberwood).

Establish forest plantations outside the PFE for wood and non-wood productions.

Report on forest revenue contributions to the State Governments.

4. Implementation for Forest Certification in Malaysia

In 1996, Malaysia and the Netherlands organized the Joint Working Group (JWC) under the Malaysian Timber Industry Board (MTIB) and the Netherlands Timber Trade Association, and started experimental studies for forest certification. Three kinds of wood products (sawn timber, plywood and mouldings) are subject to the Certification Process. The SGS (Societe Generale de Surveillance), acts as a third party for Malaysia, and independently assesses and monitors the marketing route of wood products until their final use stage. The SGS applies the original criteria (named the QUALIFOR program) for evaluation of the chain of custody. Under the German Federal Ministry for Economic Cooperation and Development forest certification project which began in 1998, the evaluation method for sustainable forest management complete with a computerized monitoring system were developed. The next project, which will include wood products obtained from artificial forests, will certify the materials for builders and other wood products such as fittings, panels and furniture.

The Joint Working Group developed criteria of sustainable forest management following ITTO guidelines. Pilot studies on certification of timber obtained from sustainably managed forests are being commissioned by the MTIB. To date the Malaysian initiative is not modeled according to FSC guidelines and FSC principles and criteria, and there is little or no communication between the two parties.

The University Pertanian Malaysia and the University of British Columbia (Canada) jointly organized a workshop on timber certification named the "Ecological, Social and Political Issues in Certification of Forest Management," which was held in Kuala Lumpur in May 1996, with some financial support from the FSC.

The MTIB organized a seminar entitled "A Pilot Study on Timber Certification" (27 July 1998, Kuala Lumpur) to disseminate the information and share experience gained from this study. About 200 participants attended the seminar from various government agencies, private companies, Dutch timber traders, other NGOs, and the press.

In March 1999 an agreement for collaboration on forestry standards and certification was reached between the FSC and various parties involved in standards development in Malaysia, including the newly formed National Timber Certification Council (NTCC). It was agreed that the current Malaysian criteria and indicators would be revised, with wide consultations, to make them fully compatible with the latest ITTO guidelines and the FSC principles and criteria. FSC-accredited certification bodies will be advised to take account of the Malaysia criteria and indicators during their evaluations, while continuing to follow their accredited systems to ensure compliance with the FSC principles and criteria.

5. National Timber Certification Council, Malaysia

In April 1994, Malaysia's Ministry of Primary Industries and the Malaysian Timber Industry Development Council (now known as the Malaysian Timber Council) jointly organized a national seminar on certification entitled "Trade of Timber from Sustainably Managed Forests". As a result,

the National Timber Certification Council, Malaysia (NTTC Malaysia) was set up in October 1998 as a company limited by guarantee. It then started its operations in January 1999 to establish and administer an independent third-party Malaysian timber certification scheme. Its main purpose is to develop and implement a timber certification scheme to ensure sustainable forest management as well as to facilitate the trade in timber from Malaysia. A Board of Trustees manages the Council, comprised of a Chairman and two representatives each from academic or research and development institutions, the timber industry, NGOs and government agencies,.

This committee is coordinated by the MTIB, which is a government agency. The Ministry of Primary Industries works out the mechanism of certification given to the MTIB.

The activities of the NTTC, Malaysia are as follows:

Development and implementation of a timber certification scheme in Malaysia to ensure sustainable forest management as well as to facilitate the trade in timber from Malaysia.

Development and implementation of standards related to timber certification.

Establishment and implementation of a system to oversee and monitor the implementation of the certification scheme, including appeals mechanisms.

Establishment of networks and cooperation with national and international bodies related to timber certification to facilitate cooperation and mutual recognition arrangements.

Development and implementation of trading programs in all aspects related to the timber certification scheme.

Collection, processing and dissemination of data and information related to timber certification and sustainable forest management.

Currently, WWF Malaysia is lobbying for the NTCC to strengthen its integrity by seeking international credibility in timber certification, with policies such as those advocated by the FSC.

At almost the same time as the formation of the NTCC, the National Committee for Sustainable Forest Management (NCSFM) was also created, but membership was not extended to NGOs. The main task of this committee is to formulate the Malaysian criteria and indicators for sustainable forest management.

6. Conclusion

The global effort towards sustainable management and development of forest resources is rapidly gaining momentum. In the 1990s, international movements tended towards certifying timber and timber products, labeling and establishing each country's requirements with regard to environmental assessment.

In Malaysia, the development of a system for sustainable forest management and the criteria for individual forests was an important step in bringing about the sustainable use of forest resources. To promote sustainable forest management, representatives of the Malaysian governments and industries have organized and started some projects or joint initiatives including experimental studies for forest certification. In recent developments, the National Timber Certification Council, Malaysia was set up for the development and implementation of timber certification as well as for the facilitation of trade in timber from Malaysia.

Meanwhile, at the international level forest certification by the Forest Stewardship Council is rapidly increasing, especially in Europe and the Americas. In some regions such as in Southeast Asia, including Malaysia, FSC certification is not growing as rapidly. One reason for this may be that FSC has strict criteria and indicators for many of the forest regions or forest sectors in those regions. However, third party certification standards that are less strict compared to the FSC appear to be growing.

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*These English titles are tentative translations by the author of this report from the original Japanese.

Table 1. ISO 14000 Certifications Worldwide: Growth from 1995 to the end of 1998 -each region-

regions		Dec. '95	Dec. '96	Dec. '97	Dec. '98
Africa / West Asia	total certification	1	10	73	138
	percent of world total	0.39	0.67	1.65	1.75
	countries represented	1	6	10	15
Europe	total certification	226	948	2,626	4,254
	percent of world total	87.94	63.58	59.24	53.94
	countries represented	11	20	25	29
		March '95	Dec. '96	Dec. '97	Dec. '98
Central and South Americas	total certification	3	15	98	144
	percent of world total	1.17	1.01	2.21	1.83
	countries represented	2	4	5	12
North America	total certification	1	43	117	434
	percent of world total	0.39	2.88	2.64	5.50
	countries represented	1	3	3	3
Far East	total certification	25	419	1,356	2,532
	percent of world total	9.73	28.10	30.59	32.10
	countries represented	3	10	10	11
Australia / NewZealand	total certification	1	56	163	385
	percent of world total	0.39	3.76	3.68	4.88
	countries represented	1	2	2	2

Table 2. ISO 14000 Certifications Worldwide: Growth from 1995 to the end of 1998

	Dec. '95	Dec. '96	Dec. '97	Dec. '98
Certification worldwide	257	1,419	4,433	7,887
Increase over previous year		1,234	2,942	3,454
Countries represented	19	45	55	72

Table.3 Number of FSC-certified forests, by country (December, 1999)

Country Name	Number of Certified Forests	Total area (ha)
Belgium	3	4342
Belize	1	95800
Bolivia	7	660133
Brazil	9	1335224
Canada	3	211013
Costa Rica	10	31747
Czech Republic	1	10441
Denmark	1	36
Germany	6	80171
Guatemala	5	46229
Honduras	3	18127
Indonesia	1	62278
Italy	1	11000
Malaysia	1	55083
Mexico	6	143004
Namibia	1	49000
Netherlands	9	69064
New Zealand	2	45025
Panama	1	23
Papua New Guinea	1	4310
Paraguay	1	16000
Poland	5	2218006
Solomon Islands	5	42912
South Africa	8	708621
Sri Lanka	3	12726
Sweden	26	9026683
Switzerland	2	2112
United Kingdom	12	55034
United States of America	64	1564822
Zimbabwe	2	72504
	200	16651470

Table.4 FSC forest certifications, by organization (December, 1999)

Kind of certification body	Number of certified forests	Total area (ha)
Rainforest Alliance	91	2595111
SGS	50	9321846
SCS	28	2942139
Soil Association	18	1669800
Skal	10	106813
IMO	3	15761
total	200	16651470

Table.5 FSC certification by forest type (December, 1999)

Forest type	Count	Total area (ha)
Semi-natural	37	9176692
Plantation/Semi-natural	16	89071
Plantation/Natural	5	24459
Plantation	27	1707590
Natural	109	4928956
Mixed-semi-natural/plantation	1	16425
Mixed-natural/plantation	5	708277
total	200	16651470

Table.6 Trends in FSC forest certifications

Country Name	1997.9	1998.1	1998.4	1998.8	1998.12	1999.12
United States of America	15	20	27	34	42	64
Sweden	2	5	8	13	16	26
United Kingdom	9	10	10	11	15	12
Costa Rica	2	2	4	5	6	10
Netherlands	3	4	4	8	8	9
Brazil	3	5	5	6	7	9
South Africa	6	7	7	10	10	8
Mexico	2	2	4	6	7	6
Solomon Islands	12	12	12	9	11	5
Poland	3	3	4	4	5	5
Other Countries	(7 countries) 10	(9 countries) 14	(12 countries) 18	(16 countries) 25	(18 countries) 30	(20 countries) 51
	67	84	103	131	157	200



Fig.1 FSC logo

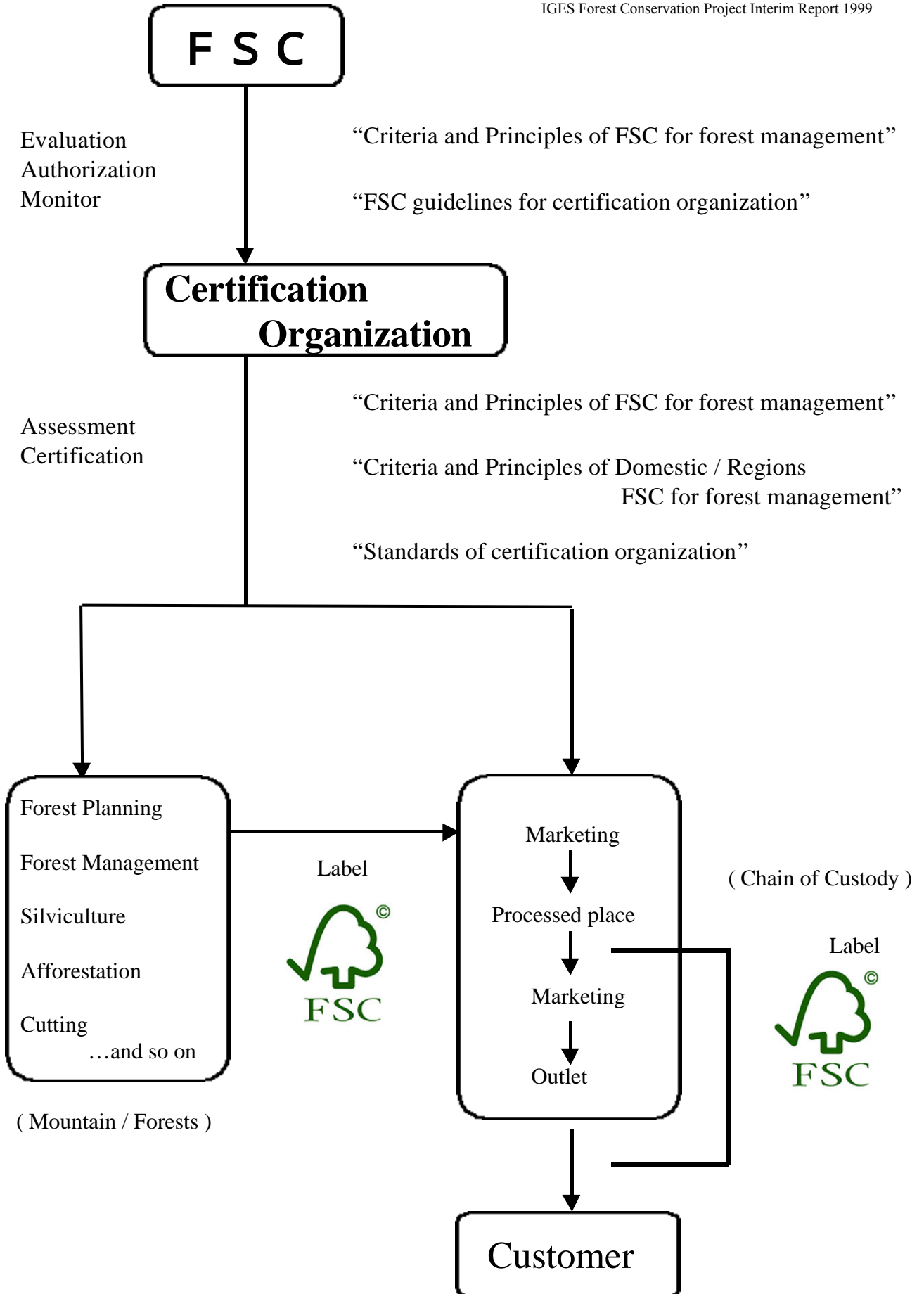


Fig.2 Certification flow in FSC system

FORESTS AND THE FOREST INDUSTRY IN CAMBODIA

Kim Phat Nophea¹

INTRODUCTION

Since the start of this research project (December 1998), the author started regular contact with senior forestry officers in Cambodia to obtain the latest information on forestry issues in the country—data on forest products in particular. A field visit was made April-May 1999 to collect data, and consult with senior officers, forest industries and local NGOs to understand the real status of logging activities in Cambodia. However, due to the political situation and companies' lack of desire to release information some data were not obtainable, e.g. on the structure of the timber industry. Separately, the faculty of social sciences of Hosei University is to conduct detailed analysis of wood demand and supply using various environmental economic models.

Chapter One: An Overview of Cambodia

1.1. Geographical Setting

Cambodia is situated at the southwestern part of the Indochina peninsula, extending from 11° to 15° north latitude and from 111° to 117° east longitude. The country consists of 21 provinces and is bordered by Thailand to the west and north, Laos to the north, Vietnam to the east and south, and the Gulf of Thailand to the west. With a total area of 18.1 million hectares, Cambodia is the second smallest country in Southeast Asia. (See map, Figure 1)

1.2. Climate

Cambodia is blessed with a tropical climate with pronounced wet and dry seasons. The climate generally varies with changes in topography and altitude. The dry winds blowing from the northwest bring little or no rain. This is called the dry season, which occurs from November to April. During the wet or rainy season from May to October, the winds blow from the opposite direction, southwest to northeast, bringing heavy rain. The average rainfall at Phnom Penh under tropical climate conditions on the low-lying plain accounts for 1,100 mm, which seems to be the lowest amount recorded in the country. The humidity at Phnom Penh recorded by the Service Meteorologique (1965) over the period from 1938-1960 shows about 77.4 as compared with 78.5 at Steng Treng, the eastern province and 78.3 at Battambang, the western province. Rainfall data are available from the Pochentong Weather Forecast Station for most provinces in Cambodia.

1.3. Land Use

Depending on the source of data, 60 to 63 percent of the country is said to be covered by forests. This was based on the distribution of land use and land cover as estimated in 1993 from Landsat remote sensing data with visual interpretation by the Ministry of Agriculture and the Remote Sensing Mapping Unit of the Mekong Secretariat, as well as the result of estimates from computer-based interpretation (digital processing) using Landsat TM by the Japan Forest Technical Association in its project entitled "Information System Development Project for the Management of Tropical Forest" 1993-1995. Both indicate the significance of forests in Cambodia's overall environment.

Cambodia's percentage of forest cover is higher than any country in the sub-region and among the highest in the world. The assessment based on the above results of the Mekong Secretariat shows the most significant land cover changes occurred in the last 20 years: the 11.2 percent reduction in total forest cover (forest land and edaphic forest combined), the 113.9 percent increase in shrubland and the 26 percent increase in agricultural land with rice fields and other crops combined (Table 1).

The most significant result of land use practices over the last 20 years, such as commercial logging, shifting cultivation and wood harvesting for fuelwood and charcoal production, has been a net loss of some 1,110,000 hectares of dryland forest and 316,900 hectares of edaphic forests. In

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percentage terms, the reduction in forest area over the last 20 years has been about 0.5 percent per year, which is one-half the 1.0 percent per year average of countries of the sub-region during the same period. The increase in shrublands suggests that it is the primary form of land cover to succeed forests after clearance.

1.4. Population

Cambodia's population is 10.7 million people with an annual growth rate of 2.8 percent from 1990 to 1997. The population is composed of Khmer (90 percent), Vietnamese, Chinese and Islam ethnic groups. Basic information on Cambodia's population is described in Table 2.

1.5. Cambodian History

Cambodia was one of the most powerful countries in South East Asia before A.D. 1200. The world heritage "Angkor Wat" was built there between the 9th and 11th centuries, and the country had a very large national land area at the time. According to records, forest institutions existed since before A.D. 639. The country was under French colonial rule from 1898 to 1954, and was completely destroyed during wartime from 1970 to 1979 in terms of the economy, infrastructure, human resources etc. By 1991, all political factions agreed to sign a Peace Accord held in Paris that led to an UN-sponsored election in 1993, and two prime ministers led the country at once. However, Khmer Rouge guerillas refused to abide by the accord, and once again the guerilla war erupted. The second national election was held in 1998, when only one prime minister was chosen. At the end of 1998, all the Khmer Rouge guerillas defected to the government, ending the Khmer Rouge Movement.

1.6. Economic Development

The formation of the government in 1993 stabilized the economy and strengthened the economic reform initiatives that were started in 1989. Reforms and substantial external assistance have reduced imbalances and improved economic performance. Cambodia experienced an annual Gross Domestic Product (GDP) growth rate of 5.4 percent between 1987 and 1995, 7 percent in 1996 and then dropped to 2 percent in 1997 due to the general economic downturn in Asia. GNP per capita increased from U.S.\$260 in 1995 to U.S.\$300 in 1997. Agriculture's share of GDP was 50.7 percent in 1996 (World Bank, 1998) and it increased to 51 percent in 1997, of which 43 percent was accounted for by forestry (FAO, 1998).

Chapter Two: Forestry Administration

2.1. Forestry in General

The Department of Forestry and Wildlife (DFW) is the only institution carrying out forestry management activities. The DFW is under the direct control of the Ministry of Agriculture, Forestry and Fisheries. In addition to the DFW, Cambodia has one forestry university known as the Royal University of Agriculture, and two forestry schools; the Preaek Leap School of Agriculture and the Kampong Cham Agricultural School, which had their study materials virtually destroyed during the war.

All forestlands in Cambodia are state-owned. However, the forests are managed by forest concessions under management guidelines imposed by the DFW. Two types of forests have been identified in Cambodia: dryland and edaphic forests. Over the last 20 years of political instability, 2 million hectares of forest were lost. Under a World Bank Technical Assistance Project, Cambodia's forest policy reform has been outlined, pending final approval from parliament for implementation.

2.2. Department of Forest and Wildlife

Prior to 1970, Cambodia had an established legal system, established institutions and a reasonably stable society. With the anarchic conditions prevailing between 1970 and 1990, and the deliberate attempts to eradicate the written word and institutions, all of the legal infrastructure and stability was lost, along with almost a whole generations' experience and development.

The DFW under the MAFF is responsible for the formulation and implementation of forestry policy. It has a central office in Phnom Penh with offices in the provinces and districts placed under

the MAFF provincial and district agricultural service offices. The central office has seven offices with a total staff in 1997 of 1,622 (Table 3), of which 741 (41 percent) were in the central office and 881 (55 percent) in the provinces. There are 7 offices in the Department of Forestry and Wildlife (Figure 2). Prior to 1970, with political stability, there were 8 offices, and many different units (Figure 3).

2.3. Award of forest concession rights

As much as 90 percent of industrial wood worldwide is harvested under concession agreements, by which the government, as a forest owner, grants rights to exploit or manage a specific area. The award of concession rights is based on administrative discretion, involving negotiations between Cambodian government officials and eligible applicants interested in particular areas. Competitive auction of concession rights has been advocated as a method of avoiding the collusion and financial irregularities, and the loss of government revenues.

Chapter Three: Forest Resource and Forest Management

3.1. Forest Area

The most up-to-date forest resource information for Cambodia is the 1994 Land Cover Atlas prepared by the Mekong Secretariat, and the Forest Register from 1995 by JAFTA (the Japan Forest Technical Association) and unpublished forest cover maps produced by DFW in 1997. Although more recent changes may have occurred and have been reported, especially along the western border with Thailand, no data are available to evaluate these reports. The total forest area of 11.3 million hectares is divided into 4.8 million ha of evergreen forest, 4.3 million ha of deciduous forest, 1 million ha of mixed forest, 0.5 million ha of secondary forest and 0.7 million ha of edaphic forest (Table 4). See Figure 4: Forest map of Cambodia

3.2. Forest Policy and Legislation

A strong and continued political commitment at the highest level is indispensable for sustainable forest management to succeed (ITTO, 1992). Until recently there was no clear forest policy in Cambodia. But there is mixing forest policy and legislation with forest harvesting operation prescriptions. Therefore, it is necessary for Cambodia's government to establish a clear forest policy and legislation concerned with forest policy (national land use policy, the establishment of a permanent forest base), a national forest inventory, permanent forest estates, forest ownership and a national forest service. Without clear forest policy and legislation forest resources will never be properly managed, and conflicts over land use are likely to happen. In attempts to protect Cambodia's valuable forests, the international community has been providing a variety of assistance such as financial aid, personnel assistance and other services in the field of forest resource management, one of which is the technical assistance project known as the Forest Policy Reform Project funded by the World Bank. It is, however, still under development.

3.3. Forest Ecosystems and growing stock

3.3.1 Dryland Forests

3.3.1.1 Evergreen Forest

The Evergreen Forest is a multi-storey forest consisting of more than 80 percent trees of evergreen species with a canopy of 0.8-0.9. This forest type may be further divided into three subtypes: the hill evergreen forest, tropical rainforest and dry evergreen forest. It has been estimated that the average growing stock varies between 192-230 m³/ha with annual growth rates varying from 0.21-0.67 m³/ha/year.

3.3.1.1.1 Hill Evergreen Forest

These dense, higher elevation (more than 700 m above sea level) forests may be divided into those located in the coastal ranges and those in northern uplands. Because of the colder environment, frequent fogs, the violence of the summer winds, and the often shallow and poor soils, these forests often assume a stunted and irregular appearance. They are simple in structure with a single tree stratum to 20 meters rich in the Fagaceae genera *Lithocarpus*, *Castanopsis* and *Quercus*.

Cinnamomum, *Litsaea* and the Myrtaceae genera *Syzygium* and *Trisania* frequently occurring in the northeastern uplands. *Dipterocarpus* are virtually absent. The undergrowth is very dense, featuring shrubs and tree-ferns. The eastern forests also feature Gnetum and the palms *Pinango*, *Arenga* and *Pandanus*. Hill evergreen forests possess a well-developed epiphytic flora.

3.3.1.1.2 Tropical Rainforest

These diverse, high, layered forests feature an irregular canopy with average heights of 30m dominated by Dipterocarps *Dipterocarpus costatus* (Cheur Til Nindeng), *Anisoptera glabra* (Pdeak), *Hopea odorata* (Korki Msave), *Shorea hypochra* (Korki Pnong) with the associated species of *Herrietara javonica* (Khley), *Swintonia pierrei* (Svay Chamring), and *Palaguium obovatum* (Chur Ni). Emergent trees may exceed 40 m in height. These trees have classical growth forms; long, narrow, cylindrical boles, sometimes with pronounced buttresses. Palms, lianas and a diverse array of smaller trees constitute a dense understorey. A dwarf forest type is associated with poorly drained depressions. The gymnosperms *Dacrydium pierrei* and *Podocarpus periifolius* are here associated with small to medium-sized Dipterocarps and numerous palms

3.3.1.1.3 Dry Evergreen Forest

These floristically and structurally heterogeneous forests occur in humid to sub-humid areas where the rainfall exceeds 1,200 mm per year and the dry season lasts three to five months. Emergent trees such as *Ficus*, *Dipterocarpus alatus*, *Shorea vulgaris*, *Anisoptera cochinchinnensis* and *Tetrameles nudiflora* may exceed 40 m high. They possess cylindrical boles up to 20 m long, which give the forest a majestic aspect. The diverse continuous tree stratum is between 20 to 30 m high with no family clearly dominating. *Guttifera*, *Ficus*, *Irvingia malayana*, *Sindora cochinchinnensis*, *Pterocarpus pedatus*, and *Pahudia conchinchinnensis* are commonly found.

3.3.1.2 Mixed Forest

Mixed forests have deciduous and evergreen tree species, where deciduous species represent more than 50 percent of the stand. These stands exhibit a closed structure during the wet season. They are almost completely deciduous and dominated by a few gregarious species such as *Lagerstroemia spp.* and *Xylia dolabriformis* and numerous scattered associated species such as *Azelia xylocarpus*, *Pterocarpus pedatus*, *Ceiba pentandra*, *Irvingia oliveri*. The understorey is nearly always dominated by sparse or dense large bamboo (russey rhley). There are numerous subtypes associated with differing soil conditions or allied with other forest types. It has been estimated that the average growing stock varies between 52-60 m³/ha with annual growth rates of 0.08-0.37 m³/ha/year.

3.3.1.3 Deciduous Forest

Deciduous forest is an open forest consisting of a few trees where most of their leaves are deciduous in dry season. These relatively species-poor, wholly deciduous forests are dominated by Dipterocarps and feature a sparse understorey subject to frequent fires. The single-tree stratums generally feature tree diameters of less than 40 cm. They are widespread east of the Mekong River and north of the Great Lake at altitudes below 500 m. these forests exhibit marked variation in the dominance according to the soil type. They degrade into savannah with disturbance. Most characteristic species are resistant and have thick bark, such as *Dipterocarpus intricatus* (Trach), *D. obtusifolius* (Tbeng), *D. tuberculatus* (Khlóng), *Shorea obtusa* (Rin Phum), *Terminalia tomentosa* (Chlik) and so on.

3.3.1.4 Savannah and Bamboo Forests

These open, secondary vegetation types are derived from the degradation of the dry Dipterocarps or mixed deciduous forest through over-exploitation or excessive fire. In extreme cases such as on the Chhlong Plateau or at Khula (North-East Thailand) all trees may be removed and replaced by shrubs and grasses. Bamboo-dominated areas may also derive from disturbed evergreen forests on rocky outcrops or steep slopes at high elevations.

3.3.1.5 Coniferous Forest

This type refers to pine forests that occur only on the Kirirom plateau where trees exceed 20m in height and possess boles of 50-60cm in diameter. However, pines are frequently associated with more fire-tolerant broad-leave trees such as species of Dipterocarpus and Shorea on certain summits and ridges along the southerly fall of the Cardomome ranges. They also occur in a variety of associations near Mondulkiri in the northeast, in lowland areas around the Great Lake such as in Kompong Thom and near Surin in Thailand (David a.). There is only one species of pine in Cambodia, the *Pinus merkusii*, known as SRAL in the Cambodian language.

3.3.1.6 Growing Stock of Dryland Forests

According to earlier field inventories and dendrometric analysis in the Cambodian forests, the volume over bark (VOB) of all living trees more than 10 cm DBH (Table 5) is 230 m³/ha in the evergreen forest and only 60 m³/ha in the deciduous forest, with the mixed forest being 150 m³/ha. The volume potential available for cutting (VAC) of all marketable trees above 40 cm DBH (minimum diameters accepted by the market) are 80 m³/ha in the evergreen forests, 30 m³/ha in the deciduous forests and 60 m³/ha in the mixed forests.

3.3.2 Edaphic Forests

3.3.2.1 Flooded Forests

These forest types are found along the delta of the Mekong River, the great lake of Tonle Sap and other plain areas. The most characteristic species are *Cynometra saigonensis* (Ompelteak Prey) *Barringtonia acutangula* (Reang Phnum), *Coccoreas anisopodum* (Chrokeng) and so on with heights and diameters of less than 15 m and 50cm, respectively. These forest types serve as shelters for fish breeding, protecting soil from erosion, and providing a wide range of environmental services. They are under the control of the Department of Fishery of MAFF. Thus, management practices in these forests are not available at the moment.

3.3.2.2 Mangrove Forests

3.3.2.2.1 Distribution

Mangroves are distributed in only three provinces and one independent resort city, covering an area of 85,000 ha in 1993, of which 63,700 ha was distributed in Koh Kong, a southwestern province of Cambodia (Table 6). Cambodia's coastline extends some 435 km between the Thai and Vietnamese borders.

3.3.2.2.2 Real Mangrove

In most mangrove forests, different species dominate certain zones. The characteristic zonation pattern results from differences in the rooting and growth of seedlings and competitive advantages which each species has along the gradient from mean sea level to above the high water lines. The dominant species in this forest type belong to the family of Rhizophoraceae, such as *Rhizophora conjugata* (Kongkang Nhy), *Rhizophora mucronata* (Kongkang Chmul), *Ceriops spp.*, *Bruiera spp.*, *Caralia sp.* and the families of Verbenaceae (*Avicennia sp.*), Sonneratiaceae, and Palmae (*Nypa fruticans*).

The average annual growth rate of Cambodia's mangrove forests was estimated to be 7.2 m³/ha. In some areas this amount is as large as 9.2-9.9 m³/ha. *Rhizophora conjugata* and *Rh. mucronata*. *Rhizophora spp.* reach a height of 15 to 20 m and diameters measured at 1.3 m high from ground vary from 30-40 cm, depending on natural factors (soil condition, location etc.), compared to 30 m high with diameter of 70 cm in Vietnam.

Due to illegal logging in mangrove forests, the recent mangrove inventory shows that the growing stock of all standing trees within DBH greater than 5 cm is 98 m³/ha (Table 7). That amount is quite low, compared to growing stock in other countries.

3.3.2.2.3 Rear mangrove

The associated species of *Eugenia zeylanica* (Smach Dom), *Vatica sp.*, *Randia tomentosa*, *Anacardium occidentale* and *Cratoxylon sp.* are also found along Kampong Som Bay in Northern Koh Kong province up to the gulf of Thailand.

3.4. Forest Management in Cambodia

3.4.1 Policy on Forest Management

Since 1979, although a new government was established, clear forest policy as well as policy on forest management have yet to be re-established (DFW, 1995). There is an urgent need to establish a National Land Use Committee so that a clear definition of forest area and land allocation can be made. Forests should be classified into productive forests, forest reserves, areas to be reforested and protected areas. In the context of sustainable forest management, forests will never be sustainably managed without clear definitions of land use.

3.4.2 Forest Inventory

A National Level Forest Inventory was established before 1970 (Ouk 1997) under FAO-UNDP and USAID projects. Since then, due to political instability, no such work has been done and the previous inventoried data was unobtainable. However, by 1995 a FAO-UNDP inventory project, named "Establishment of A Forest Resource Inventory Process" was initiated and incorporated with the DFW. The objective of this inventory was to strengthen Cambodia's capacity-building in forest resource assessment and sustainable management.

The inventory has been operated since 1995 over pilot areas of 0.5 million ha. By collecting data on forest growth and yield, the project aimed to develop a Cambodian Forest Resource Management Information System (CFRMIS) in order to promote current forest management practices. The project lasts another two years with and an extension is possible. For on-going forest concession management, the DFW has established technical guidelines for forest management for concessionaires to conduct intensive forest inventories in each management unit and operational blocks (Ouk 1997).

3.4.3 Forest Management System in Cambodia

3.4.3.1 Tree Classification

Based on durability and potential utilization, tree species are economically classified in 4 groups; the luxury, the first, second and third classes. In addition, there are a number of tree species, which have been temporarily classified into another class pending evaluation of their potential uses. This classification is very important for silvicultural treatment and for environmental conservation. A detailed list of tree species classification is shown in Annex 1.

- Luxury Class: The wood texture of this class is very hard and usually expensive in the domestic market. They are used for long-term construction materials. In the past and the present, villagers have been exploiting these trees for house construction, especially new couples. Unregulated cutting has caused the gradual loss of some species in this class. Therefore, extraction of trees in this class is prohibited.
- Class I and Class II: These are hardwood trees species, which are usually expensive in international market. These classes are dominated mainly by *Dipterocarp* trees. They are subject to commercial exploitation.
- Class III: The trees are not commercial. Trees in this class are mainly used for firewood production.
- Others: These are new tree species, which have yet to be evaluated and studied for their potential utilization.

3.4.3.2 Selective Cutting System of 25-30 Years Cutting Cycle

The system of "Under Selective Management System" is applied mainly to manage dense evergreen and semi-evergreen forests, dominated mainly by *Dipterocarp* species. The average growing stock of all evergreen trees in Cambodia with diameters greater than 10 cm at breast height is 230 m³/ha with a mean growth rate of 0.33 m³/ha/year (ASHWEL, 1993) (Table 8). The forest-harvesting regime is planned based on pre-felling inventory data. Only 30 percent of growing stock (mature trees) that fall within diameter limits for harvesting are extracted (Law Decree No. 049). The remaining 70 percent of stands are left as mother trees, which will, in turn, produce seeds and seedlings for natural regeneration. These residual trees function also as shelter for young trees, and they will be extracted in the next felling cycle. This old management system is being put to use in the management of all forest concessions in Cambodia.

Note: ^(a) in Table 2 and Table 3 derived from equation (1) below:

$$s = [(1+P)^L - 1] \times 100 / (1+P)^L \quad (1)$$

where,

s: selective cutting rate in percent per hectare

L: cutting cycle in years

P: growth rate in percent per hectare

3.4.3.3 Selective Cutting System of 12-15 Years Cutting Cycle

This system is applied to dry deciduous forests with the main deciduous *Dipterocarp* species. *Dipterocarpus obtusifolius* (Tbeng), *Dipt. intricatus* (Trach), *Dipt. tuberculatus* (Khleng), *Shorea obtusa* (Pchek) and *Terminalia tomentosa* (Chlik) of Combretaceae are the dominant species in this forest type. The average growing stock is 60 m³/ha with an average growth rate of 0.17 m³/ha/year (Table 9). This forest type usually generates by coppice. Its management objective is to extract fuelwood and poles for local needs. Its felling cycle is set between 12 and 15 years. Political instability meant that further information is unobtainable.

3.4.4 Forest Plantation and Reforestation Costs

3.4.4.1 Planted area

There is no information on enrichment planting in each harvesting block. The reforested area increased to 70,000 in 1997 (Table). The planted species include Eucalypti, Dipterocarps and others.

There is no information on reforestation costs in Cambodia at the moment. However, there is a tax on reforestation (Table 10). The RGC has not had a strong commitment to sustainable forest management or natural forest rehabilitation. Within forest concession agreements there are no clear procedures or guidelines for concessionaires to conduct sustainable forest management, nor for natural forest rehabilitation following harvesting. As a result, concessionaires have not been committed to ensure adequate natural forest rehabilitation following logging.

Council of Ministers Decision No. 39 of April 4, 1991, and subsequently, Inter-Ministerial Circular No. 22 of April 1991 on forest protection and maintenance, established (1) a forest protection and maintenance fee; and (2) fees payable for removal of non-timber products (Table 10).

The circular stipulates that 70 percent of the amount collected is to go to the national treasury and 30 percent to provincial and municipal governments.

Chapter Four: Forest Products and Wood Prices

4.1. Forest Concessions in Cambodia

Forest concessions (dryland and edaphic forests) have been an established mean of promoting forest-based development in Cambodia for over 20 years. Since 1994, the government accelerated efforts to grant concession agreements as a means of (1) bringing larger areas under active management, and inter alia, reducing the extent of illegal logging, (2) speeding the growth of value-added wood processing in Cambodia, and (3) increasing government timber royalty revenues while maintaining the current logs export ban.

By 1997, the government had entered into 28 agreements affecting 6.33 million ha (Table 11) of total forest area, of which over 3 million ha was well-stocked commercially operable forests.

4.2. Forest Products in Cambodia

Prior to the 1960s Cambodian forests were lightly exploited. By 1967 timber production had reached 383,000 m³ per year, of which 95,104 m³ was exported. In 1969, harvesting had increased to approximately 600,000 m³ (Table 12) (Ashwel, A.D, 1992). For the past 4 years (1992-1995), the volume of logging has steadily increased as the native forests remain as the social and economic backbone of the country. Annual log production increased from 900,000 m³ in 1992 to 4,300,000 m³ in 1997. Following the 1993 elections, rapid expansion was caused partly by an increasing allocation of forestlands into forest concessions, but primarily due to a rapid expansion of illegal collection and

old log quotas, and operations over the period 1994-1997. The actual level of log production is estimated to be up to 10 times the officially reported figure in 1997.

4.3. Differences Between Official Recorded and Actual Log Production in 1997

4.3.1. Official log production, 1997

For the period 1 January to 31 December 1997, the official log production data reported by the DFW is detailed in Table 9. For the official DFW data, concessionaires account for 96 percent of the logging through forest concession production (54 percent) and collection logging (42 percent) (Table 13).

4.3.2 Actual log production

From ground monitoring, aerial reconnaissance, satellite imagery and the evaluation of trade data within and outside Cambodia, it was estimated that the actual log production was nearly 10 times the official figure. In the DAI's calculation, it was estimated that concessionaire's log production accounted for 414,000 m³ (9.5 percent) from primarily logging concessions, whilst the non-concessionaire log production accounted for 3.9 million m³ from collection and old log quotas, with unclear source of logs (including stealing from forest concession areas and national park resources. It is unclear what percentage of log production was legal and illegal, or authorized or unauthorized. Most log production has documentation or authority of a sort, initiated from senior, central or local RGC officials. Table 14 shows the data of illegal exports of forest products in 1997 estimated by Global Witness, an NGO group based in the UK.

4.4. The Prices of Logs, Sawn Timber, Processed Wood and Veneer (1992-1996)

4.4.1 Domestic log market

It is difficult to estimate the log production for both domestic and international markets. The 1997 log production from forest concessionaires and legitimate companies is estimated to be 415,000 to 460,000 m³ for domestic processing for export markets. However, to satisfy domestic demand for timber, an estimated 670,000 m³ of logs are supplied for commercial trade to unauthorized sawmills and wood processing plants in addition to the above figure. This does not take into account the subsistence and traditional use (primarily non-commercial use) of wood in the domestic markets.

No consolidated data could be found to estimate the domestic demand for forest products in Cambodia. It is estimated that about 0.7 million m³ of round wood domestic processing is carried out in Cambodia to supply the commercial market. However, in addition to this, there is an estimated 2 million m³ for traditional uses in construction of houses, other buildings, boats, animal stocks, cattle carts etc. There is also an estimated 6 million m³ of foraged for fuelwood and charcoal to satisfy fuel needs for domestic cooking and industrial kilns (bricks, roof tiles, ceramics. etc.).

4.4.2 International Market and Market Dynamics for Forest Products

4.4.1 International forest product prices

Using Sarawak Keruing and Meranti as benchmark species for Cambodia, it is apparent that the unit prices of sawn timber have varied markedly over the past decade. International prices for Keruing (*Dipterocarp* spp.) sawn timber peaked in 1993-1994, but were not maintained. Due to the Asian economic crisis, SE Asian log markets have collapsed since the last quarter of 1997, bringing uncertainty to the forestry sectors in the region, including Cambodia. From September 1997 to March 1998, international Keruing, sawn timber prices have collapsed by 35 percent. However, within Cambodia during the same period, the prices of *Dipterocarpus* sawn timber collapsed by 40-50 percent within the same period.

Using the above benchmark species, the average prices of Sarawak Keruing logs and sawn timber are summarized in Table 15.

4.4.2.2 Cambodia's forest product export prices

Cambodian economy depends mainly on natural resources, especially forest resources. Cambodia's log exports increased from 107,032 m³ (US\$69.26/m³ for grade I trees) in 1992 to 161,673 m³ (US\$255/m³ for grade I trees) in 1996. Sawn timber exports also increased from 2,955

m³ (US\$120/m³ for grade II trees) in 1992 to 66,269.51 m³ (US\$311/m³ for grade II trees) in 1995 (Table 16).

4.4.2.3 Destination of Cambodia's Timber Exports

Cambodia's timber export destinations include Thailand, Vietnam, Laos, Malaysia and others. Cambodia exported 170,985 m³, 144,186 m³ of logs to Thailand and Vietnam, respectively in 1995 (Table 17).

4.4.3 Input and Output Ratio of Sawnwood, Plywood, Particle/Fiber Board, Pulp and Paper

4.4.3.1 National and International Wood Conversion Factors

Veneer production is by peeling, with no slicing capacity yet introduced in Cambodia. A slicing veneer plant would yield higher conversion factors than peeler veneer. This is particularly important for the more valuable Luxury and Grade 2 species. These conversion factors are consistent with other developing countries and those with a distinct wet and dry season where the duration from felling to utilization can be 6-12 months. Considering the large log sizes cut from Cambodia's forest, these low conversion factors mean that Cambodian log processing industries are relatively inefficient by international standards. International wood conversion factors are shown in Table 18.

It is, however, KAMFOREXIM that apply their own theoretical conversion factors on which their services fees are charged and export taxes (if any) are paid (see Table 19).

4.4.3.2 Actual Input and Output in Cambodia

Detailed information on wood conversion factors by individual company in Cambodia is shown in Table 20. There are 646 wood processing factories in Cambodia, of which 390 factories are legally operated (Table 21).

4.5. Production Costs

SL International Limited is a professional logging company from Malaysia. The average production costs of this company are shown in Table 22 below. The company claimed that it has been running at a loss due to the increase of taxes and a decrease in international forest product prices.

4.6. Taxes on Logs and Log Processing Activities

Access to forest resources and their prices are determined administratively. If there is an element of competition, it takes the form of behind-the-colored-doors competition for the crucial signature, i.e. in economic terms, renting-seeking in its true sense.

4.6.1 Royalties

Decision No. 100 of 27 February 1995, co-signed by the MEC/MC and MAFF, instituted a species royalty to be applied to the main categories of logs. It also has species reference FOB prices for the purposes of estimating the export service charge (1 percent of the reference price) and the export tax (10 percent of the reference price) (Table 23).

4.6.2 Charges on Non-Timber Forest Products

The charge varies depends on each product (Table 24).

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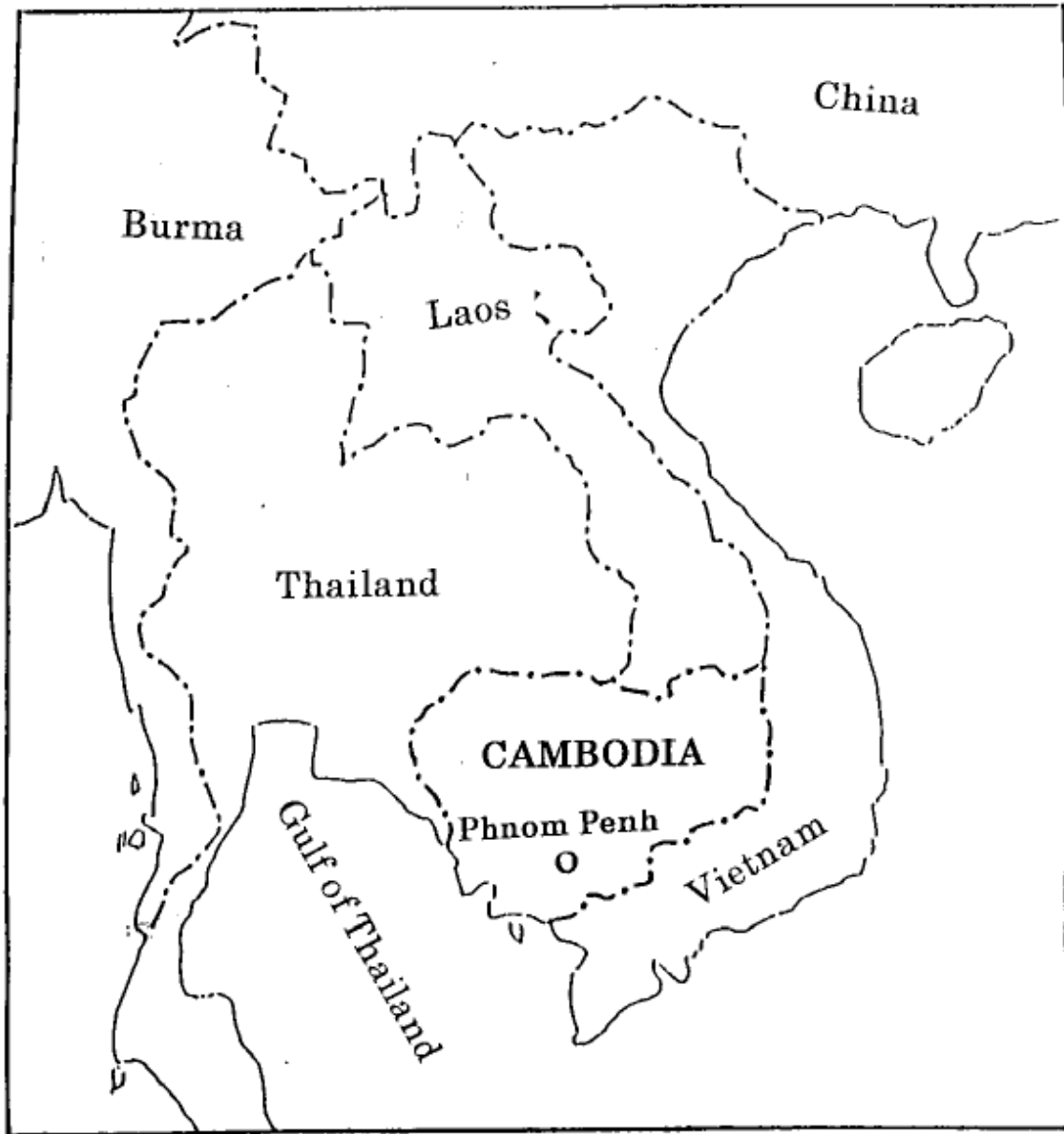
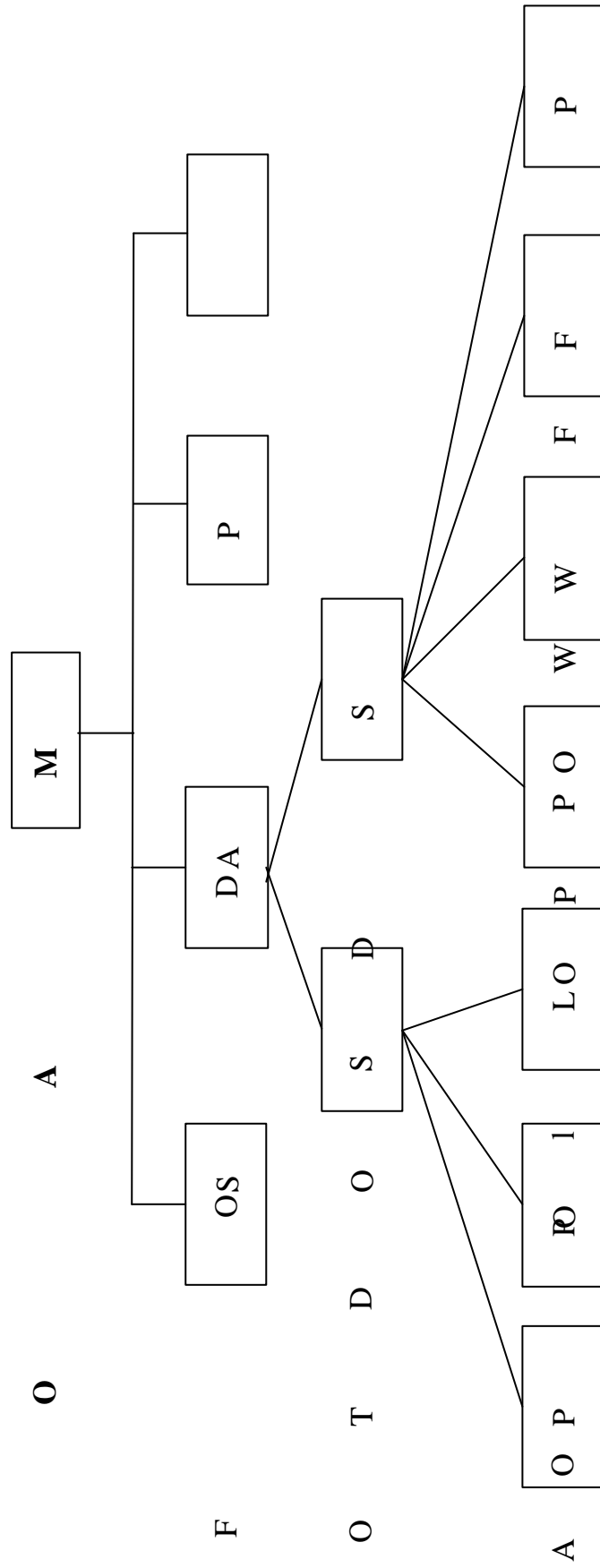


Figure 1 Map of Cambodia

u s i F



M A O : P O :
 D O O F : P A O :
 S D O O A : P L O :
 S O D A T : P :
 P A S : W P
 P F O : F O O :

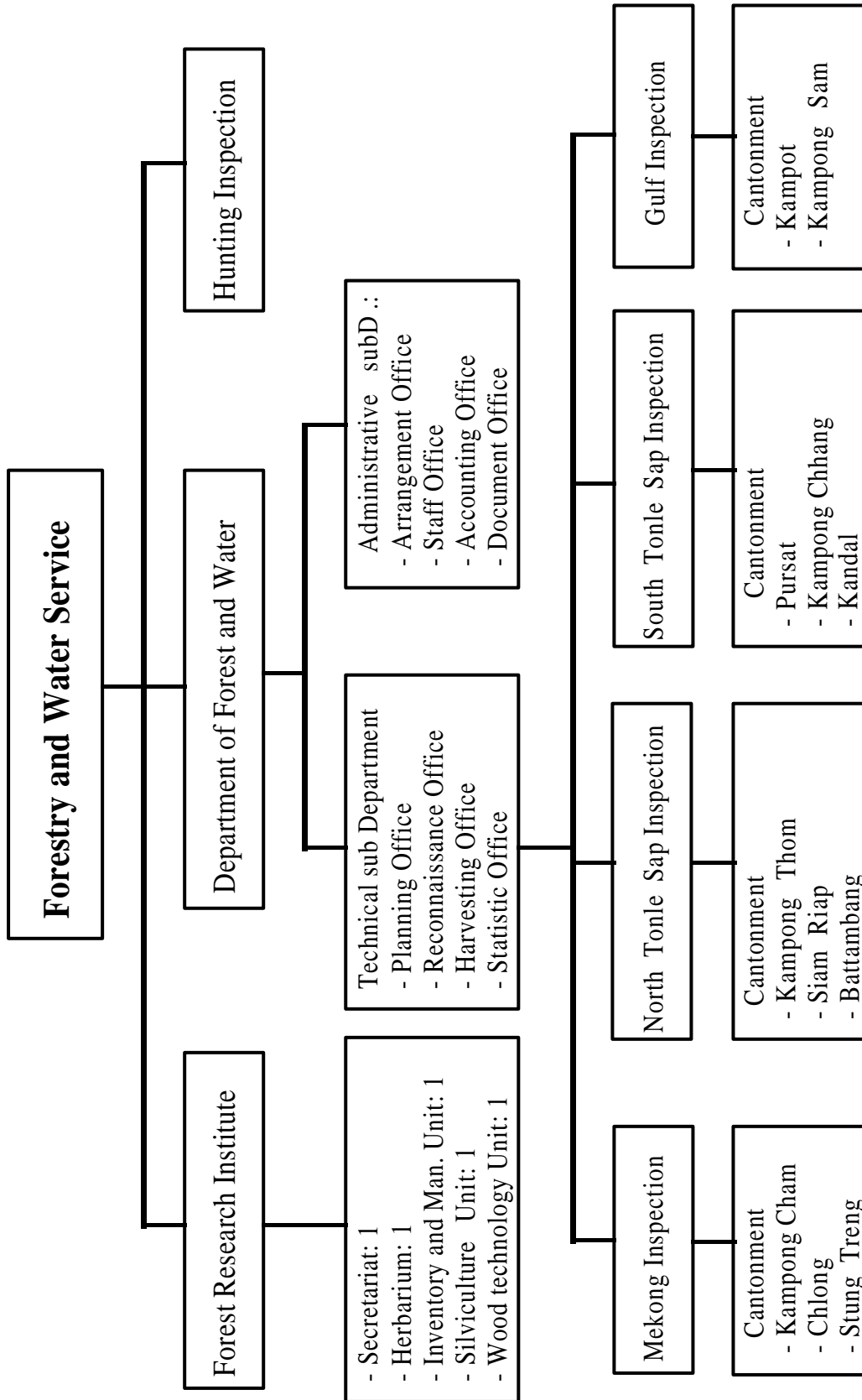


Figure 3 Flow chart of FWS (1970)

Source: DFW (1985)

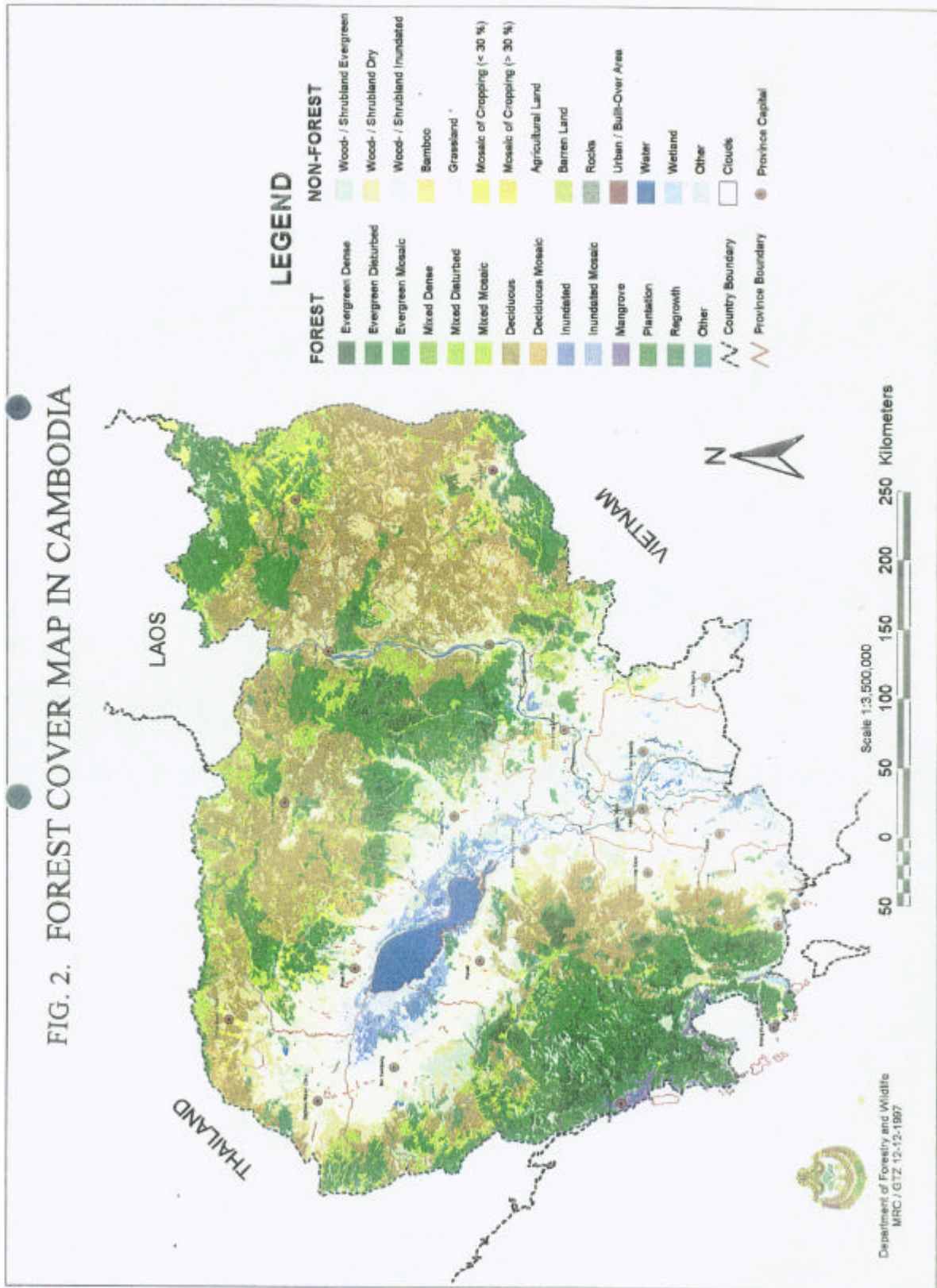


Table 1 Change in land cover between 1973 and 1993

Description	1973	1993	Change	Annual Change (%)
	('000 ha)			
Urban	14.7	4.5	-10.2	-3.5
Rice fields	2,521.0	2,639.0	118.0	0.2
Other crops	582.0	1,275.4	693.4	6.0
Dry land forests	11,678.6	10,568.6	-1,110.0	-0.5
Edaphic forests	1,032.5	715.6	-316.9	-1.5
Shrublands	1,056.9	2,260.6	1,203.7	5.7
Abandoned lands	786.3	278.7	-507.6	-3.2
Water surface	481.5	411.1	-70.4	-0.7
Total	18,153.5	18,153.5	0	

Source: Hon (1998)

Table 2 Population and basic information in Cambodia (1995)

Description	
Land area	181,035 km ²
Number of provinces	22
Number of urban area	9
Population	10.2 million (90/10)
Percentage of rural people	90%
Female/male ratio	109.4%
Population over 15 years of age	56.3%
Life expectancy	51 years
GDP per capita	US \$289

Source: Royal Embassy of Cambodia to the United States of America (1997)

Table 3: Staff in various forestry offices throughout Cambodia (1998)

No	Office	Master	Bachelor	Technical	Vocational	Staff Qualified	No qualified	Total
I.	Head Quarter	4	254	124	76	5	278	741
1	Department of Forestry and Wildlife	4	254	124	76	5	278	741
II.	Provincial Office	0	98	142	188	8	445	881
2	Prey Veng	0	3	5	7	0	28	43
3	Svey Rieng	0	0	2	9	0	10	21
4	Battambang	0	4	12	38	0	22	76
5	Stung Treng	0	6	5	4	0	6	21
6	Kandal	0	5	13	0	0	25	43
7	Koh Kong	0	6	7	5	0	15	33
8	Kampong speu	0	5	12	7	0	51	75
9	Kampong Cham	0	6	10	5	2	42	65
10	Takeo	0	1	5	7	0	20	33
11	Kompot	0	4	6	23	1	6	40
12	Banteay Meanchey	0	3	5	25	1	9	43
13	Kampong Thom	0	7	9	9	2	42	69
14	Kampong Chhnang	0	2	3	7	0	18	30
15	Siem Riep	0	7	7	14	0	28	56
16	Kratie	0	13	10	3	0	13	39
17	Pursat	0	8	4	13	0	52	77
18	Rattanakiri	0	1	4	3	0	10	18
19	Mondulkiri	0	1	4	1	0	8	14
20	Preah Vihear	0	0	2	0	0	8	10
21	Sihanouk Ville	0	7	4	3	1	15	30
22	Krong Kep	0	2	0	0	0	2	4
23	Phnom Penh capital	0	7	13	5	1	15	41
	TOTAL	4	352	266	462	13	723	1,622

Source: Colin MacAndrews (1998)

Table 4 Area of forest by type and change 1973-1993

Types of forests	1973	1993	Change	Annual Change
	(area in '000 ha)			(%)
I- Dryland	11,678.6	10,568.6	-1,110.0	-0.5
Evergreen	6,876.4	4,763.3	-2,113.1	-1.5
Deciduous	4,792.9	4,301.2	-491.7	-0.5
Mixed		977.3	977.3	
Secondary	0	517.0		
Pine		9.30	9.8 0.5	0.3
II- Edaphic	1,032.5	715.6	-316.9	-1.5
Flooded	937.9	370.7	-567.2	-3.0
Flooded Secondary		259.8	259.8	
Mangrove	94.6	85.1	-9.5	-0.5
Total	12,711.1	11,284.2	-1,426.9	-0.6

Note: Changes in classification introduced in the 1993 study are indicated *in italic* and account for a portion of the changes suggested in the original classifications.

Source: Mekong Secretariat

Table 5 Types of forest and volumes

Forest	VOB	VAC
Evergreen	230	80
Deciduous	60	30
Mixed	150	60
Secondary	100	50

Source: World Bank et al (1996)

Table 6 Mangrove distribution in Cambodia

Province	Population (persons)	Area (ha)
Koh Kong	79,000	63,700
Kampot	476,000	7,900
Sihanoukville	120,000	13,500
Total	675,000	85,100

Source: Camille Bann (1997)

Table 7 Inventory data of mangrove forests in Peam Krasop district

Diameter Class (cm)	Density (trees/ha)	Basal Area (m ²)	Volume (m ³ /ha)
5-9	659 (68%)	2.50 (19%)	13.19 (14%)
10-29	277 (28%)	7.84 (59%)	58.83 (60%)
> 30	38 (4%)	3.05 (22%)	25.98 (26%)
Total	974 (100%)	13.39 (100%)	98.00 (100%)

Note: Number of plots surveyed: 32

Source: Borey Piseth (1992)

Table 8 Growth and sustainable cutting rates of Cambodia's evergreen forest

Growth rate	Unit (m ³ /ha/year)	Cutting rate at 25 years (%) ^(a)
Slow	0.21	2.25
Fast	0.67	6.98
Average	0.33	3.44

Note: Average growing stock is 230 m³/ha

Source: ASHWEL (1993) and the World Bank et al (1996)

Table 9 Growth and sustainable cutting rates of Cambodia's deciduous forest

Growth rate	Unit (m ³ /ha/year)	Cutting rate at 12 years (%) ^(a)
Slow	0.08	1.58
Fast	0.34	6.59
Average	0.19	3.76

Note: Average growing stock is 60 m³/ha

Source: Ashwell (1993) and the World Bank et al (1996)

Table 10 Rates of reforestation tax, Cambodia

Category of logs	Rate of Tax (in Riel/m ³)	
	Riel/m ³	US\$/m ³ (1997)
Luxury group	26,000	8.7
Group 1	7,800	2.6
Group 2	2,600	0.9
Group 3	1,500	0.5
Other Species	1,000	0.5

Table 11 Forest concessionaires in Cambodia

Company Name	Country of Origin	Location	Total area (ha)
Grand Atlantic Timber (GAT) SDN,BHD	Malaysia	Koh Kong, Pursat, K. Thom, Kratie	365,500
COLEXIM	Camb-Japan	Kampong Thom	147,187
Mieng Ly Heng Investment Co., Ltd	Cambodia	K. Thom, Preah Vihear, K. Cham	198,500
Long Day Machinery Industry	Taiwan	Kampot, K. Speu	98,000
CASOTIM Camb-Russia		Kratie	131,380
Samling Corporation SDN, BHD	Malaysia	Kratie, K. Cham, Mondulkiri, K. Speu, Koh Kong	766,082
Everbright CIG Wood Co.	China	Kratie, Stung Treng	136,376
Pheapimex Fuchan	Taiwan	Kratie, St. Treng, K. Thom, Koh Kong	487,985
Cambodia Chernda Plywood	Taiwan	Preah Vihear,	103,300
Kingwood Industry PTE, Ltd	Taiwan	Kratie, Siem Riep, P. Vihear	207,200
Lang Song International	Taiwan	P. Vihear, K. Thom, Siem Riep	251,300
Sam Rong Wood Industries	Cambodia	Siem Riep	200,050
Superwood IPEP	Malaysia	Pursat, K. Speu,	94,418
Double Ace Investment	Malaysia	Koh Kong	177,500
Geometric Holding	Indonesia	Siem Riep, P. Vihear	245,700
Timas Resources	Singapore	K. Cham, Kratie, P. Vihear	161,450
Talam Resources		Koh Kong, Kampot	111,500
PT. Maharani Infinititi resources	Indonesia	Koh Kong, Pursat, Battambang	459,330
B.L.P. Import Export	Thailand	P. Vihear	91,200
Cambodia Timber Product	Cambodia	Kampot	35,884
Chung Shing Cambodia	Taiwan	Kratie, P. Vihear, Mondulkiri	374,350
Landworth Holding	Cambodia	Siem Riep	99,400
Macro Cambodia Forestry Industry	Indonesia	Stung Treng, Ratanakiri, Mondulkiri,	1,432,930
Thai Boong Roong Co.	Cambodia	Mondulkiri, Kratie	416,700
Pacific Craft Co.	France	Stung Treng	24,537
Total			6,817,759

Source: Ivan Ruzicka (1997) Taxation and forest policy reform in Cambodian forestry. Draft Discussion Paper

Table 12 Log products from Cambodian native forests (1967-1997)

Year	Production (‘000 m ³)	Sawnwood (‘000 m ³)	Fuelwood (‘000m ³)	Charcoal (‘000 ton)
1967	384.00	n/a	n/a	n/a
1980	0.24	n/a	26.00	3.50
1981	11.03	n/a	30.00	8.00
1982	67.70	n/a	84.40	8.50
1983	90.00	n/a	200.00	10.62
1984	73.28	n/a	164.32	21.17
1985	96.53	n/a	84.26	53.10
1986	213.55	n/a	99.06	4.27
1987	306.16	n/a	58.77	7.43
1988	282.94	283.00	96.12	9.38
1989	224.83	224.00	123.45	6.98
1990	257.35		105.07	6.95
1991	308.81		62.08	0.36
1992*	900.00		n/a	n/a
1993*	1500.00		n/a	n/a
1994*	2000.00		n/a	n/a
1995*	2500.00			
1996*	3500.00			
1997*	4300.00			

Note: Data of log production from 1992 to 1997 was estimated by World Bank mission to Cambodia in 1996.

Source: World Bank et al (1996), MAFF and FAO (1993), Koum S. (1992), and Jim Carle (1998)

Table 13 Log production by category (Jan. 1- December 31, 1997)

Category of log production	Volume (000' m ³)	(%)
Forest concession – Operating within concession	248	54
Concessionaires collecting wood	193	42
Other companies collecting luxury wood	2	-
Other companies collecting other wood	18	4
Other companies exporting processed wood	Nil	-
Total log production	461	100

Table 14 Illegal exports of forest products, 1997

Country	Volume (m ³)
Thailand	968,125
Vietnam	176,750
Laos	8,500
Unknown	1,200

Source: Global Witness (1997)

Table 15 Average international prices of Keruing

Year	Logs	Sawn Timber
1990	81	210
1991	110	290
1992	91	290
1993	300	385
1994	247	330
1995	185	320
1996	184	300
1997	190	310
1998	130	205

Source: ITTO market reports, 1990-1998

Note on table 16:

EX: Excellent Wood

I: Grade I Wood

II: Grade II Wood

III: Grade III Wood

Table 17 Cambodia's timber exports to neighboring countries (1995-1997)

Country	1995		1996		1997	
	Volume (m ³)	Value (US\$)	Volume (m ³)	Value (US\$)	Volume (m ³)	Value (US\$)
Thailand						
Logs	170,985	22,276,472	50,167	8,501,604	-	-
Processed wood	64,807	20,657,292	52,039	17,982,829	50,087	17,108,504
Vietnam						
Logs	144,186	26,229,636	79,122	20,522,814	-	-
Processed wood -	-	-	1,004	341,409	25,681	10,547,310
Laos						
Logs	8,262	1,350,064	8,520	1,632,099	-	-
Processed wood -	-	-	-	-	-	-
Malaysia						
Logs	12,999	1,842,530	78	16,786	-	-
Processed wood -	-	-	137	113,137	5,060	2,104,027
Indonesia						
Logs	16,815	2,381,591	-	-	-	-
Processed wood -	-	-	-	-	-	-
Singapore						
Logs	15,576	4,072,380	-	-	-	-
Processed wood	15,581	4,759,588	5,852	1,989,359	11,739	5,254,255
Singapore						
Logs	368,823	58,152,673	137,787	30,673,303	-	-
Processed wood	80,388	25,416,880	59,032	20,426,734	92,567	35,014,096

Table 18 Wood industry conversion factors, 1997 data

Factory	Conversion factor (forest product output/log input)
Veneer Plant	54%
Sawmill	49%

Table 19 Conversion factors used by KAMFOREXIM, 1997

Type	Factor
Veneer (peeled)	65%
Sawn timber	
- Japanese Market	40%
- Thailand and others	55%
S2S and S4S	
- Japanese Market	32%
- Thailand and others	44%

Table 20 List of some authorized sawmills, plywood mills, and furniture factories owned by foreign investment companies

Company	Processing Capacity (m ³)		Number of Employees	Capital investment (USD)	Type of Factory	Status
	Log Input	Output				
Sttranimex	46,000	29,250	100	871,300	Plywood	Operating
Casotim	40,000	17,600			Sawmill	Operating
Kingwood	160,000		2,500	39,000,000	Plywood and furniture	Operating
Timas Resources	37,200	24,000	120	1,919,000	Sawmill	Operating
Longdai	10,000	6,500	350	8,000,000	Plywood	Operating
Mieng Ly Heng	15,000	9,750	1,878	27,000,000	Plywood	Operating
Kamexco	30,000	16,500	210		State lease sawmill	Suspended
Chernda Plywood	108,000		1,000	16,000,000	Plywood & furniture	Operating
Bang Kam	1,100	600			State lease sawmill	Operating
Pang Loy Chavy	50,000	32,500			Plywood	Suspended
Colexim	50,000	22,000			Sawmill	Operating
BLP	109,500	71,275			Plywood	Destroyed
Hero	9,300	6,000	40		Sawmill	Not operating
Elit Wood	30,000	16,500	320		State lease sawmill	Not operating

Table 21 List of sawmills, plywood mills, and furniture factories in Cambodia

Total number of factories	Number of known illegal factories	Legal factories authorized by ministry of agriculture					
		Number of legal factories			Processing capacity (m ³ input)		
		Non-concession	Concession	Total	Non-concession	Concession	Total
28	0	25	3	28	26,679	153,000	179,679
5	3	1	1	2	833	9,300	10,133
18	0	18	0	18	9,637	0	9,637
45	22	21	2	23	17,366	50,000	67,366
1	0	0	1	1	0	108,000	108,000
28	0	28	0	28	23,283	0	23,283
42	0	38	4	42	38,770	110,000	148,770
11	0	11	0	11	7,600	0	7,600
15	0	15	0	15	8,750	0	8,750
33	0	26	7	33	43,467	653,200	696,667
32	20	12	0	12	11,940	0	11,940
43	0	43	0	43	43,268	0	43,268
3	0	3	0	3	2,600	0	2,600
108	90	18	0	18	14,720	0	14,720
13	0	13	0	13	9,666	0	9,666
18	0	17	1	18	16,590	30,000	46,590
3	0	3	0	3	3,530	0	3,530
9	0	9	0	9	7,040	0	7,040
11	0	11	0	11	11,685	0	11,685
43	7	34	2	36	111,000	50,000	161,000
137	114	20	3	23	20,600	101,100	121,700
TOTAL							
646	256		24	390	429,024	1,264,600	1,369,624

Table 22 Average Production Costs and FOB Price for Veneer for year 1998

No		Unit cost per m ³ (USD)	With export tax/new royalty rate (US\$)	Remarks
1	Log production costs	34.00	34.00	
2	Barging/rafting	15.00	15.00	
3	Log royalty & reforestation	16.40	56.40	New royalty at \$54/m ³
4	Transportation formalities	5.00	5.00	
5	Unofficial payments	16.50	16.50	Trucking & barging through provinces
	Total log cost to factory	86.90	126.90	
	<i>Factory processing cost</i>			
1	Log cost @ 59% recovery	147.29	215.08	
2	Factory processing	70.00	70.00	
3	Warehouse storage	8.00	8.00	
	Total Veneer Cost	225.29	293.08	
	<i>Sales costs</i>			
1	Sales and distribution	4.00	4.00	
2	Loading/Stevedoring	4.00	4.00	
3	DFW 1% Export fee	4.50	4.50	
4	Kamcontrol 0.1% fee	0.45	0.45	
5	Port charges	5.00	5.00	
6	Unofficial payments	9.00	9.00	
7	Export tax 10%		45.00	
	Total sales cost:	26.95	71.95	
	Total costs to FOB:	225.29+26.95=252.95	293.08+71.95=365.03	Operation already running at a loss because of the low market prices
	Average FOB price, 1998	221.00	221.00	
	Profit/loss	31.24	144.03	

Source: Mr. Henry Kong, Forest Operations Manager, SL

Table 23 Official rates of timber royalties and reference prices of logs, Cambodia

Category of Logs	US\$/m ³ Old logs	US\$/m ³ New logs	US\$/m ³ Sawntimber
Grade 1	43.5	60	63.75
Grade 2	29.0	40	42.5
Grade 3	23.5	32	34.0
Out of Grade	14.5	20	21.25
Luxury species (Beng ^a)	81.2	112	119.0
Luxury species (Neang Noun ^b , Kranoung ^c)	152.25	210	223.12
Luxury species (Thnong ^d)		101.5 1 40	148.75
Reference FOB/FOT prices			
	Logs		Sawntimber
Grade 1	225		510
Grade 2	170		340
Grade 3 and out grade	156		272
Luxury species (Beng ^a)	408		816
Luxury species (Neang Noun ^b , Kranoung ^c)	765		153
Luxury species (Thnong ^d)	510		1020.0

Note:

^a: *Pahudia cochinchinensis*

^b: *Dalbergia beriensis*

^c: *Dalbergia cochinchinensis*

^d: *Pterocarpus pedatus*

FOB: free on board (ship)

FOT (free on truck)

Table 24 Taxes on non-timber and minor forest products

Product	Unit	Fee (Riel)	Fee (US\$) ¹⁹⁹⁷
<i>Fuelwood stack</i>		250-300	0.08-0.1
Poles	piece	200-350	0.07-0.1
Charcoal	bag (60 kg)	90	0.03
Bamboo (m ³)	m ³	500-625	0.16-0.21
Rattan (ton)	60 kg	4,000-6,000	1.3-2.0
Tree bark	60 kg	800-2,500	0.27-0.83
Resin	60 kg	3,500-25,000	1.2-1.8
Lacquer		18 liters	1,000 0.33
Sandalwood oil (ton)	1 liter	10,000-80,000	3.3-26.7
Elephant tusk	1 kg	50,000-100,000	16.7-33.3
Python skin	whole piece	3,000-5,000	1.0-1.7
Veneer core (m ³)			

Annex 1 Tree species classification and its minimum diameter for cutting

Table 1 Luxury Class

No	Local Name	Species Code	Scientific Name	MIN DBH
1	Ang kanh	ANKN	<i>Cassia siamealpinées</i>	45cm
2	Angkot Khmao	ANKT	<i>Diospyros bejaudi</i>	45cm
3	Beng	BENG	<i>Pahudia cochinchinensis</i>	45cm
4	Chheu Khmao	CHKM	<i>Diosyros sp</i>	45cm
5	Cheung Chaab	CCHB	<i>Dasymachalon lamentaceum</i>	45cm
6	Chreis	CHRS	<i>Albizzia lebbek</i>	45cm
7	Haisaan/Chansor	HISN	<i>Cassia garretiana</i>	45cm
8	Hundaang	HUDN	<i>Disoxylon Loureiri</i>	45cm
9	Kra Nhuung	KRPM	<i>Dalbergia cochinchinensis</i>	45cm
10	Kreul	KRUL	<i>Melanorrhœa laccifera</i>	45cm
11	Neang Nuon	NNON	<i>Dalbergia bariensis</i>	45cm
12	Taa Traav	TTRV	<i>Fagraea fragrans</i>	45cm
13	Thnong	THNG	<i>Pterocarpus pedatus</i>	45cm
14	Traying	TRYG	<i>Diospyros helferi</i>	45cm

Note: This class is strictly prohibited from cutting

Table 2 Class I

No	Local Name	Species Code	Scientific Name	MIN DBH
1	Bei Leuy	BELY	Litsea veng	45cm
2	Bos Neak	BSNK	Mesua ferrea	30cm
3	Dounchaem Spong	DCSP	Tarrietia javanica	45cm
4	Kaes	KAES	Manikora alexandra	45cm
5	Koki dack	KKDK	Hopea helfera	50cm
6	Koki masao	KKMS	Hopea odorata	50cm
7	Koki Thmor	KKTM	Hopea ferrea	50cm
8	Kra Koh	KRKO	Sindora cochinchinensis	45cm
9	Kra Lanh	KRLA	Dialium cochinchinensis	45cm
10	Mai Sak	MASK	Tectona grandis	45cm
11	Phchek	PCEK	Shorea obtusa	45cm
12	Phkay Prik	PYPK	Azalie bijuga	45cm
13	Po Peil	PPEL	Hopea recopei	50cm
14	Popuul or Phneis	PPUL	Vitex sp.	45cm
15	Raing Phnom	RINM	Pentacme Siamensis	45cm
15	Sam Por	SPOR	Artocarpus sempervirens	35cm
16	Angkat Tmaat	AKMT	Stereospermum cheloneoides	45cm
17	Sdey	SDEY	Crudia chrysantha	30cm
18	Sokrom	SKRM	Xylia dolabriformis	45cm
19	Sralao/Enthaneil	SRLO	Lagerstroemia sp	35cm
20	Smae	SMAE	Ceriops roxburghiana	45cm
21	Traseik/ Tramkang	TRSK	Peltophorum ferrugineum	35cm
22	Triel	TREL	Peltophorum dasyrachis	35cm
23	Woi young	WYNG	Chukrasia tabularis	60cm
24	Chhliik	CHLK	Terminalia tomentosa	45cm

Note: This class is commercial tree species

Table 3 CLASS II

No	Local Name	Species Code	Scientific Name	MIN DBH
1	Atit	ATIT	Hassia cuneata	45cm
2	Chhamm Chhaa	CHMC	Toona febrifuga	30cm
3	Chheu Tiel Bang	CHBG	Diptérocarpus costatus	60cm
4	Kuoy/Neang deang	KYND	Diptérocarpus dyeri	60cm
5	Chheutiel Thngor	CHTR	Diptérocarpus jourdainii	60cm
6	Chheutiel Tik	CHTK	Diptérocarpus alatus	60cm
7	Char Chong	CHRH	Shorea vulgaris	60cm
8	Chramas	CRMS	Vatica astrotricha	30cm
9	Khlong	KHLG	Diptérocarpus tuberculatus	50cm
10	Khchov	KHOV	Shorea thorelli	45cm
11	Koki khsach	KKKS	Hopea pierre	45cm
12	Koki Phnorng	KKPN	Shorea hypochra	45cm
13	Lum boi	LMBI	Shorea sp.	45cm
14	Phdeak	PHDK	Anisoptera glabra	45cm
15	Srakum	SRKM	Payena elliptica	30cm
16	Sral	SRAL	Pinus merkusii	45cm
17	Srol Sor	SROL	Podocarpus cupnessina	45cm
18	Srol Krahorm	SRKR	Dacrydium élatum	45cm
19	Tbaeng	TBEG	Diptérocarpus obtusifolius	45cm
20	ToTim Prey	TTPY		30cm
21	Traach	TRAC	Diptérocarpus intricatus	50cm
22	Tra Lat	TRLT	Vatica philastreana	30cm
23	Khwaav	KWAV	Adina cordifolia	45cm

Note: This class is also commercial tree species

Table 4 Class III

No	Local Name	Species Code	Scientific Name	MIN DBH
1	Aataing/ Rotaing	ATNG	Homalium annamensis	35cm
2	Chan Krisnaa	CHKR	Aquilaria crasna	35cm
3	Chan Tumpaing	CHTP	Sterculia campanulata	45cm
4	Bang kao	BNKO	Aglaia gigantia	35cm
5	Cheik Tum	CKTM	Cinnamomum litsaefolium	30cm
6	ChangUor Thmaat	CHUT		45cm
7	Kandoil	KNDL		45cm
8	Kdol	KDOL	Sarcocephalus cordatus	30cm
9	Khnol Prey	KNPR	Artocarpus altilus	45cm
10	Khtiing	KHTN	Calophyllum saigonensis	30cm
11	Kampiing Reach	KMPR	Sandoricum indicum	45cm
12	Koing Kaang	KOKN	Tout palétuvier sauf Smé	30cm
13	Kra Bao	KRBO	Hydnocarpus anthelmitica,	30cm
14	Kraay Sa	KRYS	Albizzia thorelli	30cm
15	Kraa Sa	KRAS	Kayea engeniafolia	30cm
16	Lo Ngeang	LGNG	Cratoxylon prunifolium	30cm
17	Praa Dam Leng	PRDL	Terminalia mucronata	40cm
18	Pha Ong	PHON	Callophyllum sp.	30cm
19	Priing	PRNG	Eugenia sp.	30cm
20	Pruus	PRUS	Gercinia ferrea	30cm
21	Sam Pung	SMPN	Tetramels nudiflora	60cm
22	Smaa Krabey	SMKB	Knema coricisa	45cm
23	Smach	SMCH	Melaleuca leucadendron	30cm
24	Sway Prey	SWPR	Mangifera indica	45cm
25	Ta Uor	TAUR	Termanlia chebula	45cm
26	ThLork	TLOK	Parinarium annamensis	45cm
27	Tra Muung	TRMN	Garcinia schomburghiana	45cm
28	Tra Maeng	TREN	Carallia lucida	45cm
29	Trabb Tum	TRTM	Crypteronia pani culata	30cm
30	Baay Puu Vaing	BYPV		30cm
31	Sway Chamreang	SYCR	<i>Swintonia pierri</i>	45cm

Note: This class is a non-commercial tree species

FOREST RESOURCES AND THE FOREST PRODUCTS INDUSTRY IN INDONESIA

Muh. Yusram Massijaya, Hariadi Kartodihardjo¹

A. INTRODUCTION

Tropical forests in Indonesia are essentially public lands, managed and protected by the Government of Indonesia. Natural forest utilization in Indonesia was started in the 1970s as a national development program. For the purpose of increasing national revenue to support development programs, a vast utilization program in the natural forest was implemented. Wood was the main product to be utilized.

Indonesia has designated all forest lands according to four classifications in order to ensure a sustainable balance between preservation and development. They have been named: production forests, conversion forests, protection forests, and conservation forests or national parks and wildlife refuges. About 113 million hectares have thus been set aside as permanent forests (for the production, protection and conservation groupings). Another 8 million hectares, mostly covered with shrubs, alang-alang (*Imperata cylindrica*) grasses and small diameter trees of low commercial value, are designated as conversion or convertible production forests. These convertible production forests can be converted into plantations, agricultural lands or used for transmigration purposes and other non forest uses.

A new era in the forest industry really got started in the 1980s when Indonesia placed the production forests under strict regulations based on a favorable silvicultural system. The export of logs was the main industry at that time. In 1984, however, log exports were strictly limited. Since then, however, many plywood industries were set up as the down stream forest products market emerged. The Indonesian plywood industry has become the largest component of the forest products industry in Indonesia and Indonesia is the largest supplier in of plywood made from hardwood. The industry not only has increased the value-added of forest products, but has also expanded available opportunities for employment.

B. FOREST RESOURCES

Early Era

In its early days of forest utilization, Indonesia's forests covered about 140 million ha of forest, which amounted to about 73 percent of its 192 million ha land base. However, only 64.3 million ha of these forests were classified as production forests, 22 percent of which were classified as limited production forest and the balance as regular production forest. In the limited production forest, timber harvesting is permitted if certain environmental concerns are addressed. Only selected felling of trees is permitted. The remaining forests are regular production forests, where production of timber, rattan, saps and other forest products is permitted under government-regulated harvesting and species yields. The area covered by regular production forest is 33 million hectares (Indonesian Forestry Community, 1998). Most of the production forest is natural forest. Plantations on production forests are mainly found on the island of Java, which is mostly dominated by teak forest. Forest utilization activity is carried out by State Owned Enterprises (BUMN) in conjunction with the private sector using a system called Forest Concession Rights (HPH).

Conversion forests, on the other hand, cover about 26.6 million hectares. Some of them have already been converted into transmigration areas and tree crop estates.

The forest areas function as protection forests accounted for 21.9 percent of Indonesian's total

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forest. These forests have unique environmental and hydrological characteristics. They are completely closed to commercial and even recreational uses.

Indonesia also developed an extensive system of conservation forest (national parks and refuges) to protect the country's unique biodiversity. These lands were set aside primarily to preserve flora and fauna. Conservation forests (parks and refuges) comprise 13.4 percent of Indonesia's forests and 9.8 percent of country's entire land base.

Land utilization designated on forest land, as agreed in the early era of forest utilization, is shown in Table 1.

Present Status

During recent years, forest areas in Indonesia have decreased significantly, both in surface area and in quality, and are currently not all forested. Compared to the 140 million hectares of forest area that was available in the early era of forest utilization, at present it is now estimated that the total forest area is only 113 million hectares. This consists of the following: (1) 34.6 million hectares (22.2%) of protection forest, (2) 20 million hectares of park and reservation forest, (3) 23.9 million ha of limited production forest, (4) 34.8 million ha of regular production/non convertible forest, and (5) 8.4 million ha of convertible forest (Directorate General of Forest Inventory and Land Use Planning, 1998).

According to the Indonesian Forestry Community (1998) there are about 22.1 million hectares of former forest areas that are not being forested. These non-forested areas need to be rehabilitated or reforested to become productive again. In this case, natural and man-made regeneration may be applied. In several cases, the Government of Indonesia converted the degraded forests to concessions for industrial plantation of forest (HPHTI). Types and total for HPHTI areas are as follows (1) 0.7 million ha towards transmigration purposes, (2) 2.9 million ha for pulp production and (3) 1.8 million ha for wood production (F. Febrianto and Y.S.Hadi, 1999).

Forest areas classified as protection forests and conservation forests are off limits to forest harvesting activities and their regulations are strictly maintained. They are designed to serve for hydrological and conservation functions. In order to rehabilitate deforested and degraded forests, reforestation programs through the establishment and development of plantation forests are necessary.

The current number of Forest Concession Holders (HPH) is 477 units, with an area of 54.1 million ha. After being hit by extensive forest fires and in order to meet demands for reform, Indonesian forestry development programs are now being revised by related parties (government, private sectors, communities and non government organizations) to work towards more positive, sustainable forest management practices. The number of Forest Concession Holders (HPH) up to now is 477 units which cover 54.1 million ha of forest area. Before reforms of the system, there were 657 units held by concession holders, covering 69.2 million ha of forest area. A total of 210 forest concessions were revoked due to improper forest utilization management or their licenses expired without renewal approval from the Government of Indonesia.

The utilization of forests in Indonesia should be based on the "Sustainable Yield for Multiple Use Principle." This principle is known as an Indonesian basic forestry principle. Theoretically, this principle indicates a strong intent to enforce and implement very constructive forest management practices. In practice, however, implementation of the principle is weak and not properly applied.

Nearly 73 percent of the production forests are in mountainous areas which grow mainly commercial species such as *Shorea spp*, *Dipterocarpus spp.*, *Dryobalanops spp*, *Instia spp*, *Agathis spp*, *Pericopsis mooniana*, *Eucalyptus deglupta*, *Swiethenia mahagoni*, *Pometia pinnata*, *Cinnamomun spp*, *Dalbergia latifolia*, *Pterocarpus indicus*, *Dacridium spp*, *Hopea spp*, *Intsia bijuga*, *Anisoptera costata*, *Quercus spp*, *Alstonia spp*, and *Vatica spp*, etc. These commercial species produce an average volume of about 40 - 50 m³ of timber per ha.

C. WOOD SUPPLY

Log production activity in Indonesia is carried out by State-Owned Enterprises (BUMN) in

conjunction with the private sector using a Forest Concessionaire system (HPH), under direct control of the Ministry of Forestry and Estate Crops. At present, 447 units HPH have been granted, covering a combined forest area of 54.1 million ha in the production and limited production forest. A summary of log production from natural forest areas in Indonesia during the last 5 years is shown in Table 2.

This table shows that log production from production forests decreased significantly at the same time that log production from conversion forest and other resources increased. This phenomenon suggests that the production forest decrease may have been due to improper forest management and excessive exploitation in the past years. Increasing log production from conversion forests and other sources indicate that other forest resources decreased over time quantitatively and qualitatively.

Average annual log production from natural forests is about 26 million meters. This figure is much less than the raw material that would be required to support a forest products industry in Indonesia, if it were operating at full capacity. In order to address this problem, the Government of Indonesia is promoting and speeding up its plantation forest program. Their total target (not including *Tectona grandis*) is for 6 million ha. By the end of 1999, forestry plantations had reached about 2.3 million ha, especially through the demand for fiber and sawn timber production. The dominant tree species in the plantation forests are *Acacia mangium*, *Paraserianthes falcataria*, *Eucalyptus spp*, *Meranti spp* and *Hevea brasiliensis*.

One of the State-Owned Enterprises (BUMN) in Java Island which is very active in developing plantation forestry is Pt. Perum Perhutani. Until 1995, BUMN were developing plantation area of about 2.9 million ha. This figure is 70 percent of the total plantation forest in Indonesia. Species and total area of plantation forest at Forestry State Enterprise on Java Island (Pt. Perum Perhutani) are shown in Table 3.

The dominant tree species planted by Pt. Perum Perhutani, as shown in Table 3, are teak, pine and mixed tropical hardwood. Log production from plantations and community forests during the last five years are shown in Table 4. This table indicates that the average log production from plantation forests and community forests during the last five years was about 2.6 million cubic meters annually. This figure is much less than similar log production from natural forests during the same period.

It is predicted that, in the coming years, log production from natural and planted forests under sustained yield management will decrease sharply. Table 5 shows the prospects for Indonesian annual log production during the next five years.

Table 5 displays a very wide range of predictions for Indonesian annual log production for the next five years. The most pessimistic reports predict the failure of log production from plantation forests, from community forests, as well as from conversion forests. More moderate and optimistic predictions differ only in the results of log production from the conversion forests. Even though several forestry experts conducted this study, it is hard to believe that optimistic or even moderate predictions for log production will still come true, given the present condition of the forest resources.

From 1985 to 1997, the Government of Indonesia technically banned log exports through the implementation of a 200 percent export tax. However, in mid-1997, the Government of Indonesia and the International Monetary Fund (IMF) reached an agreement to allow log exportation to a maximum of 5 million cubic meters per year. The tax was to be cut to 30 percent in June 1998, 20 percent at the end of 1998, then 15 percent at the end of 1999 and will be further reduced to 10 percent in the year 2000 (Adhar, 1998).

Log prices (Meranti) on the domestic market were much lower than on international markets (Serawak). Many forestry experts think that the practice of underpricing logs is the result of the vertical integration between forest concession holders (HPH) and forest products industries, especially the plywood industry. Table 6 compares domestic and international log prices for 1999.

D. CONDITION OF THE FOREST PRODUCTS INDUSTRY IN INDONESIA

The major forest products in Indonesia are from the wood-based industries. These kinds of operations use raw materials from domestic natural and planted forests. This has helped Indonesia counterbalance the effects of the recent economic crisis.

Table 7 divides the major forest products industries into two categories according to their relationship with other forest concessions. The ones that are integrated to other forest concessions include sawmills, plywood, pulp and paper, blockboard and chipmills. Their total average capacity and raw materials required are about 22 million and 52.5 million cubic meters per year, respectively. Raw materials for these kinds of industries are provided locally through their subsidiaries, or concessions.

The forest products industries which are not integrated to forest concessions are usually smaller scale sawmills, some plywood and blockboard producers, chopsticks, matches, chipmill, lunch boxes and pencil slats. The dominant businesses in this group are the sawmills. The total raw materials required by these kinds of industries are 17.1 million cubic meters annually. In total, therefore, Indonesia's forest products industry needs about 69.7 million cubic meters per year.

The following is a description of the major forest products sectors in Indonesia.

1. Sawmills

Private sawmills started the Indonesian wood industry, long before forest concessions were ever granted. Some of the sawmills are integrated with woodworking, furniture and other trades. By 1998, sawmills had a total annual production capacity of nearly 11.1 million m³ of sawnwood. These component industries have a very strategic impact on the national economy, because their products earn relatively high returns and also because these industries are able to employ a great number of people.

Depending on their source of raw materials, sawmills can be classified into the ones that are integrated with forest concessions (HPH) and those that are not. In July 1998, there were 125 sawmills integrated to HPH while 1,493 units had no such connection. Their overall production capacity was 3.7 million m³ for the first and 7.4 million m³ for the latter, for a total of about 11.1 million m³ annually. Because their average recovery rate from raw materials to finished products is about 55 percent, they would need about 20.2 million m³ of raw materials annually, if they were operating at full capacity.

In 1996/1997, the total sawntimber production was 3.4 million m³, mostly for the domestic market. Due to over-exploitation, forest fires, illegal cutting, etc., the availability of high quality raw materials for the sawmills is becoming scarce, while most of the timber estate logs are not suitable for production of high quality sawntimber. Sawntimber production from 1987 to 1997 is shown in Table 8.

To solve the raw material problem, considerable improvement and planning is needed. It will also be necessary to use substitute materials such as rubber wood, coconut wood, and timber from oil palm trees. Oil palm wood could be extracted from the regenerated oil palm tree (25-30 years old) which is so far considered as waste.

A comparison of domestic and export prices of sawntimber is shown in Table 9.

2. Plywood and blockboard industries

Plywood is the most popular wood product in Indonesia. The plywood industry grew rapidly after 1973. At that time, there were only two plywood companies in the country with a total annual production capacity of 28,000 m³. In January 1995, there were 120 different plywood companies with a total annual production capacity 10.4 million m³. In order to be more efficient, most of the plywood corporations are integrated with the blockboard industry.

In 1996/1997 before the economic crisis, plywood production was 10.95 million m³. Table 10 shows the gradual increase of plywood production over the preceding ten years.

During the economic crisis of 1997/1998, the production and export of plywood dropped. However, in the third quarter of 1998, the demand for plywood from the Asian market had again begun to rise, as evidence by an increase in the foreign market price of plywood. The situation, therefore, is expected to improve and, at the same time, stimulate local plywood companies to increase their production (APKINDO, 1998).

Technically, the present plywood industry can be summarized as follows: (1) decreasing supply

of raw materials, qualitatively and quantitatively; (2) recovery rate relatively low (averaging 52%); (3) main type of product is concrete panel (i.e., plywood used for concrete forms in construction); (4) most of the raw materials come from natural production forests; (5) several plant operations have been using small-diameter peelers to increase processing recovery rate.

More than 80 percent of the produced plywood is exported to Japan, United States, Canada, Singapore, Middle East countries, and others. However, most of the exported plywood is raw plywood. This type of plywood is usually reprocessed in the importing countries to produce finished products with a higher price. In order to gain better returns from the plywood industry, the government has been encouraging plywood manufacturers to produce and export finished plywood. It would therefore seem that the export of fancy veneer overlaid plywood, especially teakwood veneer, will increase in the coming years. Table 11 compares some of these costs.

The cost structure in Table 11 was based on the plywood industry in Pekanbaru, Riau. The production capacity is 48,000 m³/year. The plywood domestic price at that time was Rp 434,650.98/m³. This price was 27 percent lower than international market prices. Table 12 compares some of these costs.

3. Particleboard industry

The particleboard industry did not grow as well as the plywood sector. At present, there are 39 particleboard plants with an annual capacity of only 470,000 m³. Most particleboard is made from sawmill wastes, which were collected from nearby mills. All the products are sold in the domestic market to support local furniture and cabinet industries. The average recovery rate in the particleboard industry in Indonesia is 84 percent.

Table 13 shows a sample cost structure in the particleboard industry based on operations in Padalarang, Bandung. Their production capacity is 90,000 m³/year. According to ITTO (1999), the particleboard domestic price in June 1999 was U.S.\$120 - 125/m³. This price was higher than the export price at the same time (U.S.\$105 - 120/m³).

4. Fiberboard Industries

The fiberboard industry is relatively new in Indonesia. The first fiberboard products in Indonesia were medium density fiberboard (MDF). Insulation board and hardboard products are not available in Indonesia. The first MDF plant was constructed in 1995. FAO projected that Indonesia's share in fulfilling world demand for MDF panel would grow from 15 to 18 percent in the next decade, while plywood is projected to decrease from 45 to 40 percent.

Seven MDF plants are producing the panels with a total annual capacity of 0.53 million cubic meters (Anonymous, 1999; F. Febrianto and Y.S. Hadi, 1999). The raw materials for fiberboard are supplied by industrial plantation forests. Most of the MDF products are sold in the domestic market, especially to support local furniture industries.

The average recovery rate from raw material to finished product in the MDF industry in Indonesia is 58.83 percent. Table 14 shows an approximate cost breakdown.

The cost structure in Table 14 was based on MDF industries in Indonesia. Their production capacity is 100,000 m³/year. According to ITTO (1999), the MDF domestic price in June 1999 was U.S.\$160 - 165/m³. This price was higher than the export price at the same time (U.S.\$135 - 145/m³).

5. Pulp and Paper Industries

The deterioration of the quality and quantity of forest resources in Indonesia forced the issue of reforming the forest products industries to become a priority. The pulp and paper industry will no doubt be one of the very popular industries in the near future because the worldwide demand for pulp and paper is regularly increasing. At the same time, this industry can provide a market for a wide range of lower grade raw materials.

All of the pulp and paper industries in Indonesia are integrated with forest concessions in order to ensure a steady supply of raw materials. By July 1998, there were 80 pulp and paper operations in the country with a total production capacity of 5,595,280 tons per year. Their average recovery rate from the raw material stage to finished product is 5 cubic meters of raw materials for 1 ton of pulp. If all these pulp and paper operations were producing their products at maximum capacity, they would need about 28 million cubic meters of raw materials per year. Table 15 provides a breakdown of these productions.

Table 15 shows that, during the five years of the study, Indonesia's pulp and paper plants were never operating at full capacity: 68.49 percent in 1992, 71.83 percent in 1993, 78.66 percent in 1994, 76 percent in 1995 and 73.64 percent in 1996. So far, most of the pulp and paper production goes to fill the domestic market. Table 16 provides a breakdown of costs. The cost structure in Table 16 was based on the pulp and paper industries in Padalarang, Bandung. Their production capacity is 16,900 ton/year.

E. ECONOMIC ASPECTS OF THE FOREST PRODUCTS INDUSTRY IN INDONESIA

1. Job opportunities in the Forest Products Industry

Job opportunities are currently one of the most critical issues in Indonesia. Due to the economic crisis, the number of unemployed persons increased sharply at all levels. The forest products industry in Indonesia has helped to create many job opportunities, both for Indonesian and foreign workers in various disciplines and specializations. In 1999 a total of 441,091 persons worked in the forest products industry. This scale of employment not only has strategic economic significance, but also helps to address the employment crisis in the rest of society. Table 17 shows that work opportunities are spread through a broad spectrum of the industry.

Table 17 describes very clearly the tremendous impact that the forest products industry has had upon Indonesia's economy and overall society. During 1999, 147,604 persons (33.46%) worked in the plywood sector, 74,392 persons (16.86%) worked at molding and building components, 68,696 persons (15.75%) worked at laminated plywood including decorative plywood, 61,932 persons (14.04%) worked in the paper industry, 13,649 persons (3.09%) worked in the pulp industry, 53,139 persons (12.05%) worked at sawmills, 21,454 persons (4.86%) worked to produce core plywood and 225 (0.05%) worked in the veneer industry.

2. Added value

The added value of forest products changes from time to time according to the effect of the market price and production levels. The added value of a certain industry depends upon its effectiveness in dealing with market competition and the market price.

Based on statistical data for 1999, the plywood industry is the most highly rated added value industry, followed by laminated plywood (including decorative plywood). However, if the plywood industry was compared to further processing of sawmill products such as the furniture industry, moldings, wood carvings... etc., the added value of the plywood industry is lower. A comparative ranking of forest products is shown in Table 18.

Table 18 shows that the plywood industry is the best in percentage of raw material utilization. However, wood carving is the best in the categories of workforce, salary and added value. In the category of direct tax, core plywood is the best. On the contrary, the veneer industry was given a poor score with regards raw materials, workforce, salary, direct tax and added value.

3. Foreign Exchange Earnings

The contribution of the forest products industry to Indonesia's foreign exchange earnings

increases significantly from time to time, with the most dramatic increases in the plywood sector. The contribution of sawmill industries, on the other hand, showed a significant decrease in foreign exchange earning caused by the implementation of a high export tax for lumber. Furthermore, the supply of raw materials was dominated by the plywood industries.

Table 19 charts some of these contributions, between 1969 and 1998.

Table 19 shows that contributions to Indonesia's foreign exchange earnings have been dominated by the plywood industry, especially during the period from 1983 until now. Before that, from 1969 to 1974, when the plywood industry had not yet been established, foreign exchange earnings were dominated by primary logging and lumber. Then, in the period between 1985 and 1998, the export of logs was banned by the Government of Indonesia in order to gain more added value for itself by establishing other types of forest production in Indonesia... hence, the emergence of the plywood sector.

According to APKINDO (1998), the production of wood panels during the last decade was 87.7 million cubic meters, and the highest one-year period was 10.9 million cubic meters, during the 1996/1997 season. At the same time, log production was 25.9 million cubic meters, and lumber was 42.98 million but the export volumes fluctuated more than production. For the last five years (1992-1997) the lumber export was about U.S.\$10.5 million while the plywood exports were averaging U.S.\$19.96 billion, with the highest one-year value of U.S.\$4.75 billion in the 1993/1994 period. The plywood export value tended to remain stable, while lumber exports decreased dramatically when the export value for 1992/1993 was U.S.\$3.59 million and only U.S.\$46,749 for 1996/1997.

In the third quarter of 1998, the demand of plywood from Asian markets began to increase. This seems to be related to foreign market prices. Recently, the price for thin panel plywood in China had reached U.S.\$300 from U.S.\$250 per cubic meter in the first quarter, while in Japan, a similar trend went from US \$ 210 to US \$290 and 300 per cubic meter for concrete panel plywood during the same time. The situation, therefore, is expected to stimulate local plywood industries to increase their production. However, due to the shortage of log supplies, the dominant raw material price will likely rise from Rp 550.000 to Rp 700.000 per cubic meter (Abbas, 1998). (See Table 20.)

During the 1996-1997 period, foreign exchange earnings from rattan and rattan-based products tended to decrease. In 1996, the foreign exchange earnings from rattan and rattan-based products were U.S.\$337.075 million, and in 1997 were only U.S.\$195.011 million. Following the same trend as for rattan and rattan-based products, exchange earnings from furniture and handicraft products is also inclined to decrease. In 1996, they were U.S.\$547.464 million and in 1997, they were U.S.\$527.245 million. It is projected that, in 1998, the foreign exchange earnings from rattan and rattan based products woodworking products, and wood panel products will increase to U.S.\$204.762 million, furniture and handicraft products will go to U.S.\$553.607 million, lumber and woodworking products to U.S.\$1.182 billion, and U.S.\$2.682 billion. It is also predicted that foreign exchange earnings from pulp and paper products will be the greatest of wood industry products in 1998, amounting to U.S.\$3.532 billion.

On the other hand, it has been noted that since the increment of the other non-oil and gas commodities in the period of 1988-1997 the contribution of wood products to the total value of non-oil exports was inclined to decreased, from average of 30 to 20 percent. The details are shown in Table 21.

F. RECOMMENDATIONS FOR BETTER CONDITIONS FOR INDONESIAN FOREST RESOURCES AND THE FOREST PRODUCTS INDUSTRY

In recent years, the forest resources and forest products industry in Indonesia has been facing several serious issues, such as illegal cutting, weaknesses in the implementation of forestry regulations, eco-labeling, forest products industry structure and issue of corruption, collusion and nepotism in the Forestry and Timber Estate Crops Department.

The Government of Indonesia cannot address these problems alone. Forest concession and forest products industry businessmen, related experts, and society should actively take initiative and

work together to find out the best solutions.

In response to the demand of reform, the Government of Indonesia has urged the HPH companies to further involved in empowering local people and other stakeholders that previously have not obtained sufficient benefits from Indonesian forests. The local communities near forest have to be involved in forest utilization activities. The government plans to restrict the area allocated to each concession applicant, and also plans to give bigger role to local cooperatives in forest utilization. For this, HPH licenses, which have been revoked, will be re-allocated to cooperatives and the larger HPH areas will be subdivided or re-allocated. Indonesian forestry communities will no doubt support the government policies because their purpose is to achieve better performance in Indonesian forestry. However, to attain sustainable forest management, a concern strongly felt in Indonesia, it would be wise to consider the issues of forest management comprehensively.

In order to stabilize raw materials of the forest products industry, the Government of Indonesia should make serious efforts to ensure the sustainability of their supply by enforcing the following: (1) continuing efforts to increase the efficiency of wood utilization by increasing recovery rates, utilization of wood waste, productivity and utilization of lesser-used species; (2) improving implementation of existing regulations; (3) creating support and alternative raw materials for the forest products industry; and (4) facilitating the implementation of eco-labeling in forest concessions and the chain of custody in the forest products industry.

HPH holders must focus and be fully disciplined to maintain the sustainability of Indonesia's forests and to preserve the environment from threats of degradation. They also must maintain forest biodiversity and ecosystems by implementing sustainable forest management practices and adopting the ISO 14000 series environmental management systems. This actions is very important to address the rapid changes anticipated in the early twenty-first century,

In order to improve the state of the forest products industry, the following actions are needed: utilize raw materials more efficiently, implement total quality management principles, conduct research and development on their products, and establish a wood data center for production and marketing needs.

It is hoped that society as a whole will become more critical and actively control the activities of the forest resources and forest products industries. In some areas, the oversight by society and transparency are still the most effective efforts to address problems with corruption, collusion and nepotism.

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Table 1. Land utilization. (Early era)

No.	Forest type	Purpose	Exploitation	Area (million ha)
1.	Conservation forest	Nature and genetic conservation	Prohibited	18.8
2.	Protection forest	Water and soil conservation	Prohibited	30.7
3.	Limited production forest	Erosion prevention and timber production	Selective felling	31.3
4.	Regular production forest	Timber production	Selective cutting	33.0
5.	Conversion forest	Conversion to agriculture or other uses	Clear cutting	26.6

Source: Ministry of Forestry, Republic of Indonesia, 1997.

Table 2. Log production from natural forests.

Year	Log production (1,000 m ³)			
	Production forest	Conversion forest	Others	Total
1994/1995	17,309	4,709	1,988	24,027
1995/1996	16,944	5,398	2,488	24,850
1996/1997	15,268	8,021	2,718	26,069
1997/1998	15,821	10,162	3,537	29,520
1998/1999	9,961	10,350	5,182	25,492
Total	75,303	32,729	12,987	129,959
Average	15,081	7,728	3,207	25,992

Source: Directorate General of Forest Utilization, 1999.

Table 3. Species and total areas of plantation forest at the Forestry State Enterprise on the island of Java (Pt. Perum Perhutani).

Wood species	Area (1,000 ha)
Jati (<i>Tectona grandis</i>)	1,358
Pinus (<i>Pinus merkusii</i>)	945
Damar (<i>Agathis</i> sp.)	168
Mahoni (<i>Swiethenia macrophylla</i>)	116
Kayu putih (<i>Melaleuca leucadendron</i>)	12
Kesambi (<i>Scleichera oleosa</i>)	4
Bakau (<i>Rhizophora</i> sp.)	50
Sengon (<i>Paraserianthes falcata</i>)	10
Meranti (<i>Shorea</i> spp)	29
Sonokeling (<i>Dalbergia latifolia</i>)	28
Mixed tropical hardwood	229
Total	2,949

Source: Perum Perhutani, 1995.

Table 4. Log production. (last 5 years).

Year	Log production (1,000 m ³)		
	Plantation forest	Community forest	Total
1994/1995	1,872	138	2010
1995/1996	2,383	125	2508
1996/1997	2,097	682	2779
1997/1998	2,247	1,290	3537
1998/1999		4,616	565 5181
Total	10,252	2,735	12,987
Average	2,643	560	2,597.4

Source: Directorate General of Forest Utilization, 1999.

Table 5. Forecasts of Indonesian annual log production in 1999/2000 - 2003/2004.

Log source	Prediction of log production (million m ³)		
	Pessimistic	Moderate	Optimistic
Production forest	18.26	18.26	18.26
Plantation forest	1.70	22.08	22.08
Community forest	0	2.54	2.54
Conversion forest	0	0	14.43
Total	19.96	42.80	57.31

Source: Directorate General of Forest Utilization, 1999.

Table 6. Comparisons of domestic and international log prices in 1999.

No.	Country	Price in 1999 (U.S.\$/m ³)	
		June	September
1.	Malaysia (Serawak)		
	- Meranti	145 – 155	155 - 160
	- Keruing	135 – 140	140 - 145
	- Kapur	120 – 125	130 - 140
2.	Papua New Guinea		
	- Taun, Calophyllum	110 – 115	130 - 135
	- Ammora, Hopea	90 – 95	100 - 110
3.	Indonesia		
	- Meranti	80 – 100	85 - 100
	- Mahoni	420 – 435	420 - 435

Source: Tropical Timber Market Report, International Tropical Timber Organization, 1999.

Table 7. Primary forestry industry in Indonesia to July 1998

No.	Industry	Unit	Capacity (m ³ /year)
A. Integrated to forest concession			
1	Sawmill	125	3,661,525
2	Plywood	102	10,131,279
3	Pulp and paper	80	5,595,280
4	Blockboard	58	1,654,934
5	Chipmill	5	915,236
Raw material need (m ³ /year)			52,514,978
B. Not Integrated to Forest Concession			
1	Sawmill	1,493	7,386,558
2	Plywood	5	301,816
3	Blockboard	20	430,804
4	Chopstick	47	1,530,557
5	Match	8	6,576,800
6	Chipmill	2	1,008,000
7	Lunch Box	3	7,530
8	Pencil slat	6	40,000
Raw Material Need (m ³ /year)			17,146,576
Total Raw Material Need (m ³ /year)			69,661,554

Source: Department of Forestry and Estate Crops, 1998.

Table 8. Indonesian sawntimber production from 1987 to 1997.

No.	Year	Sawntimber Production (m ³)
1.	1987/1988	9,750,080
2.	1988/1989	10,237,500
3.	1989/1990	3,919,249
4.	1990/1991	3,117,000
5.	1991/1992	3,006,046
6.	1992/1993	3,534,356
7.	1993/1994	2,244,000
8.	1994/1995	1,729,839
9.	1995/1996	2,014,193
10.	1996/1997	3,426,740
Total		42,979,003
Average		4,297,900.3

Source: Directorate General of Forest Utilization, 1999.

Table 9. Comparisons of domestic and export price of sawntimber in 1999.

Month	Domestic price US \$	Export price (US \$) based on country source		
	Jakarta	Peru	Brazil	Malaysia
June	225 - 385	294 - 830	150 - 850	180 - 785
September	205 - 385	159 - 710	155 - 608	180 - 810

Source: Tropical Timber Market Information, International Tropical Timber Organization, 1999.

Table 10. Indonesian plywood production from 1987 to 1997.

No.	Year	Plywood Production (m3)
1.	1987/1988	6,385,350
2.	1988/1989	6,026,678
3.	1989/1990	8,843,000
4.	1990/1991	9,415,000
5.	1991/1992	9,123,500
6.	1992/1993	9,874,000
7.	1993/1994	9,924,000
8.	1994/1995	8,066,400
9.	1995/1996	9,122,401
10.	1996/1997	10,947,633
Total		87,727,962
Average		8,772,796.2

Source: Directorate General of Forest Utilization, 1999.

Table 11. Cost structure of the plywood industry in Indonesia.

No.	Item	Cost	
		Rp/year	Rp/m ³
1.	Investment	13,614,077,519.00	28,362.66
2.	Fixed costs	1,174,427,695.00	24,467.24
	a. Salaries	784,510,914.00	16,343.98
	b. Insurance	207,113,941.00	4,314.87
	c. Land and building tax	1,000,000.00	20.83
	d. Fixed overhead	181,802,840.00	3,787.56
3.	Variable costs	12,697,006,194.00	264,520.96
	a. Logs	7,558,059,143.00	157,459.57
	b. Auxiliary material	1,307,874,543.00	27,247.39
	c. Electricity, fuel, lubricant	70,607,869.00	1,471.00
	d. Wages	885,506,000.00	18,448.04
	e. Variable overhead cost	2,874,958,639.00	59,894.97
	Total cost	27,485,511,408.00	317,350.87

Source: Herwin Purnomo. 1998. Sensitivity analysis of raw material cost changes on profitability of some wood industries.

Table 12. Comparisons of domestic and export price of plywood in 1999.

Month	Domestic price US \$	Export price (US \$) based on country source		
	Jakarta	Indonesia	Brazil	Malaysia
June	195 - 230	240 - 380	270 - 360	215 - 380
September	215 - 275	235 - 395	285 - 370	225 - 395

Source: Tropical Timber Market Information, International Tropical Timber Organization, 1999.

Table 13. Cost structure of the particleboard industry in Indonesia.

No.	Item	Cost	
		Rp/year	Rp/m ³
1.	Investment	49,882,855,946.26	
	a. Machinery and equipment	35,455,272,845.23	
	b. Buildings and equipment	14,177,583,101.03	
	c. Preparation and planning	250,000,000.00	
2.	Fixed costs	8,834,082,991.95	98,156.48
	a. Routine cost for office	5,898,898,571.91	65,543.32
	b. Salaries	219,480,000.00	2,438.67
	c. Expending for mess	991,167.00	11.01
	d. Depreciation of machinery	2,354,192,103.04	26,157.69
	e. Insurance of machinery	148,497,900.00	1,649.98
	f. Insurance of plant, buildings and office	212,023,250.00	2,355.81
3.	Variable costs	10,296,116,610.06	114,401.30
	a. Logging wastes	510,798,857.14	5,675.54
	b. Transportation cost of wastes	2,270,216,571.43	25,224.63
	c. Auxiliary materials	5,556,347,634.61	61,737.20
	d. Fuel	382,188,382.72	4,246.54
	e. Maintenance of machines	327,758,311.58	3,641.76
	f. Routine cost of plant	1,013,647,856.01	11,262.75
	g. Packaging costs	235,158,996.57	2,612.88
	Total cost	19,130,199,602.01	212,557.77

Source: Fajarlina, Yully. 1997. Added value analysis and domestic resource cost of MDF in Indonesia.

Table 14. Cost structure of MDF industry in Indonesia.

No.	Item	Cost	
		Rp/year	Rp/m ³
1.	Investment	5,026,087.00	5.03
	a. Machinery and equipment	3,572,782.00	
	b. Engineering fees	403,630.00	
	c. Construction work	161,413.00	
	d. Operation supervision	139,079.00	
	e. Training fees	211,270.00	
	f. Overhead	178,639.00	
	g. Contingencies	359,274.00	
2.	Fixed costs	505,295,975.00	5,052.96
	a. Salaries	428,280,000.00	4,282.80
	b. Insurance and social costs	63,838,748.00	638.39
	c. Land and building tax	5,760,000.00	57.60
	d. Fixed overhead costs	7,417,227.00	74.17
3.	Variable costs	17,005,021,426.00	170,050.21
	a. Logs	15,537,588,625.00	155,375.89
	b. Auxiliary materials	753,243,728.00	7,532.44
	c. Electricity	69,060,950.00	690.61
	d. Maintenance cost	34,641,130.00	346.41
	e. Administration cost	18,839,224.00	188.39
	f. Transportation cost	15,628,453.00	156.28
	g. Marketing cost	117,005,762.00	1,170.06
	h. Wages	189,776,013.00	1,897.76
	i. Variable production costs	269,237,541.00	2,692.38
	Total cost	17,515,343,488.00	175,108.20

Source: Herwin Purnomo. 1998. Sensitivity analysis of raw material cost changes on profitability of some wood industries.

Table 15. Condition of pulp and paper industry in Indonesia, 1992 - 1996.

No.	Explanation	Year				
		1992	1993	1994	1995	1996
1.	Production capacity					
	a. Paper	3,304,000	3,580,600	3,882,350	4,472,500	5,595,280
	b. Pulp	1,100,000	1,334,700	2,054,700	2,608,600	2,740,600
2.	Production					
	a. Paper	2,262,800	2,572,100	3,054,000	3,425,800	4,120,490
	b. Pulp	870,000	900,000	1,314,300	2,022,120	2,560,510
	c. Waste paper	430,000	528,300	630,000	700,000	980,000
3.	Import					
	a. Paper	114,600	111,400	171,300	140,110	197,700
	b. Pulp	447,700	705,700	687,000	511,850	836,080
	c. Waste paper	882,500	872,400	1,009,500	1,054,150	1,297,000
4.	Export					
	a. Paper	533,000	591,800	826,200	924,520	1,198,220
	b. Pulp	111,000	123,600	43,200	576,200	1,127,390
5.	Consumption					
	a. Paper	1,844,400	2,091,700	2,399,100	2,641,390	3,119,970
	b. Pulp	1,206,700	1,428,100	1,758,100	1,957,770	2,269,200
	c. Waste paper	1,312,500	1,398,700	1,639,500	1,754,150	2,277,000

Source: E. G. Togu Manurung and Aritta Suwarno, 1999.

Table 16. Cost structure of pulp and paper industry in Indonesia.

No.	Item	Cost	
		Rp/year	Rp/m ³
1.	Investment	5,026,087.00	29.74
	a. Machinery and equipment	3,572,782.00	
	b. Engineering fees	403,630.00	
	c. Construction work	161,413.00	
	d. Operation supervision	139,079.00	
	e. Training fees	211,270.00	
	f. Overhead	178,639.00	
		g. Contingencies 359,274.0 0	
2.	Fixed costs	505,295,975.00	29,899.17
	a. Salaries	428,280,000.00	25,342.01
	b. Insurance and social costs	63,838,748.00	3,777.44
	c. Land and building tax	5,760,000.00	340.83
	d. Fixed overhead costs	7,417,227.00	438.89
3.	Variable costs	4,229,462,785.00	250,264.07
	a. Logs	2,762,029,984.00	163,433.73
	b. Auxiliary materials	753,243,728.00	44,570.63
	c. Electricity	69,060,950.00	4,086.45
	d. Maintenance cost	34,641,130.00	2,049.77
	e. Administration cost	18,839,224.00	1,114.75
	f. Transportation cost	15,628,453.00	924.76
	g. Marketing cost	117,005,762.00	6,923.42
	h. Wages	189,776,013.00	11,229.35
	i. Variable production costs	269,237,541.00	15,931.22
	Total cost	4,739,784,847.00	280,192.98

Source: Herwin Purnomo, 1998. Sensitivity analysis of raw material cost changes on profitability of some wood industries.

Table. 17. Workforce distribution in the forest products industry of Indonesia.

No.	Forest Products Industry	Workforce (persons)
1.	Sawmill	53,139
2.		Molding and building components 74,392
3.	Plywood	147,604
4.	Laminated plywood including decorative plywood	68,696
5.	Core plywood	21,454
6.	Veneer	225
7.	Pulp	13,649
8.	Paper	
	Cultural paper	35,211
	Industrial paper	18,272
	Tissue paper	5,078
		Others 3,371
Total workforce		441,091

Source: E.G.Togu Manurung and Aritta Suwarno. 1999.

Table 18. Ranking of Forest Products Industry based on raw material, workforce, salary, direct tax and added value.

No.	Forest Products Industry type	Raw material (%)	Workforce (person/m ³ log)	Salary (Rp/m ³ log)	Direct tax (Rp/m ³ log)	Added value (Rp/m ³ log)
1	Plywood	1	8	7	7	8
2	Sawmill	2	4	4	3	4
3	Molding	3	2	2	2	2
4	Laminated plywood	4	9	9	8	5
5	Household tools	5	5	5	4	6
6	Core plywood	6	3	3	1	3
7	Other goods	7	6	6	6	7
8	Container	8	7	8	9	9
9	wood Scarf	9	1	1	5	1
10	Veneer	10	10	10	10	10

Source: Manurung and Arrita Suwarno, 1999.

Table 19. Foreign exchange earnings of log, lumber, plywood for 1969 to 1998.

Year	Foreign Exchange Earning (US \$)			
	Log	Lumber	Plywood	Total
1969	26,015,000	957,000	0	26,972,000
1970	10,063,500	1,125,135	0	101,760,135
1971	160,823,117	2,737,256	0	163,560,373
1972	218,557,935	3,754,241	0	222,312,176
1973	564,133,967	19,120,518	0	583,254,485
1974		695,655,410	27,724,400	0
1975	468,538,048	31,438,384	64,145	500,040,577
1975	468,538,048	31,438,384	64,145	500,040,577
1976	729,286,561	52,486,240	914,869	782,687,670
1977	900,972,996	50,297,277	1,446,520	952,716,793
1978	995,072,299	85,760,244	10,330,256	1,091,162,799
1979	1,551,326,418	245,330,771	31,720,187	1,828,377,376
1980	1,559,303,938	258,104,367	55,736,463	1,873,144,768
1981	664,308,224	221,416,801	150,175,389	1,035,900,414
1982	312,143,267	232,788,000	282,270,007	872,201,274
1983	28,579,000	28,488,100	507,308,000	564,375,100
1984	150,050,000	305,327,000	657,820,000	1,113,107,000
1985	0	334,639,000	77,743,100	412,382,100
1986	0	438,965,708	100,351,773	539,317,481
1987	0	632,615,490	1,754,527,022	2,387,142,512
1988	0	713,086,084	2,297,738,349	3,010,824,433
1989	0	623,016,748	2,707,472,638	3,330,489,384
1990	0	15,376,368	3,023,833,314	3,039,209,682
1991	0	14,637,289	3,161,150,098	3,175,787,387
1992	0	539,212	3,520,445,420	3,520,984,632
1993	0	4,000,000	4,752,000,000	4,756,000,000
1994	0	2,047,051	3,372,870,040	3,374,917,091
1995	0	2,047,051	3,372,870,040	3,374,917,091
1996	0	849,586	3,854,178,215	3,855,027,801
1997	0	46,749	4,429,477,446	4,429,524,195
1998*	0	3,662	230,680,467	230,384,129

Source: Manurung and Arrita Suwarno, 1999.

* denotes forecast

Table 20. Foreign exchange earnings of forestry products 1993 - 1998.

No.	Products	Foreign exchange earnings (thousand US \$)					
		1993	1994	1995	1996	1997	1998*)
	Rattan and rattan-based good	335,501	348,133	368,182	337,075	195,011	204,762
	Furniture and handicraft	313,352	402,435	458,720	547,464	527,024	553,607
	Lumber and wood working	864,451	1,079,377	1,087,762	1,067,341	1,125,734	1,182,021
	Wood panel	4,589,235	4,038,405	3,886,944	4,034,774	3,887,923	2,682,000
	Pulp and paper	405,060	739,955	1,257,950	1,760,000	1,936,000	3,532,000
	Total	6,506,600	6,608,385	7,059,558	7,746,654	7,671,913	8,154,390

Source: Abbas Adhar, 1998.

* denotes forecast.

Table 21. Wood product exports contribution to the foreign exchange earnings.

Year	Wood product exports (000 U.S.\$)	Non oil export (000 U.S.\$)	Oil export (000 U.S.\$)	Wood products contribution (%) to	
				Non oil exports	Total exports
1988	3,382,591	11,536,900	7,681,600	29.32	17.60
1989	4,374,422	13,480,100	8,678,800	32.45	19.74
1990	4,175,689	14,604,200	11,071,100	28.59	16.26
1991	4,797,028	18,247,500	10,894,900	26.29	16.46
1992	5,247,870	23,296,100	10,670,900	22.53	15.45
1993	6,506,600	27,077,200	9,815,800	24.03	17.64
1994	6,608,305	30,359,700	9,693,700	21.77	16.50
1995	7,059,558	34,953,400	10,464,600	20.20	15.54
1996	7,746,654	38,092,900	11,722,000	20.34	15.55
1997	7,425,414	41,821,049	11,622,549	17.76	13.89
Total	57,324,131	253,469,049	102,315,949		

Source: APKINDO, 1998.

THE STRUCTURAL CONTEXT OF POST-WAR FOREST LOSS AND CHANGES IN FOREST POLICY IN THE PHILIPPINES

Yoshiki Seki¹

Introduction

At the beginning of the twentieth century, 70 percent of the Philippines was covered by forests. Even just after World War II, an estimated 55 percent of the land was forested. However, by 1996 forest cover had dropped to approximately 18.3 percent according to government statistics, although secondary forests growing in logged-over areas that were considerably degraded are included in that figure. Virgin forests consisting mostly of mossy forests in the mountainous uplands areas account for no more than 7.0 percent of the land (DENR 1996).

One of the primary causes of rapid forest loss is commercial logging activities. Full-scale commercial logging in Philippines started in the era under American rule during the 1910s. In 1930, timber exports to Japan exceed exports to the United States. Upon restoration of trade relations with Japan after World War II as a result of the San Francisco Peace Treaty, timber exports to Japan expanded again. At the beginning of the 1960s Philippine log exports were the highest in the world, surpassing Canada and the former Soviet Union. However, in only half a century logging to meet overseas demand depleted all timber resources which could be logged. After 1986, conditions in the Philippines declined to the extent that the country reversed its exporter status and became a net importer of timber from Malaysia and other countries. According to government statistics, timber ranked the highest among Philippine exports in 1970, bringing in annual foreign exchange revenues of 2.2 billion dollars. In 1996, the situation had reversed, and the Philippines was forced to spend 3.1 billion dollars in foreign exchange to purchase timber from overseas (DENR 1996).

The tragedy of the Philippine crisis of forest loss, is not just that it lost its timber self-sufficiency, but the fact that the collapse of ecosystems is threatening the very basis of human livelihood in the country. Disastrous floods now occur frequently due to soil erosion from logged areas and cause the loss of many human lives every year. Memories are still fresh of the great 1991 Ormoc flood disaster on Leyte Island which caused the unprecedented loss of 6,000 lives. The Philippine people are also suffering inestimable costs from the loss of forests such as damage to agricultural production due to a lack of water for irrigation, and shortages of water for daily life due to dwindling groundwater sources.

Under these circumstances, Philippine forest policy has changed dramatically since entering into the 1990s. Until recently, forest resources were managed under the control of the government based on the principle of state ownership. However, the exclusive forest management system by the government has been abandoned, and a "Community-Based Forest Management Strategy" (CBFM) which includes forest management by "people's organizations" (PO) has come into practice.

In its move toward people's participation in forest management, the Philippines is on the leading edge compared to other East Asian countries, at least if one judges from official government documents. However, the Philippines' lead in this respect is a result of it having been a "pioneer" compared to other tropical countries in depleting its own domestic forest resources; the country learned from its negative experience. This is the other of the coin.

This paper, after a structural analysis of forest loss in the post World War II period in the Philippines, will proceed with an analysis of the structural context of its changes in policy from forest management by the state to forest management by the local people.

Major Actors Involved in the Forests of the Philippines

Any effort to understand the structural context of forest issues in the Philippines, requires consideration of actors' interests and their mutual influence relating to forest issues. Those actors include agencies of the government, foreign aid organizations, forestry capitalists, ranch owners, indigenous people, and migrant farmers from lowlands, etc. The causes of forest policy changes are

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made clear as well through the analysis of changes in power relationships among the actors.

A method of analysis which has become popular in Western countries involves analysis of environmental issues, through consideration of the interactive relationships between actors who begin to have economic interests in land and resources in areas as the market economy filters into society. This approach has been called "political ecology". Works which have intentionally applied this approach in the analysis of forest policy in the tropics include research on the history of forest policy on the island of Java by Peluso (1992), and in Burma by Bryant (1997).

Nevertheless, researchers will inevitably come upon this approach if they try to analyze environmental issues historically and dialectically, and if they are not limited to the narrow framework of a particular field of science. There were many researchers who adopted this point of view before Peluso's laborious work was published. Even considering only the field of research on tropical forests, research by Tasaka (1991, 1992) on forest degradation and plantation problems in northeastern Thailand is exceptionally close in approach to the political ecology school in the West.

Works on Philippine historical forest politics from the perspective of political ecology have not yet been published. However, if there is anything new in political ecology theory, it may be the attempts to understand holistically the mutual relationships among actors. Indeed, research on specific actors and their relationships between specific interests and national policy with regard to forests has been done up to this time. This paper will take a general view of the actors and their roles relating to forests in the Philippines, while reviewing existing literature.

1. Foreign Corporations from Timber Importing Countries

Before World War II the United States as a suzerain state and Japanese corporations directly owned logging concessions in the Philippines, and they initiated many logging activities. At the time of Japan's occupation of the Philippines during World War II, the Philippines were expected to be the main source of timber for Japan, Manchuria, and occupied zones in China. Eleven Japanese corporations were producing timber under the supervision of the military government. However, little research has been done on forest administration during World War II in the southern region occupied by Japan. Work by Hagino (1997) is the only substantive research on this topic.

After World War II, as foreign capital participation in logging activities was limited to a maximum of 40 percent, logging for timber was essentially managed by Philippine companies. However, as foreign corporations were the buyers of this timber, forest development policy in the Philippines was largely influenced by them. Accordingly, during the post-war period, corporations on the importing side have been important actors. Post-war Japan has consistently been the top importer of timber from Southeast Asia. Kuroda and Nectoux (1989) analyzed the connections between the timber importing activities of Japanese trading companies (*shosha*) and logging activities in Southeast Asian countries.

2. Philippine Timber Industry and the Government

As timber became the Philippines' major resource of foreign exchange, the government started providing Timber License Agreements (TLA) on most of the country's Public Forest Land, designating that land as target areas for commercial logging by private companies. TLAs were issued for a maximum of 100,000 hectares per company, and in principle, for contract periods of 25 years. The forests where TLAs were granted were called logging concessions. The land and standing trees were state property managed by the government's Bureau of Forest Development. However, logging companies were able to acquire approval for logging activities by paying a set amount of "forest charges" to the national treasury.

Boad (1988) and Bautista (1990) have conducted research on the regulatory problems of the logging concession approach. According to this research, forest charges paid by logging companies to the national treasury were kept extremely low, thus allowing logging companies to enjoy enormous profits.

Furthermore, as Repetto (1988) argues, forestry based on logging concessions has made it possible for logging companies to use a "cut irresponsibly and get out" strategy. Since they did not

own the forests, the companies logged as much as they could within the period given, and after finishing logging in one place, they acquired another concession. This became the most efficient strategy to maximize their profit. In the Philippines, forests are under state ownership; but at the same time a *laissez-faire* approach is taken regarding logging and forestry by private corporations. Accordingly, the context of unsustainable logging in the Philippines includes two aspects: government failure, and market failure.

Many of the logging concession holders were the very members of the Congress who had the authority over national bureaucrats. One could say that this was the setting that lay the foundation for a forest regulatory system which enabled logging companies to obtain enormous profits. It was Vitug (1993) who, with a great deal of data, interviews and field work, showed clearly the structural linkages in the relationships between logging concession holders and various power holders such as Congress, the military, and the bureaucracy in the Philippines. Vitug's work makes the most of her broad and unrestricted perspective as a journalist, and is essential reading for researchers or anyone studying politics concerning the forests in the Philippines.

3. Local People

Although local people are the actors who live most closely connected with the forests, the government has excluded their use of forests as forest policies were determined mainly to represent the profits of forestry capital. Until recent years, the Philippine government had declared that slash-and-burn agriculture (*kaingin* in Tagalog) conducted by local people was the "ringleader of forest destruction". The image that local people's use of forests is destructive was spread widely by the government without proof by academic studies.

The local people who live close to the Philippines forests could be divided roughly into two: indigenous peoples and pioneers from the lowlands. Until now, mainly anthropologists have accumulated information through studies about indigenous peoples. It is known that agricultural systems of indigenous societies are generally highly stable and sustainable from an ecological view.

On the other hand, the agricultural systems of lowland dwellers who settle on logged-over land have a strong image of being destructive. However, research in Calminoe, Laguna Province by Fujisaka and Wollenberg (1991) attempted to disprove these negative images. This is probably the most comprehensive study of an agricultural system conducted in pioneer settlements on logged-over land in the Philippines. According to Fujisaka and Wollenberg, upon arrival, the pioneers' livelihood was a combination of annual crops produced by slash-and-burn agriculture and timber gathering, which at first glance seemed unsustainable. However researchers confirmed that as the pioneers continued getting income from logging, they started planting perennial crops such as fruit trees, and then shifted their operations to sustainable agroforestry. That is to say, even people who were not indigenous upland dwellers evolved to more appropriate ecological systems in the process of settling in an area and accumulating knowledge. Fujisaka identified this process with the concept of "co-evolution" between migrant farmers and ecological systems in moist tropical upland regions (Fujisaka 1986).

Research by Garrity *et al* in Misamis Oriental Province on the island of Mindanao is also interesting. They studied the long-term dynamic changes of land use in pioneer settlements through analysis of aerial photography. Their work shows clearly that when lowland dwellers migrated to grasslands left after land was used for cattle grazing, they started with annual crops, then later fruit trees and coffee, and finally plantation trees. The grassy areas decreased and the land was eventually covered with perennial trees. The researchers emphasized the role of the market as a major factor when the people changed their selection of crops (Garrity and Patricio 1995).

From the results of these studies it could be said that even lowland dwellers who lack agricultural experience in upland areas can develop sustainable agriculture through the process of adapting to the local ecological environment. The chosen agricultural crops are largely determined depending on ecological and market conditions.

Also, from the institutional perspective it is often pointed out that inappropriate forest use was promoted because people in upland areas were not allowed the right of land possession on public forest land. Legal scholar Lynch was early to point this out, and stressed the importance of giving the right of land possession to the upland dwellers and of stabilizing the livelihoods of people living

in the forest (Lynch 1986).

The standard program that approved the right of land possession for people in upland areas in the Philippines started in 1982 through the Integrated Social Forestry Program (ISFP). Aquino (1983), who did project assessment studies of the ISFP at an early stage, proved concretely that giving the right of land possession to local people brings positive effects to environmental improvement in upland districts.

4. Foreign Aid Institutions

The role of foreign aid institutions in setting forest policy in the Philippines is enormous. Until the 1980s the Philippine forest administration depended on forest charges from logging companies which acted as patrons in order to cover administrative costs, and conducted politics for the profit of logging companies. However, in the 1980s forest charge revenues declined as timber resources were depleted. After the Aquino government came to power, "environmental aid" was provided generously by developed countries, and it could be said that as a result, the patrons of the forest administration shifted from logging companies to the aid institutions of developed countries.

Participatory forest management policies such as the ISFP which started in 1982 and CBFM which started in 1995 were strongly influenced by the policies of aid institutions such as the Ford Foundation and the United States Agency for International Development (Poffenberger 1990, Braganza 1996). On the whole, requests for grant aid from Western countries had to clarify whether a project was "participatory" or not. As a result the introduction of participatory forest policy was connected with funding from the West.

In contrast, forest-related funding from Japan, the largest ODA (Official Development Assistance) provider, and from institutions such as the ADB (Asian Development Bank) which is under Japanese influence, is often criticized (Korten 1994, Dauvergne 1997). Seki (1996) argues that while assistance from Western countries promoted participatory forest policies, in contrast loans from Japan to establish plantations resulted in greater control by the central government because the loans required government-initiated large-scale industrial monoculture plantations.

Characteristics of Forest Loss in the Philippines

The most important feature about forest loss in the Philippines compared to other Southeast Asian countries is that the ratio of forest turning to grasslands is conspicuously high. Of land deforested after the war, most has turned not to agriculture but to grasslands. Grasslands now account for 30 percent of the national land area. Even land near mountain ridges, which could never have been agricultural sites or grazing land, has turned into grasslands, and it is not unusual to see whole stretches of bare mountain peaks. As much of the Philippines is covered in mountainous and steep terrain, when mountain watersheds turn into grasslands frequent floods occur and groundwater flow decreases, seriously damaging agricultural production and people's livelihoods in the lowlands. The grasslands covered with herbs such as cogon (*Imperata cylindrica*) as a result repeated fires are climax vegetation, and in ecological terms are called "fire climax". Normally, tropical forests would not become grasslands easily just by catching fire once or twice. Burned sites can be renewed again by natural succession. However if the area gets burned every year during dry season, soil nutrients are carried away during the rainy season and the land becomes degraded to the point where it is impossible to recover naturally. The bare mountains one can see now speak of the forest fires that have occurred repeatedly in the past and still occur today.

In Indonesia's Outer Islands and Malaysia, because the logged-over forests are systematically converted into commercial crop plantations, the decrease of the forest is often due to the development of agricultural. In the Philippines, on the other hand, the development of logged land for agricultural has not been legally sanctioned. This is probably because the mountainous geographical features of the Philippine islands are not suitable for agriculture. In the Philippines, logged land is often used for commercial ranching instead of cultivation.

Commercial logging activities cause the first impacts of development on forests, but this does not signify the immediate disappearance of the forest. It is only the large diameter trees such as those of the dipterocarpacea family (generally known as lauan) which have commercial value on

the international market. A naturally regenerated second growth forest consisting of miscellaneous trees with no market value remains in the logged-over area. If such a forest is left to regenerate through natural succession, it will likely return to the original dipterocarp climax forest. However, the logged-over areas of the Philippines gradually became grasslands because of the fires which occur there almost annually. The outbreak of fire is highly unlikely in the original natural tropical forest, where humidity levels can reach 90 percent or higher. However, after being logged the forest's humidity drops, and the incursion of fires into the forest becomes easier. In this sense, logging is an indirect cause of forest fires. Nevertheless, human activities are for one reason or other the direct causes of fires in upland areas.

Much of the literature about forest issues in Southeast Asia explains that careless slash-and-burn agriculture by the local people is the cause of forest fires. The Philippine government also readily adopted this explanation. However, these are nothing more than unfounded theories that have been circulated and they lack substantiation by on-the-ground field work. To be sure, controlled burning under slash-and-burn agriculture can cause forest fires when flames are fanned by strong winds, but this cause accounts for only a fraction of the fires started and cannot explain the overall problem. This fact can be ascertained by examining the government's own statistics.

Figure 1 shows research by the Philippine Department of Environment and Natural Resources (DENR) regarding the causes of forest fires reported during the dry season (January to June) of 1995. During this period 290 incidents of forest fire were reported, with the accompanying loss of, or damage to, 10,710 hectares. A breakdown of this area reveals 1,370 hectares of natural forests, 2,055 hectares of grasslands, and 7,285 hectares of man-made plantations. It is clear that overwhelmingly the greatest number of forest fires occurred in the man-made plantations.

Because the figures are the research results of a governmental institution, they cannot be believed unconditionally, but it is notable that even the government figures state that slash-and-burn (*kaingin*) fires are the cause of fire in no more than 5.3 percent of the cases. The government reports that for 52.5 percent of total incidents the cause of fire is "not determined". The second highest ranking was for "escaped fires" at 15.7 percent, but in fact the cause of these fires is not known either. In other words, all considered, the cause of fire is "not determined" for almost 70 percent of incidents.

What surprises many people about these statistics is that 6.8 percent of fires were reportedly caused by arson. The author's experience confirms that arson is indeed the cause of many fires. This will be discussed in more detail later, but in many cases the fires resulting from arson were set by locals angered about having their access to forests restricted by the government. In other words, seen more broadly the phenomenon of arson is a reflection of the antagonistic relationship between the government and the local people relating to forest use. The fires started intentionally by locals could be seen as a form of opposition against state control of the forests.

The government emphasizes "activities by local people" as the cause of fires, but there are also many fires which are not caused by local people's use of forests. The government statistics about fires show "pasture fires" accounting for 2.5 percent. These are fires which expand into surrounding forests from pasture fires started each dry season on commercial ranches that have received licenses called Pasture Lease Agreements (PLA) from the government. Many logged-over areas in the Philippines were granted PLAs rather than being converted to agricultural plantation. This is thought to be a major cause of the emergence of the grassland scenery. There were probably more forest fires originating from ranches during the 1960s and 1970s when the creation of commercial ranches was popular. Because it was the government that issued pasture licenses, the government's voice was rarely among those pointing out pasture fires as a cause of fire. One could say that the "blame it on slash-and-burn" approach was a way for the government to avoid its own responsibility and to put the blame on poor farmers, who became the scapegoats.

Pursuing the issue of fires supposedly caused by the activities of locals, one inevitably confronts the following problem: If the locals had been ensured their right to manage forests, would they have been silent and looked the other way when the forests were being lost to fire? In the Philippines, in principle forests have been under state ownership and state management. This has led to the serious confrontations between the state and local communities that are so noticeable in the incidences of arson. Without an understanding of the relationship between state and local people relating to forest resource and land rights, it is impossible to properly grasp the issues

involving the forests of the Philippine.

Changing Forest Policies

1. Public Forest Land as Seen by the Government

Today there are a total of 15.88 million hectares of Public Forest Land in the Philippines, accounting for 52.9 percent of the national land area. However, as stated above, even though it is called public “forest” land, much of it has already become grassland. Immediately after the war, it is thought that public forest land covered as much as 59 percent of the country (although the area is not accurately known, as the cadastral surveys of the time were inadequate). After independence, due to the gradual privatization of land ownership resulting from the government’s development and settlement policies and agricultural land reforms, Public Forest Land declined to the current 52.9 percent of the national land area (Figure 2).

The national policy towards public forest land has evolved in a convoluted way, reflecting intricate political interests. The biggest conflict in policy-making could be described as the issue of whether to recognize the rights of communities to use forests, or to give priority to commercial logging even if it meant forcefully expelling the people who lived in the forest.

For the Philippine government immediately after independence, there was an enormous need for public forest land as a development frontier in order to systematically resettle peasants. After independence, the government was threatened with a major peasants’ revolt led by the People’s Liberation Army (Hukbong Mapagpalaya ng Bayan; or HMB) of Central Luzon, and these circumstances created great pressure for agrarian reforms.

Under the Magsaysay government (1953-1957) an agrarian reform bill was seriously debated, aiming to promote landed farmers by redistributing large agricultural estate (*hacienda*). However, due to ardent opposition from landlord politicians, the first post-war agrarian land reform law, which was passed in 1955, was ineffectual and almost impossible to implement (Takigawa 1976). The main argument used by politicians to oppose the break-up of large estates and redistribution of agricultural land was that much public land still remained in natural forests which could be cleared, and the peasant should be settled in those areas. In this way the main pillar of the Magsaysay government’s policies creating landed farmers became the clearing and settling of forest land, instead of a redistribution of agricultural land. In 1954 the National Resettlement and Rehabilitation Administration (NRRRA) was established, and peasants who applied were given public lands in sparsely-populated areas such as on the islands of Mindanao and Palawan, which became targets for settlement.

However, the various conflicts relating to land ownership had not been resolved. Instead they were thrust onto the surrounding areas, only to worsen and resurface later.

The clearing and settlement programme continued until 1978, resulting in 50,583 families being settled and the clearing and settling of 755,186 hectares (Uhlig 1988). The total area of land settled was equal to about 4 percent of total public lands. This figure alone may not appear very significant, but the impact of the government’s clearing and settlement policies was not only through official settling, but also through spontaneous settling which was induced by it. Whereas about 170,000 persons resettled on the island of Mindanao as a result of the official government programme, it is estimated that 1.2 million persons in total moved to Mindanao from other islands from 1948 until 1960 (Krinks 1970). In other words, compared to the number of pioneers under the official government programme, many more came on their own.

It is true that in the 1960s the government was pressed by the need to restrict the resettlement of farmers into forested areas. This was because timber had become an important source of foreign exchange for the government as a result of the rapid growth of timber exports to Japan. The government’s Bureau of Forest Development (BFD) closed off the untouched natural forests, granting TLAs and making them targets for commercial logging.

The total area of logging concessions approved as TLAs skyrocketed during the 1950s, reaching 4.5 million hectares (25 percent of total public forest land) in 1960 and 10.6 million hectares (63 percent) in 1972 (Boad 1988). By the beginning of the 1970s, any public forest land that could be logged were almost completely covered by logging concessions held by private

companies.

People who were living within the logging concessions were identified as squatters. The government adopted the approach of forceful expulsion of these people in order to protect the interests of logging companies. In 1962 Republic Act No. 3701 recognized the legality of forced eviction of “squatters” from within public forest land.

In the 1950s the Congress and Senate had taken the side of protecting land-owners interests, saying that peasants should settle on public forest lands. Later, in the 1960s they asserted, representing the interests of logging companies, that squatters on public forest land should be expelled even if force was needed.

It was not only the logging companies that were uncomfortable with the presence of dwellers on public forest land. In addition to the TLA, Pasture Lease Agreements (PLA) also provided commercial usage rights on public forest land. These were mainly granted on hilly areas near human settlements after logging ended and serious land conflicts broke out between the ranchers and the local people. On commercial ranches pasture fires were set during every dry season to provide young shoots for cattle; as a result the second growth forests where logging had ended were completely wiped out, and grassy landscapes appeared covering vast areas. The fires from pasture burning spread beyond the limits of the commercial pastures and over a wide area of the surrounding second growth forests, with a devastating effect on forests.

The issuing of TLAs peaked in 1972 at a total area of 10.6 million hectares; at the same time the area of PLAs was 1.29 million hectares (Figure 2). The total area of the logging concessions and pastures accounted for 70 percent of the total public forest land area. Even though this was ostensibly “public” land, it had almost completely been parceled up into logging concessions and commercial ranches.

2. People's Resistance

The policies that consistently took away the people's access to public forest land raised serious tensions between various factions such as logging companies, ranchers, indigenous people, and pioneers from lowlands. The dwellers on the public forest land, including indigenous people and pioneers, were declared to be squatters and looked upon as enemies by the government. This situation became a major cause for the rekindling of the flames of the civil war.

In 1969, the New People's Army (NPA, the military section of the Communist Party of the Philippines which was reconstructed in 1968) aimed to seize power by armed force. Its main support was in the upland villages where the “squatters” lived. In the 1950s, the peasant rebellion had been restricted to the lowlands of Central Luzon which had a structure of *Hacienda* system (Kerkvliet 1977). During the 1970s, the NPA rebellion penetrated the upland areas on entire island. The reason for this cannot be discussed without considering the historical fact that the people who the government called “squatters” and were looked upon as enemies of the government, were broadly occupied the upland public forest land.

In addition, tensions overflowed in non-Christian indigenous communities that were suffering from commercial logging, ranch development, and continuous oppression by migrants from the lowlands. On the island of Mindanao, the land struggle between new settlers and indigenous Muslims escalated, triggered by the government's clearing and settling policies. In 1970, Muslim tribes combined to form the Moro National Liberation Front (MNLF), and started armed combat in pursuit of separation and independence from the Philippines. Mindanao became the bloodiest battleground of the civil war in the Philippines.

Furthermore, even though the unity of indigenous communities which have animist beliefs is considered weak compared to Muslims who are monotheistic, their movement against the government's forest development policy also intensified. Especially among Igorot who inhabit in the Cordillera uplands on northern Luzon Island, the resistance movement escalated to fight against forced eviction for dam developments on the Chico River, as well as pollution from mine developments, deprivation of traditional forest use rights and granting companies logging rights. The Cordillera People's Alliance (CPA) was formed in 1984. Its general principles called for autonomy regarding resources, in other words ‘the return of our stolen lands and resources and the return of our right to manage resources’ (Burger 1987: Chapter 8).

3. Decline of Logging Concessions and the Start of Participatory Forest Policy

As shown in Figure 2, in the 1970s, the logging concession area started declining. Many logging companies had logged out the large diameter dipterocarp trees in the 25-year period of the concessions, and those granted in the early 1950s started reverting back to the government in the 1970s.

Under the Philippine forestry system, after being logged the secondary forests were to revert to the government's control, and after waiting for the resource to recover by natural regeneration the government would approve successive logging in the future. But in reality, second growth forests had been lost due to forest fires, and were converting to grasslands. In addition, it was financially impossible for the government to manage the logged-over lands. This is because the Bureau of Forest Development (BFD) depended on forest charges paid by logging companies, and as revenues dropped with the decline of commercial logging, the government administration itself was facing restructuring due to a revenue shortage. Thus, logged-over concession forests, became resources open for anyone to access, in the absence of caretakers.

After this point, policies began to change toward recognition of rights to conduct cultivation on public forest land. In the 1960s, the reason that government acted to prevent the utilization of forests by local people, even if it meant using force, was to protect the interests of logging companies. However, as the logging concessions started to revert back to the government, there was less of a need to enforce the exclusion of the local people. In Presidential Decree No. 705, declared in 1975 while Marcos had the country under martial law, the stance towards forcible eviction of "squatters" was softened. In this decree, all land with a slope of more than 18 degrees was designated as public land in an attempt to solve the boundary line issues between public land and land which could be privatized. The decree also state that "Kaingineros, squatters, cultural minorities and other occupants who entered into forest lands before the effectivity of this Code, without permits or authority, shall not be prosecuted" (Chapter 53). In addition, the local people who lived on the public forest land were allowed to remain there for a two-year contract period, on the two conditions that "they do not increase clearings", and "they undertake the activities which will be imposed upon them by the Bureau in accordance with a management plan calculated to conserve and protect forest resources".

In line with this orientation, the Integrated Social Forestry Program (ISFP) started in 1982. The ISFP was an experiment to approve the right of land possession for farmers on public forest land, on condition that they plant trees on at least 20 percent of the land. There were two types of land certificate which were issued through the ISFP. One was a Certificate of Stewardship Contract (CSC) issued to individuals, for a maximum of seven hectares (later reduced to three) per certificate and a contract period of 25 years (extension possible). The other was a Community Forestry Stewardship Agreement (CFSA) issued to villages, not to individuals, granting the right of land possession for 25 years with extension possible. CFSA's were approved for several hundred hectares each, mainly to indigenous communities. The ISFP was the beginning of participatory forest management policy in the Philippines (Aguilar 1982, Borlagdan 1987, Poffenberger 1990). However, at this stage, the ISFP aimed principally to settle local people on public forest land legally by issuing land certificates. Rather than being forestry policy, the emphasis was as an alternative policy of agricultural land reform in public forest land where private land ownership was prohibited (Takigawa 1997).

4. The Rise and Fall of Industrial Plantation Projects

Despite all, the conflicts between state and the local communities relating to public forest land did not easily disappear. This was due to the promotion of large-scale plantation projects starting in the latter half of the 1980s, and with the restricting of people's access to commercial plantation areas, land problems happened anew.

With the collapse of the Marcos regime in 1986 and the inauguration of the Aquino government, the Bureau of Forest Development (BFD) and its superior ministry, the Ministry of

Natural Resources (MNR), had their names changed. They became the Forest Management Bureau (FMB) and Department of Environment and Natural Resources (DENR), respectively, as environmental conservation was carried to the forefront.

The government's reported figures for forest area illustrate clearly candidly the changes in government posture. The MNR reported that the Philippines' forest area covered 9.18 million hectares (30.6 percent of the nation's land area) in 1986 (MNR 1986). However, after being reorganized as the DENR, in 1988 it reported the forest area to be 6.46 million hectares (21.5 percent of the nation's land), which represents a major downward revision (DENR 1988). Since they had to continue logging in order to secure revenues during the Marcos era, it was necessary for the MNR/BFD to inflate their estimates of forest area. To some extent, it could be said that the reorganized DENR/FMB had shifted their survival strategies. They now reported the crisis condition of the forest resources without obscuring information; the situation could be used instead as a resource to effectively draw environmental aid funds from foreign countries. At the time of the collapse of the Marcos regime in 1986, the environment-related budget of the Philippine government was 1.3 billion pesos, of which only about 0.1 billion pesos came from overseas. By 1990, this environmental budget had increased to 5.1 billion pesos, of which 45 percent, or 2.3 billion pesos, consisted of aid funding (including loans) (Cui 1997).

After its creation, the DENR began to implement forestry projects while relying largely on aid funds from developed countries, as it aggressively canceled the remaining logging concessions. The largest forest-related project during the Aquino era, implemented using funds from overseas, was the Contract Reforestation Program (CRP) implemented in 1988. The CRP was an experiment implemented as a part of the National Forestation Program (NFP), receiving 240 million dollars in borrowed funds from the Asian Development Bank (ADB) and Japan's Overseas Economic Cooperation Fund (OECE) in order to establish 358,000 hectares of plantations of fast-growing species such as eucalyptus, acacia and yemane. The costs of planting were as high as 700 dollars per hectare. This project was very much controlled by the central government, based on the principle of state control of plantations.

Under the normal process for plantations, local people are hired as plantation workers, planting and tending for 3 years are obligatory, and fees are paid on a set payment scale for each activity. When the 3 years of contractual obligations are over, the plantation land returns to the government. At that point, the government conducts an assessment and pays fees depending on the level of achievement of the plantation.

To make a long story short, the CRP was almost a complete failure. In the central Luzon region inspected by the author, of the 22,400 hectares where the contract reforestation projects were conducted between 1989 and 1995, in reality 71 percent were cancelled due to non-performance of the contract. However, there were many cases in which a project was falsely assessed to have been executed according to contract although the reforestation had not been done according to specifications. As a result, as much as 90 percent of the total project area may have no remaining trees or trees may have never even planted. The majority of contracts cancelled were in areas destroyed by forest fires, of which the main causes were probably arson. In the area researched by the author, the following 2 structural causes of failure of reforestation were identified (Seki, 1996):

- (a) the large-scale restriction of local people's access to land intensified land conflicts; and
- (b) the flow of enormous amounts of project funds spread corruption, leading to the non-payment of contract fees to the plantation workers.

The government portrayed the CRP as "participatory" forest policy, pointing to the employment opportunities provided to people living in the uplands. However, in reality the people were simply drafted into the labor force on plantations, a far cry from "participation" based on their own initiative. In many cases, the government simply drew plantation boundaries on maps without any regard to the actual land uses. This led to the leading to the eviction of local farmers who were already there. Furthermore, in many cases the contractees of plantation projects were not the local people. Because the fees for reforestation were to be paid after the work, poor families could not raise the initial funds needed; this system made it impossible for them to undertake contracts. The result was that powerful persons from inside and outside the area undertook contracts as a means of amassing funds. Many of them did sub-contract to local people, but through non-payment of wages corruption became rampant.

At the same time the DENR promoted the government-managed CRP, it also ended up promoting corporate-managed plantations. Corporate plantations started in the 1970s on the island of Mindanao; in 1991 plantation concessions were institutionalized with Industrial Forest Management Agreements (IFMAs), and leased to timber companies. An IFMA is also a concession with 25-year contracts, and usually holdings of several thousand hectares are approved for one company. In many cases, the timber companies were given IFMAs in the place of logging concessions after they were cancelled. Reforestation was not mandatory for logging concessions, but naturally under the IFMAs the obligation to reforest could be achieved. Because the supply of timber from domestic natural forests had been depleted, the Philippine lumber and plywood industries were under pressure to secure raw material from artificial forests as a replacement. They placed high hopes on the IFMAs.

However, as with the CRP, the IFMAs have not produced good reforestation results. In 1994, although IFMA licenses had been granted for a total of 503,372 hectares, the reforested area reported by the government amounted to only 100,048 hectares, or 20 percent of the total (Reyes 1994). Some IFMA license holders canceled their concessions, giving up due to difficulty of plantations. Many companies blamed land conflict with local people as a major reason for difficulty in operating plantations, as they had with the CRP. When an unbroken area of several thousand hectares is granted to one company, it is almost impossible to avoid a conflict of interests with local people's land use. Today, with demand for plantation timber growing as a result of the depletion of natural forests, many farmers are starting to plant trees on their own (Garrity and Mercado 1994, Seki 2000). If they are willing do this of their own accord, there should be no need rob land from farmers to establish plantations.

Community-Based Forest Management

The major land use categories on public lands in 1996 are shown in Table 1. The 11.88 million hectares of TLA and PLA combined in 1972 had shrunk to one-seventh that area, or 1.79 million hectares in 1996. The difference, 10.09 million hectares of land that had been logged over or turned into pastureland, was returned to the government for projects like the ones noted above. However, even if the area classed as forest in 1996 is totaled it only amounts to 6.71 million hectares, and it is clear that much public forest land has been left unclassified. In the past, whenever new funds were found, forestry projects were applied by the government, but the vast logged-over concessions adding up to more than tens of millions of hectares cannot all be classified, and many are now thought to be still in a state of open access.

The recent forest management strategy of the government guarantees the minimum required farming rights to people living on public forest land, while unclassified degraded land was designated as CRP and IFMA project land where it was trying to establish man-made plantations.

However, for the local people, public forest land is used for multiple purposes other than farming, such as gathering of non-timber forest products like rattan, and for wood-gathering, hunting, plant gathering, grazing of water buffalo and mountain sheep. It was inevitable that the top-down projects establishing large areas for plantation lands by preventing the people's access would conflict with the forest uses of the local people. As trees planted on Contract Reforestation Project land and corporate plantation concessions steadily disappear, it is not unrealistic that the reason for many fires is the intentional arson by angry locals.

The lessons of the large-scale plantation projects from the late 1980s until the beginning of the 1990s are that attempts to establish plantations after coercively expropriating land not only defy social justice. They also fail to achieve the environmental and forestry objectives such as restoring denuded areas and improving the water resource functions, and supplying timber by managing man-made forests.

The only way to escape from these problems was to entrust forest management rights for large areas to communities, while respecting the existing forest uses of the local people. At last, during the mid-1990s, the Philippine government started moving in this direction. The first time this forest management strategy was put in statutory form was in Executive Order No. 263 of 1995. Here, the Community-Based Forest Management Strategy (CBFM) is identified as a "national strategy to achieve sustainable forestry and social justice". The slogan "Putting people first so that sustainable

forestry may follow,” was adopted to demonstrate the ideology of the overall policy. This slogan was quoted from the book entitled *Rural Development: Putting Last First* by Robert Chambers, who has a formidable presence in Western theory about participatory development (Chambers, 1983). The survival strategy of the DENR is evident from the fact that it is adopting this wording from the West, using their last resort: funding from developed countries. The blueprint for the CBFM was drawn-up with funding from USAID.

In any case, it could probably be said that forest policy, which tended to evict local people from land they inhabited and promote large-scale plantations using environmental aid from Japan, had been turned in favor the local people through the introduction of Western ideology about participatory development. It could also be said that the government realized the limitations in its own ability to manage forests. As the degradation of forest resources reached to the extreme, the government revised its principle of “state forest management”, changing instead to a policy of “forest management by local people”.

Compared to the ISFP of the past, clearly CBFM is a comprehensive forest management policy involving participation by local people. The issuance of Certificate of Stewardship Contracts (CSC) under the ISFP had been limited to approving the right to hold a maximum of 3 hectares per person agricultural land, and the management of the surrounding upland areas by the local people was not sanctioned. Under CBFM, forest management rights of large areas from thousands to tens of thousands of hectares of arable land and surrounding hills are approved for local community organizations; these rights to possess land are called Community-Based Forest Management Agreements (CBFMA). On the lands designated in the CBFMAs, in addition to guaranteed rights for the local people to possess agricultural land, the rights of communities to have tree planting projects on denuded land, as well as the right to gather forest products from remaining second growth forests are guaranteed.

Furthermore, through Department Administrative Order 96-29 of the DENR in 1996, Certificates of Ancestral Domain Claim (CADC) which have been issued to indigenous communities were reorganized as part of a high-level programme of CBFM. The result of this was that two types of licenses of rights of land possession could be recognized under the CBFM strategy. CBFMAs, which give rights to possess land for 25 years, are granted to local people’s organizations in the case of communities which are mainly comprised of migrants from lowland areas; CADCs, which stipulate the right to possess land and resources in perpetuity are applied in the case of indigenous people’s organizations of the original dwellers on public forest land. For areas where CSCs, rights for individuals to possess land, have already been issued the CSCs are ratified as-is; in addition, a new issuance is made where the CBFMA covers a large area that includes the CSC and surrounding land.

At present, CBFM is being strategically introduced in logged over logging concessions that have been returned to the government. Logging concessions which were cancelled after the start of the 1990s could be put into three categories as shown in Figure 3. First, primary forests which were never logged and second growth forests which were left in a good condition are designated as National Integrated Protected Areas (NIPAS) and put under state control. In addition, adjacent second growth forests, denuded lands, or places which have already been used for cultivation are classed as CBFM or IFMA. In short, the government is attempting to get rid of unclassified land by dividing up logged-over concession land into 3 categories as land under state management, land under community management, or plantations under management by private companies.

As a result of public opinion calling for the prohibition of logging after the large floods on Leyte Island in 1991, Republic Act No. 7586 was passed in 1992, leading to the establishment of NIPAS. NIPAS include existing national parks and wildlife protection areas as well as extensive areas where efforts are being made for conservation. This includes all primary forests and mountains of high altitude, and second growth forests which have been left in good condition. In effect, commercial logging of primary forests has been completely banned. In concessions that still exist today, logging is allowed only in limited areas of second growth forests.

The DENR Strategic Action Plan states that “the priority areas for CBFM are the forest lands that are considered to be “open-access” in or near old growth, residual, pine and mossy forests.... The open access forest lands include the expired, cancelled and suspended Timber License Agreements (TLAs), Pasture Lease Agreements (PLAs) and Industrial Forest Management

Agreements (IFMAs), as well as regular reforestation projects and mangrove forest” (DENR 1997: 18).

The Action Plan gives as a policy objective the issuance of 9 million hectares of CBFMA and CADC in total by 2008. If this objective were achieved, it would mean that actually 76 percent of the logged concession and pasture land will have been transferred to local people.

The introduction of CBFM could be said to have ended civil war. For example, in the Sierra Madre Mountains in northern Luzon (affiliated with Region 2) which the author is currently studying, 720,000 hectares of logging concessions were cancelled during the 5 years from 1990 to 1995. CBFM is being strategically introduced in logged-over forest lands. As if in parallel with the introduction of CBFM, most of the NPA troops that had been active as the organizational base of pioneer settlements in the uplands have surrendered. In 1993 the Ramos administration legalized the Communist Party of the Philippines (CPP), granted amnesty to guerillas who surrendered, and participation in CBFM was encouraged. In some CBFM project areas, the commander of the New People’s Army which had surrendered and later became the chair of the people’s organization which managed the CBFM.

Remaining Issues

Since colonization by Spain in the 16th century, historically the participation of local people in forest and land management was excluded by the hand of the state. It is an historic change that in the 1990s the rights of the people to manage forests have been largely recognized.

However, if one considers the possibility of an immediate shift from state resource management to communal resource management, many doubts arise. CBFM has only just begun, and unresolved issues are numerous. Let us now identify a number of ongoing problems relating to CBFM, and other issues that may become more problematic in the future.

1 Plantation Projects

By no means has the Philippine government stopped promoting large-scale plantation projects. As shown in Figure 3, within the CBFMA agroforestry is recognized as a condition for possession of agricultural land for farmers already on public forest land, and monoculture tree plantations are established in adjacent denuded areas.

In short, the basic land classification is no different from the earlier combination of CSC and CRP. In addition, ADB and OECF funds continue to be used for plantation projects within CBFM. The overall management rights, including plantations, belong to people’s organizations. For sure, this differs from the earlier situation. However because it is the government which decides boundaries of monoculture plantations and agroforestry, land conflicts related to plantation projects will probably be unavoidable in the future.

In addition, international pressure exists to promote plantation projects in developing countries. At the Third Conference of the Parties to the UN Framework Convention on Climate Change held in Kyoto in 1997, countries set their numerical reduction targets for CO₂ emissions. In that context, emissions trading and the consideration of forest carbon sequestration were recognized. As a result, it is predicted that even more than before, developed countries will promote large-scale plantation projects in developing countries. The risk is great that plantation projects in the name of CO₂ reductions will lead to the eviction of local people.

2. CBFM Management

Newly formed people’s organizations (PO) will become the implementing bodies for CBFM management, when the DENR introduces projects. These people’s organizations are to be broadly formed, spanning a number of *barangays* (villages). In other words, the bodies managing resources will not be formed in units of the traditional villages; rather, new artificial organizations are being created in the context of links with the government. When the new organizations are formed through the auspices of the government, in many cases factions will be born in villages which do not find the situation so agreeable. In addition, when the forest management organization is formed to span a number of villages differences will emerge, with some villages receiving special favors

and some which do not. It is likely that this will lead to conflicts between villages. From the outside the government is establishing people's organization through which its policies can filter easily. However, resource management bodies would be better to have self-organization among the traditional villages.

3. Involvement of Central Government and Local Governments

Even though CBFMAs purportedly are granted to local people's organizations, in reality they are merely the right to possess land for a limit of 25 years, and the government continues to hold supervisory right. In addition, through the enactment of the Local Government Code in 1992 the provincial and municipal governments are also now involved in management of public forest land. This further complicates the system of management of public forest land.

In the words of the DENR, "This further requires that, in partnership with Local Government Units, DENR field offices establish multi-institutional support groups composed of local NGOs, academic organizations, business sectors, and others, which can provide not only credible monitoring service but also additional technical and financial support for CBFM communities" (DENR 1997:5).

This type of initiative could easily lead to the infringement of the self-determination by local people. A tendency exists to believe that strong regional governments are desirable from the perspective of local governing, however in the case of the Philippines this is not necessarily so. Regional governments here are even more easily manipulated by the regional elite classes which monopolized TLA and PLA licenses. The intervention into CBFM of these elites seeking special concessions is likely to lead to undesirable results from the perspective of resource management by local people. Vitug (1996) reported on a case in Surigao del Sur province on the island of Mindanao in which the intervention into CBFM by local politicians seeking special concessions caused corruption and threw a project into disarray.

4. Inter-ministerial Conflict

The central government is not monolithic. With its authority over 52.9 percent of the national land the DENR holds tremendous administrative power, but there are some government ministries which do not see this positively. The Department of Agrarian Reform (DAR) would like to issue Certificates of Land Ownership Awards (CLOA) for land appropriate for agriculture as a part of agricultural land reforms, even if the land in question is public forest land. However, from the DENR's perspective, this would constitute a violation of its own administrative powers; as a result, opposition exists between the DAR and the DENR.

In addition, because in many cases indigenous peoples are living on public forest land, the DENR is using its authority in regard to settlements of indigenous peoples; however, this action exceeds the original administrative authority of the DENR relating to environment and natural resources. The DENR issues CADCs to indigenous peoples, but these licenses are not based on the Republic Act. DENR on its own department order started implementation of CADCs in 1993 because vociferous opposition from Congress had blocked passage of the Right of Ancestral Domain as Republic Act. However, in 1997 the beleaguered Indigenous People's Right Act (Republic Act No. 8371) was passed. Based on this law, the National Commission on Indigenous Cultural Communities/Indigenous People (NCIP) was established and it was given the administrative authority to issue CADCs. It is expected that the NCIP and DENR will run into confrontation in regards to administrative powers relating to indigenous people's settlements.

As described above, the management of CBFM is likely to turn up thorny relations between the various interests, and conflicts relating to resources are likely to continue. The author has avoided using the term "commons" in the above description. This is because under the current situation, one cannot but judge that the situation does not yet fit the definition of a commons. Community based forest management can be judged by whether or not it can be a resource management system literally based on the community; this is determined by the ability of communities to organize things themselves of in each region, and by specific power relations with respect to the government.

Nevertheless, one could certainly say that since the beginning of the 1990s, it is significant that the community side has been given the institutional basis allowing them to assert their own interests.

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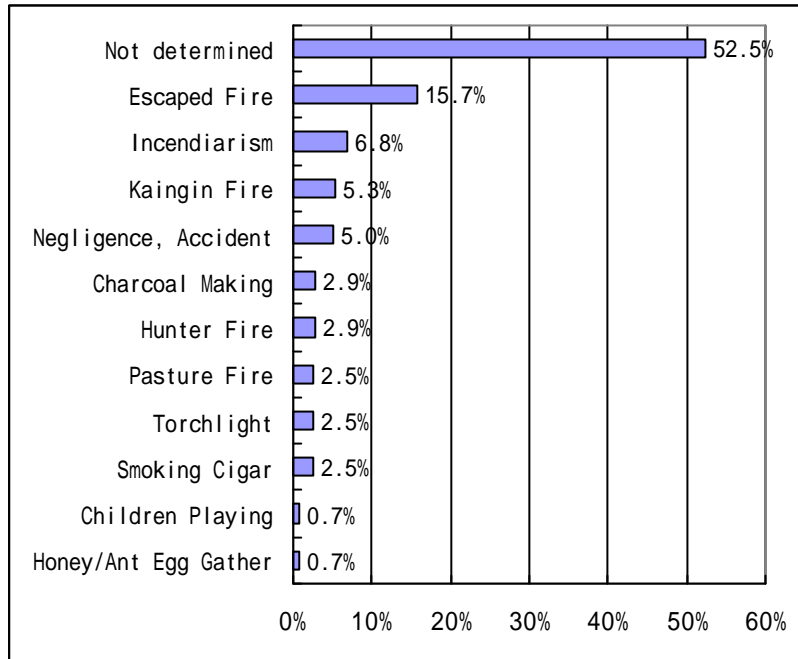


Figure 1. Causes of Forest Fires in 1995 Dry season.
Source: Demetrio L. Bartolazo, "Forest Fire Management in the Philippines: The 1995 Forest Fire Season," *International Forest Fire News*, No.16 (January 1997), pp.22-25.

Figure 2. Decline of TLA in Public Land.

Source: Department of Environment and Natural Resources,
1996 Philippine Forestry Statistics, Quezon City, 1996.

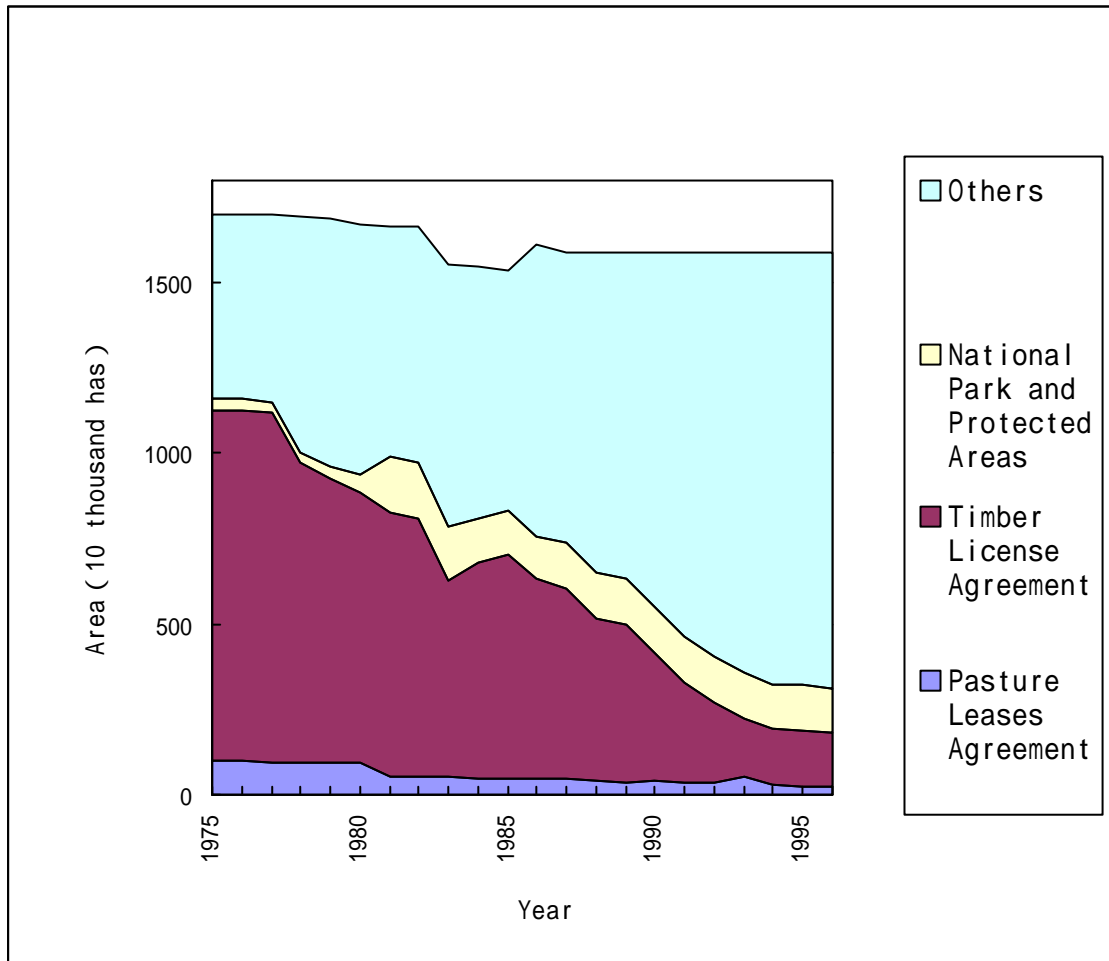


Table 1. Comparison of Forestry Programs in 1972 and 1996.

1972 Programs (thousand has)		1996 Programs (thousand has)	
Timber License Agreement (TLA)	10,598	Timber License Agreement (TLA)	1,564
Pasture Leases Agreement (PLA)	1,285	Pasture Leases Agreement (PLA)	227
		Military Reservation	130
		National Integrated Protected Areas (NIPAS)	1,340
		Community-Based Forest Management Agreement (CBFMA)	576
		Integrated Aocial Forestry Program (ISFP) ⁽¹⁾	786
		Certificate of Ancestral Domain Claim (CADC)	1,125
		Other Participatory Forestry Programs	87
		Forest Land Management Agreement (FLMA) ⁽²⁾	345
		Industrial Forest Management Agreement (IFMA)	525
Total	11,883	Total	6,705

Source: Department of Environment and Natural Resources, 1996 Philippine Forestry Statistics, Quezon City, 1996; ditto, Moving CBFM into the 21st Century: DENR Strategic Action Plan, Quezon City, 1997.

Note: (1) Total areas where Certificate of Stewardship Contract (CSC) or Community Forestry Stewardship Agreement (CFSa) are issued.

(2) FLMA is the land of former Contract Reforestation Programs (CRP) which possessions were issued to local residents.

ISFP, FLMA and other participatory programs are going to be integrated into CBFMA since 1996.

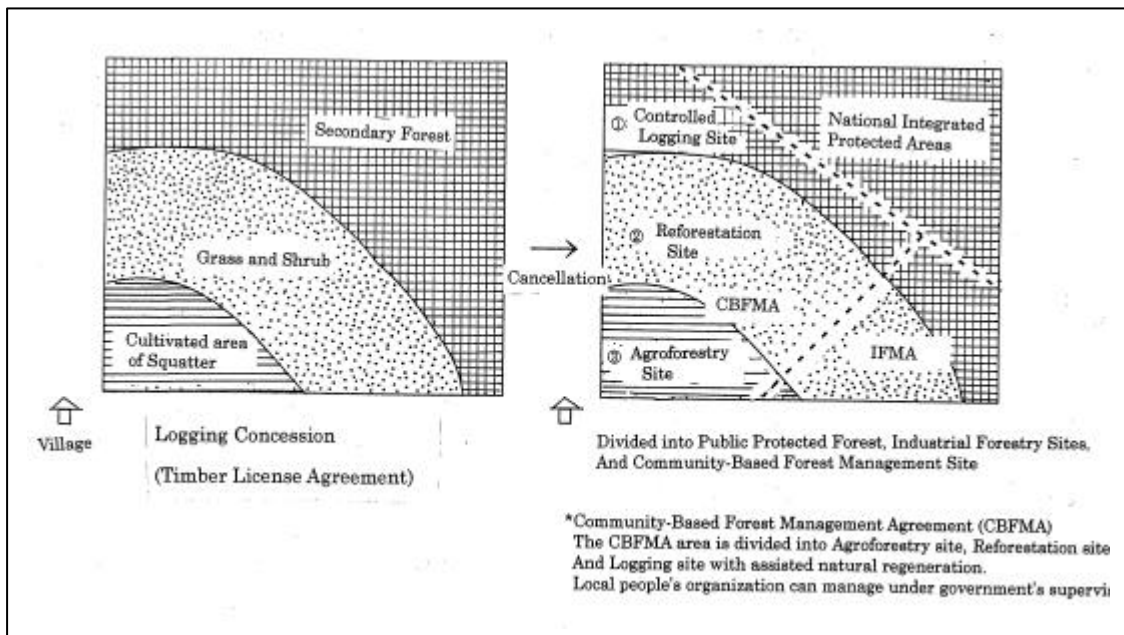


Figure 3. Cancellation of TLA and implementing CBFMA

INDONESIAN FOREST POLICY AND THE ROLE OF NGO¹

Makoto Inoue²

I. INTRODUCTION : INDONESIA'S NATURAL ENVIRONMENT AND ECONOMY

1. Two Ecosystems

The Republic of Indonesia is a nation of islands lying over the equator and extending 5,200 km east to west and 1,900 km north to south. Java especially has many volcanoes whose ash has contributed to its fertile soil. Wet rice agriculture prevailed on this heavily populated island and its surrounding region, called "Inner Indonesia." The region consisting of *Kalimantan*, *Sumatra*, *Sulawesi*, the Moluccas, Irian Jaya, and other islands, called "Outer Indonesia," is characterized by poor soil and therefore mostly swidden agriculture.

The American anthropologist Clifford Geertz had a major impact on Indonesian studies when he observed that Indonesia has two contrasting ecosystems: The rice paddy ecosystem of Inner Indonesia and the swidden ecosystem of Outer Indonesia.³

Some characteristics of the rice paddy ecosystem are monoculture cultivation of rice, rice paddy scenery differing totally from that of tropical forests, stable sustainability due to nutrient-carrying water, dependence on irrigation channels, and high population carrying capacity. By contrast, the swidden ecosystem is characterized by cultivation of multiple crops (dry rice, tubers, grains other than rice, vegetables), swiddens structured like tropical forests, a delicate balance resulting from the cycling of nutrients between plants (i.e., trees and crops) and poor soil, and low carrying capacity.

2. Uneven Population Distribution

Indonesia's overall population density in 1995 was 101 persons per square km, which is not especially dense, but far more of the population is on Java, with its fertile soil and rice paddy ecosystem. While Java accounts for only 7% of Indonesia's land area, it hosts over 115 million people, or 60% of the population, making for the high population density of 900 people per square km. Bali's density is 514, but the other areas and islands have low densities. At the same time, some provinces have uneven internal distributions.

3. Forests by Region

The 1994 "Agreement on Forest Utilization Plans" (TGHK) says that Indonesia has 140.4 million ha of forested land, of which 113.8 million ha are to be maintained as forest throughout the future, and of which 92.4 million ha are now forested. Using either figure, Indonesia has the world's second-largest tropical forest area after Brazil. But the area being deforested is also large. An FAO report⁴ estimates that from 1981 to 1990 Indonesia lost 1.2 million ha of forest annually, a figure that is 8% of the total 15.4 million ha of world forest loss. Indonesia's statistical yearbook *Statistik Indonesia* says that about 60% of the country are forested. But while Kalimantan, Irian Jaya, and the Moluccas are highly forested at 68% (Table 1), Java's proportion is only 23%. Indonesia's per capita forest area is 0.6 ha, but here too there are large regional differences, ranging from the 17.5 ha on Irian Jaya to the 0.3 ha in the Nusa Tenggara. Per capita forest area on Java is near zero.

¹ An early form of this paper first appeared in "Chapter 5, Indonesia" in *The State of the Environment in Asia*. Springer.

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³ Geertz, C. *Agricultural involution: The Processes of Ecological Change in Indonesia*, Univ. of California Press, 1963.

⁴ "Forest Resources Assessment 1990: Tropical Countries," FAO Forestry Paper No. 12, 1993

4. Economic Turning Point

Statistics show that Indonesians' dependence on the primary industries has declined as those industries' proportion of the GDP has decreased from 50% in 1965 to 40% in 1973.

Since Indonesia's independence its government has pursued economic development mainly through industrialization to substitute for imports, and to that end it has held to a "fell set" industrialization policy that attempts to build production systems for all products from consumer goods to their parts, intermediate inputs, machinery, and other production equipment. But in the early 1980s there were decreased prospects for income from oil and gas exports, which had supported this policy of dependence on internal demand, and the country directed greater expectations toward its industrial sector. In 1983 Indonesia began working on a structural adjustment and came up with a series of deregulation measures; the government instituted a policy of exporting more highly processed goods, weakened restrictions on foreign currency, and lowered the exchange rate. The manufacturing industries' share of GDP rose from 8% in 1965 to 10% in 1973, 11% in 1983, then to 21% in 1992, finally surpassing agriculture's 19%, then moving on to 24% in 1994. This brought Indonesia's domestic industrial structure to a turning point. Advancing industrialization caused pollution problems mainly in the urbanized areas of Java, while deforestation became serious in rural areas like Kalimantan.

This paper will focus on forest loss and conservation in Java and East Kalimantan and discuss the roles of citizens' movement and NGOs.

II. FOREST DEVELOPMENT AND POLICY

1. Precarious Balance: Forests and Economy in Java⁵

The mention of "Java" conjures up rural scenes presenting lowland expanses of farmland and terraced rice paddies reaching up to the sky, and this scenery has been preserved because the people have achieved a certain measure of livelihood through rural industries such as articles woven of grass, rattan, and bamboo, the manufacture of palm sugar and tofu, and batik dyeing. For example, a 1981 survey of nine agricultural villages whose main crop is rice demonstrated the importance of these industries.⁶ In the villages as a whole, over 60% of income was non-agricultural. It is evident that Java's dense rural population is supported by a rural economy that assumes the development of the non agrarian sector. We should therefore be aware that rural scenery dominated by rice paddies and teak forests has been maintained by the development of urban export industries and farming village industry. The history of forest utilization on Java resembles that in European countries, where forest loss has stopped since the time agricultural productivity rose with the advance of industrialization, allowing people to get by without clearing forests for farmland or cutting them for fuel.

Why does Java's history of forest utilization resemble that of Europe even though it was under colonial domination? The reason that Java avoided ecological catastrophe despite heavy plunder and the rapid loss of forested area was perhaps because, thanks to the fertile soil, people had a comparatively low dependence on the forests. Another significant factor is that during the colonial era government land was clearly demarcated, which built the foundation for management of national forests and led to the decline of swidden agriculture. Owing to these conditions, plus increased rice productivity and the development of labor-intensive industry under post-independence government-led industrialization, ecological balance has been somehow maintained despite the growing population. Thus Java's beautiful scenery actually exists in a precarious balance with the potential to

⁵ This section owes much to: Inoue, Makoto, "Forest Utilization and Economic Development in Indonesia," in S. Nagata, M. Inoue, and H. Oka, *Utilization and Regeneration of Forest Resources: The Logic of Economics and That of Nature*, Nobunkyo, 1994 (in Japanese)

⁶ White Benjamin and Gunawan Wiradi, "Agrarian and Nonagrarian Bases of Inequality in Nine Javanese Villages," in Gillian Hart, ed., *Agrarian Transformation, Local Process and the State in Southeast Asia*, Univ. of California, 1989.

be upset.

2. Forest Development in East Kalimantan

In outer Indonesia it is Irian Jaya and East Kalimantan that make a typical contrast to Java. A swidden ecosystem prevails in these regions with their lush forests and low population densities. Owing to development of the forests, the non-oil per capita GDP growth rate is high. Because the logging boom began in East Kalimantan in the early 1970s, it had a two-decade head start over Irian Jaya in forest development, making it a good subject for studying the process of deforestation.

East Kalimantan was saddled with a variety of problems owing to the rapid loss of forest in conjunction with forestry development starting in the 1970s. Considerable changes have occurred in the economic and natural environments of the Punan, who live by hunting and gathering in the hinterland, and the Dayak, who make their living with traditional swidden agriculture and by selling forest products.

Industrialization and Transformation into a Market Economy

Let us begin by defining a concept to examine the development of forests. We shall define "transformation into a market economy," which progressed gradually over some centuries, as the process in which a non-market society takes on the character of a market society. The petty merchants, who endeavored to derive commercial profit by taking advantage of ecosystem differences, led this transformation. Their activities incorporated the Dayak into the Southeast Asia trade network. Next we shall define "industrialization," the most modern phase of transformation into a market economy, as the dynamic growth process including the assumption of a central position by fixed capital goods, improved production efficiency through learning effect accumulation and greater division of labor, and the accumulation of external economic effect by means of integrated sitting. This kind of industrialization is dominated by businesses, and the creation of credit by banks is a vital underlying element.

To be highly capable of adapting to industrialization, a society must have established market society forms for allocating and utilizing the production elements of labor and land. That is to say, creating the right to private landowner-ship and establishing the right to freely dispose and use labor must precede industrialization because free economic activity by merchants alone is not sufficient to adequately transact and allocate the production elements of land and labor.

Industrialization: The Three Revolutions

1) 1970s Logging Revolution

Dipterocarp trees in Borneo's lowlands grow as high as 70 meters, and this area is said to be the world's largest forest. Unlike the teak that Europeans had been after since early on, these forests were nearly untouched until recently because they had no commercial value. The trees in East Kalimantan have the best quality of those on Borneo, and logging was concentrated there in the 1970s.

Change in the way forests were developed came with the abandonment of *banjir kap*, a system of cutting and extracting timber that used human labor and the higher river water levels during the rainy season, and the adoption of capital-intensive methods that involve the use of chain saws for cutting, heavy machinery for extraction, and trucks and boats for transport. Most of the workers were Javanese who had immigrated or were there just to earn money. This system exponentially increased East Kalimantan's log production, raising its log exports from 300,000 cubic meters in 1968 to more than 7 million cubic meters in 1978. Throughout the 1970s, East Kalimantan accounted for one-third to one-half of Indonesia's log production.

Meanwhile, intensively logged land turned into extensive swidden or pepper fields. Because these fields were abandoned as their fertility declined, the agricultural frontier kept moving farther into the forest interior in search of new logged-over land, resulting in the continual shrinking of forested area and the appearance of barren grasslands like *alang-alang*. Further, the extensive forest

fires of 1983 burned over much of the logged area. In only about 20 years the forested views of East Kalimantan completely changed except for the hinterlands.

2) 1980s Plywood Revolution

In 1970 immediately after the logging boom began, the Suharto government issued an order requiring all companies with logging concessions (HPH) to establish forest product processing plants, such as for plywood, within three to ten years after they start logging. Although HPH companies thus started building plywood plants in 1973, at first these were almost all producing for the domestic market. But a 1980 change in forest policy obligated HPH companies to supply logs for domestic use. Restrictions on log exports gradually tightened, ending in a ban in 1986. Indonesia's development policy had switched from emphasis on the export of primary products like oil, natural gas, and logs, to one emphasizing exports of industrial products. An effect of this was the rapid development of the plywood industry into an export industry after 1979, with plywood exports of about 120,000 cubic meters growing 30-fold in six years to over 3.5 million in 1985 and to 9.6 million in 1993 (3.7 million cubic meters went to Japan). In 1985 plywood outstripped traditional export industries such as coffee, tin, processed rubber products, and shrimp, coming out in third place behind oil and natural gas. In monetary terms the export ranking in 1993 was textiles, oil, plywood, and natural gas. Growth of the plywood industry contributed to growth in adhesive manufacturing and other related industries, making plywood's unmistakable contribution to the national economy an employment increase. A mere 742 plywood workers in 1974 ballooned to 14,800 in 1979, 118,000 in 1984, and 445,600 in 1993, making the plywood industry one of those with the biggest employment capacity among large and medium-sized industries. East Kalimantan is of central importance in the plywood industry. There are so many plywood factories along the Mahakam River on the outskirts of Samarinda that the area is called the "world's plywood mall." In 1993, 27 of Indonesia's 121 plywood factories were in East Kalimantan, where the large number of people and the high per capital GDP attest to the plywood industry's importance to the economy.

3) 1990s Tree Plantation Revolution

In the 1990s Indonesia's government energetically promoted "industrial tree plantations" (HTI), which signifies the planting of production forestland by business concerns that have obtained an "industrial tree plantation concession" (HPHTI). Its purposes are to strengthen the country's wood industry, while promoting environmental conservation by planting trees in deforested areas. HTIs are areas used to produce chips for pulp, and areas for other purposes, but in either type of area industrial plantations (including clear cutting) are meant only for low-productivity areas of under 25 cubic meters per ha. Organizations with HTIs can be divided into four categories based on their characteristics: Provincial forestry bureaus, the national forest products company (INHUTANI), government-private sector joint ventures, and private businesses/cooperatives. Many HTI organizations are joint ventures because they get preferential treatment such as 14% of costs provided by the government, and they need only 21% owned capital.

However, many people have already settled on lands to be reforested, where they practice swidden agriculture. Some of these people are the indigenous Dayak peoples. Companies have varying ways of taking over lands to be planted. If the settlers are Dayak, for example, even though they may not be forced to give up land actually under cultivation, if their gardens are surrounded with planted woodland, they will be forced to move out in a few years when the fertility of their farmland declines. By that time fallow forestlands will have been logged over and replanted with fast-growing species, leaving the settlers with little space for swiddens. Losing their land in this manner forced people into considerable lifestyle changes. Of course, lumber companies pay them compensation when their perennial crops have been planted on land to be forested; allow the people to intercrop food crops among the planted trees for one or two years in return for managing the trees; lend guidance in planting trees needed in their livelihoods; and provide other assistance. Basically, however, the only two choices that settlers in industrial tree plantation areas have are to either become forestry workers or get out.

Forest policy is shifting from the natural forest-logging phase to the plantation phase. While

this shows the failure of sustainable forestry that consists mainly in selective cutting, it is also the unfolding of an orthodox forestry policy that aims to create productive forests by planting trees on degraded land. Currently, however, the friction between forest inhabitants and forest policy, which was not very evident during the natural forest-logging phase, is becoming evident over land expropriation for industrial tree plantations.

Forest Development as "Incomplete Industrialization"

As we have seen, the element common to the above three industrialization processes is that the Dayak and other forest-dwelling native peoples have not benefited much from development, or have been adversely affected. Their habitations have been, incorporated into national forests, and companies with concessions have plundered their means of subsistence. Land transaction and allocation, which were to be accomplished for industrialization, were therefore to an extent achieved by force. On the other hand, most of the loggers and afforestation workers are Javanese, with a very small proportion of Dayak. The task of labor transaction and allocation was thus achieved by hiring Java's excess labor.

In view of this situation, it was not the people of Kalimantan, but the companies and Javanese backed by national policy, who had the capacity for adapting to industrialization. East Kalimantan is the scene of "incomplete industrialization," i.e., industrialization that is proceeding despite the affected societies' lack of adaptive capacity.

III. DESIRABLE FOREST POLICY

1. Two Complementary Policy Concepts

As "incomplete industrialization" proceeded rapidly in East Kalimantan, forests disappeared and social problems arose over land. This situation leads to the logical conclusion that forest policy henceforth should take one of two directions: Either try to achieve "complete industrialization," or take a different tack, that of rebuilding a social system based on the commons.

Grounds for the "complete industrialization" strategy are that the Dayak themselves wish to benefit from modern civilization, and that as Kalimantan has a long history of transformation into a market economy, the conditions for industrialization are readily found. If this strategy is adopted, it would be necessary to set up a system allowing the Dayak to sell their land and labor as they like, which would in turn require education and private land ownership. Under this system forestry policy, including industrial afforestation and its potential problems would move in tandem with policy guaranteeing ownership of residential and farming land, and educational opportunity. Intercropping in the industrial tree plantation areas would be allowed only transitionally.

Grounds for the "commons" strategy assume that although people want a market economy, they do not necessarily desire industrialization. This would necessitate giving full play to the Dayak system of using the forests while keeping intact the Dayak-merchant trading network that has existed since before modern times, and would rebuild autonomy and social relationships that are not subject to official control. Social forestry – forest-related activities with local people's participation meant to stabilize and improve their livelihoods and welfare - would play a central role. Specifically this system would involve, for example, leaving the management of protected areas to local people, who have long had a sustainable relationship with the forests, and allowing "communal forests," in which inhabitants continue customary forest utilization to complement the complete industrialization policy.

2. Zoning Based on Current Land Use

Implementing policy concepts like those above would consist basically in clearly demarcating forest zones and determining ways to manage them appropriately in accordance with their purposes while taking the livelihoods of local people into account.

Indonesia has classified its forests on the national and provincial levels into nature reserves, protection forests, limited production forests, production forests, and conversion forests. This zoning

scheme has various problems, the most serious being that current land use is not taken into account at all when drawing zone lines on the map. As inhabitants are thus left out of the equation, it is difficult to give them a role in managing forests whether complete industrialization or the commons system is chosen. A zoning system should take into account the inhabitants and their use of the land (Table 2). In some nature reserves it will be necessary to leave management to the inhabitants, which would involve restoring the commons. UN data on protected areas show that with 180,000 square km protected, Indonesia ranks third after Brazil and Venezuela among tropical forest countries, while in number of designated places it ranks first with 169.⁷ Owing to Indonesia's importance in protecting world biodiversity, there is concern about effective methods of managing its protected areas. While the strategy basically applied in production forests might be complete industrialization that allows private land ownership, it might also be necessary to adopt the commons idea, such as by allowing some communal forests. Doing so would give inhabitants an incentive to protect the forests, thereby providing tile government with a low-cost forest management method. This would of course assume detailed economic and social studies. In conversion forest areas, it would be important to promote agroforestry to ensure that farmland is used sustainably.

3. The Two Strategies in National Forest Policy

Finally let's examine the possibility of these strategies becoming reality. The 1960 Basic Land Law recognizes customary communal disposal rights and establishes ownership based on customary law. This makes both strategies possible as long as they do not oppose the interests of the citizens or the state. Under the 1967 Basic Forestry Law, customary forest use is possible as long as logging companies allow it. So although it is impossible to place a whole region under the dominion of its inhabitants, it is possible to secure a portion of a company's commercial forestry area as a communal forest. Such an arrangement would be the partial restoration of the commons under complete industrialization.

But the Basic Forestry Law makes it impossible for a group of inhabitants occupying a certain parcel of land to obtain a customary communal disposal right, which rules out a policy that leaves the management of protected areas to indigenous peoples. If the government strictly applies the Basic Forestry Law and promotes the confirmation of private land ownership as set forth in the Basic Land Law, then the commons strategy will become quite unrealizable. In fact, land registration is underway with World Bank financing, which means one can only watch to see that complete industrialization is properly implemented.

Nevertheless, there are attempts to facilitate social forestry and local participation as part of national forest policy, which would probably necessitate explicitly allowing customary communal forests by changing the Basic Forestry Law provisions stating that tribal forests, local forests, local government forests, and the like do not exist. Having done so, it would be crucial that the Dayak and other forest dwellers are able to set up a collective forest management system with the help of the government and NGOs, which would only then make it possible to at least partially incorporate the commons strategy.

IV. THE IMPORTANCE OF NGOS IN FOREST POLICY

Off the west coast of Sumatra lie the Mentawai Islands, whose biggest island is Siberut. As over 60% of Siberut's flora and fauna are endemic species, the island is in the spotlight for its importance to conserving biodiversity. But since 1960 the government's resettlement policy has increased the island's population and encouraged rice agriculture. Furthermore, logging under concessions, the development of oil palm plantations, transmigration operations, and the like are contributing to environmental degradation, thereby threatening the people's livelihoods. Following is a brief overview of the NGO role in establishing a national park.

⁷ IUCN, United Nations List of National Parks and Protected Areas, 1990

1. An international Campaign

1990 saw the formation of SOS Siberut, an international organization based in Britain. SOS Siberut mounted a campaign to protect Siberut with the cooperation of SKEPHI (Indonesia Forest Conservation Network) in Jakarta and PMS (Siberut Residents Association) on the island itself. As Siberut was also designated a protected area under UNESCO's Man and the Biosphere (MAB) program, the campaign enjoyed strong international support. Campaigners conducted a letter-writing campaign, and also lobbied the British government, UN, and other bodies, as well as WWF and UNESCO, which had been involved with the Siberut issue since the early 1980s. In November 1991 the campaign issued a newsletter worldwide appealing for urgent action, which resulted in a huge volume of written demands and protests sent by the people of many countries to Indonesian government ministries.

2. Domestic NGO Activities and the Government Response

Since the beginning of that international campaign, the Siberut Island issue has been a very sensitive one to the government. In fact, a workshop to be held in West Sumatra was forced into cancellation by the Directorate General of Nature Protection, Ministry of Forestry. In December 1991 SKEPHI, with the participation of the media, the government, and NGOs, scheduled a seminar in Jakarta in order to provide the people of Siberut with an opportunity to speak their minds, but two days before the scheduled date a warning forced it into cancellation. PMS and SKEPHI then talked to the Ministry of Population and Environment, which, although politically weaker than the Ministry of Forestry, had indicated an understanding of the Siberut issue. This catalyzed a meeting of SKEPHI, PMS, and representatives of several ministries, with the minister of population and environment playing the leading role. Although SOS Siberut and the media were not allowed to participate, the meeting achieved major progress including decisions to send a special government fact-finding mission to Siberut, and to hold inter-ministry meetings on the matter.

These points summarize the response of Indonesia's government. (1) The Ministry of Population and Environment has consistently taken the side of nature protection and native rights. (2) However, it has been powerless against the Ministry of Forestry because of its own weak political strength. (3) The Ministry of Forestry's overriding priority is wood production. (4) Yet, there is also a Directorate General of Nature Protection (PHPA), which has created protected areas under pressure from international public opinion and other factors. (5) Nevertheless, the Ministry of Forestry tends to avoid the issue of native rights.

3. Creation of a National Park

On March 31, 1992 President Suharto issued an order under which logging on Siberut Island would conclude upon the expiration of the present forestry concession. There was also a decision to adopt a new approach: instead of depending mainly on patrolling, Indonesia would try to conserve its biodiversity by combining the management of protected areas with community socioeconomic development achieved through local participation. Plans were made to translate this policy into concrete action as a biodiversity conservation project under the credit agreement signed with the Asian Development Bank on December 21, 1992. According to the provisions, within six months after the agreement went into effect, the Ministry of Forestry was to officially designate as a national park the Siberut Island wildlife sanctuary and the adjoining logged-over forest that was designated a production forest, and on August 10, 1993 the Minister of Forestry indeed designated 190,500 ha (43% of the island) as Siberut National Park. Thus, NGO support for local indigenous peoples, with the backing of the MAB program and the support of international public opinion, demonstrated that NGOs are capable of considerable achievements.

V. CONCLUSION

Generally it is the central and regional governments that are the primary actors in environmental policy. Such being the case, while the government determines the system for policy

objectives and means, it is supposed to incorporate citizen preferences by way of a policy determination mechanism. But because governments often represent mainly the interests of certain groups, one cannot automatically assume that a government "democratic" in form will choose policy objectives and means that accurately reflect the will of the people. Accordingly, one hopes not only that environmental policy has a public sector (the government), but also that NGOs and businesses too will play important roles as primary actors.

Yet, in a parliamentary democracy it is legislation by the parliament that is the proper means of placing environmental policy under control of the citizens. However, it is unrealistic to restrict everything with laws, and thus in view of specialization, suitability to the situation, and flexibility, one cannot deny the need for administrative discretion. Vital here is democratic control over administrative planning, which is where administrative discretion manifests itself. Of cardinal importance to that is freedom of information, which provides citizens with the basic information they need to make judgments, and local citizen participation, which guarantees them the opportunity to be involved.

In any event, local participation will henceforth be the keyword of environmental policy, although hardly any country in the world guarantees this institutionally, Indonesia being no exception. This means that movements by local people will perforce play a bigger role in environmental policy. Such movements arise spontaneously in response to harm and oppression committed in the name of "the public interest," and constitute an antithesis to domination by public power and business. When policymaking processes are closed, these movements generally tend to be little more than campaigns to censure or resist, and it is difficult to build their capacity to offer alternatives that are constructive and feasible. Indonesia too needs to create an enabling political environment in which community-based area resident movements (by people living in the affected area), and the alliance-like citizen movements (by national and international NGOs) that support them, can commit themselves to constructive work on environmental problems. To facilitate this process of working toward self-initiated and sustainable development it will be essential to have not only cooperation by Japan's government, which has a highly visible presence through official development assistance, but also international and Japanese citizen support for Indonesian NGOs.

Appendix 1: Change in the Swidden System

The chief habitation of the Kenyah Dayak, a swidden farming people of Borneo, is the Apo Kayan region in the hinterland. In the early 1950s they began migrating to the watersheds of the Mahakam and other rivers, and now have villages throughout East Kalimantan.

They classify the vegetation of former swiddens into several categories and name it depending on its ecological succession stage. Their livelihood depends on recurrent swidden farming in which reuse of land waits until tree trunks are at least as big as a person's thigh, which normally takes 10-odd years. Important here is that the determinant of this cycle is not how many years have passed, but the recovery phase of vegetation in former swiddens. This system is ecologically sound because even if site conditions vary, it assures there is a certain amount of nutrients available,

But their system is undergoing rapid change. Some people in downstream villages now reuse sites that still have grassy undergrowth. Also, the farther downstream a village lies, the more it is integrated into the market economy, and the more changes there are in customary land holding systems, mutual help arrangements in daily life, and the organization of labor for swidden agriculture. Originally the Kenyali Dayak's subsistence depended completely on the stability of forest resources, thus making it necessary to avoid taking too much from nature, which would invite a reduction or exhaustion of resources. These changes therefore constitute a process that weakens their role as forest conservationists.

Appendix 2: The Process of Deforestation

Indonesia's government classifies forested land into "nature reserves," "protection forests," "production forests," and "conversion forests." Companies that obtain concessions, which are mainly on production forests, are obligated to observe certain restrictions, such as waiting to log again only

after 35 years, but concessions are normally 20 years. Although extensions are possible, companies have a stronger motive to make the biggest possible profit in a limited time than to use resources sustainably by thinking ahead 35 years. In fact it was often the case that companies brought in heavy machinery and recklessly took out the trees with high commercial value. While it is the government's job to prevent this, it is impossible for the limited number of worker to monitor all the remote logging sites. And even if companies follow the rules by leaving trees that promise to be valuable someday, it is very possible they will be logged illegally, another factor heavily influencing logger behavior.

In 1980 about 100 loggers had concessions in East Kalimantan, but there were also 50 to 60 logging teams operating without government permission, which apparently cut the remainder of forests that had been selectively logged by concession holders mainly along the road joining the provincial capital of Samarinda with the oil town of Balikpapan. The decisive push toward deforestation came from settlers who used the roads through logged areas to move into the forests, where they practiced non-traditional swidden farming. On the lower reaches of rivers in East Kalimantan settlers created pepper gardens that are maintained by thorough weeding that exposes the ground to rain and direct sunlight, resulting in the nearly complete loss of topsoil. When people stop maintaining the gardens owing to production declines or a fall in the market price, the land is taken over by *alang alang* grass and turned into prairie. Typical throughout Southeast Asia is this reforestation process, which begins with commercial logging and ends with non-traditional swidden farming.⁸

⁸ Based on a field study by Inoue.

Table 1 Indonesia's Regional Characteristics

Region	Soil	Ecosystem	Main food	Population	Migration	Forested	Per capita Proportion	Per capita forested area	Growth rate of non-oil GDP	non oil GDP
Java	Fertile	Rice paddies	Wet rice	Dense		Outflux	Low	Nearly zero		Low
Nusa Tenggara	Poor	Swidden	Other grains						Low	
Sumatra	Poor	Swidden	Dry rice							
Kalimantan	Poor	Swidden	Dry rice	Sparse		Influx	High	Large	High	High
Sulawesi	Poor	Swidden	Tubers, other grains, sago							
Maluku	Poor	Swidden	Tubers, other grains, sago	High						
Irian Jaya	Poor	Swidden	Tubers	Sparse			High		Large	High

Note: Though one of the Nusa Tenggara, Bali is actually similar to Java in May indicators.

Table 2. Basic Policy on Forest Use Categories (Proposed)

Forest category		Purpose	Vegetation	Inhabitants	Forestry activities
Nature reserves	Strictly protected areas	Conserving biodiversity	Primary forest	None	None
	Areas for hunter-gatherers	Guarantee land to hunter-gatherers Production of non-wood forest products Conserving biodiversity		Hunter-gatherers.	
	Areas for traditional swidden farmers	Guarantee land to traditional swidden farmers Production of non-wood forest products Conserving biodiversity.		Traditional cycle swidden farmers	
Protection forests	Erosion control, watershed protection, etc. Production of non-wood forest products	grassland	May be expelled in certain circumstances	Environment afforestation (when	
Communal forests	Guarantee customary forest use to indigenous people.	Secondary forest	Semi-traditional swidden farmers.	Non.	
Production forests	Wood production.	Secondary forest	Forestry workers.	Selective cutting, industrial tree Enrichment planting.	
	Production of non-wood forest products				
Conservation forests	Conservation to farmland and residential lots	grassland	Non-traditional swidden farmers.	Social forestry Social forestry (especially farm forestry)	

- Notes. 1) Except in strictly protected areas, hunting is allowed to the extent needed for the livelihood of indigenous peoples.
 2) Secondary forests include logged-over forests and former swiddens.
 3) Social forestry in production forests may assume many forms, such as fuelwood plantations, taungya-type agroforestry, etc.
 4) Communal forests exist in spots throughout production forests.
 Source: Prepared by Inoue on the basis of field work in Indonesia

Table 3 Indonesian Environmental Policy Timeline

Year Policy and Other Changes	
1967	Basic Forestry Law, Foreign Investment Law.
1968	Domestic Investment Law.
1970	Foreign Investment Law revised to provide for selective introduction of foreign capital.
1974	Forest development concessions limited to domestic capital.
1977	Proclamation by mayor on water quality in Jakarta's rivers.
1978	Appointment of State Minister for Development Supervision and Environment; provincial governors' decisions on industrial effluent in East Java and Central Java provinces.
1980	Law on reforestation fund to obligate concession holders to contribute US\$4 per cubic meter
1981	Phase out of log exports; policy to foster plywood industry.
1982	Environmental Management Act.
1983	Appointment of State Minister for Population and Environment.
1985	Total ban of log exports
1986	Regulation on Environmental Impact Analysis.
1988	Decree by population and environment minister on environmental quality standards; no more permits for new plywood factories.
1989	PROKASIH (Clean River Program) initiated; reforestation fund increased (US\$7 per cubic meter); legal sanctions enacted on violations of forest development provisional
1990	Environmental Impact Management Agency established; reforestation fund increased (US\$10 per cubic meter); law to facilitate industrial tree plantations (HTI).
1991	Ministerial Decree on Waste Water Quality Standard for Activities Already in Operation.
1992	Repeal of total ban on log exports and institution of high duty on their exports (US\$500-4800 per cubic meter).
1993	Appointment of state minister for the environment.

CAUSES AND SIZE OF 1997/98 FOREST FIRES IN INDONESIA

Makoto Inoue¹

1. CAUSES OF FIRES

(1) Legal classification of land where fires occurred

There are several important factors involved when considering the causes of fires. One is the legal classification of the land where fires occurred. The possible causes of fires vary depending whether the land is forest, agricultural estate land, or a transmigration project site, etc. With regard to forests alone, a number of categories exist, including Protection forests (protected for the purpose of controlling erosion, etc.), production forests (for the purpose of timber production), and conversion forests (to be converted to agricultural estates or residential estate land).

Agricultural estate land such as for oil palm trees, etc., is categorized into either land for large agricultural estates operated by companies, or nucleus and small holder estates (called PIR) mainly operated by farmers working on a small-scale. In either case, as mentioned, possible causes of fire differ according to category.

(2) Causes of fire and possible economic activities involved

The next important factor to identify possible causes of fire is the origin of fire. Ultimately, the characteristics of the fire depend on whether it was started by "Intended burning" conducted by a company, "Intended burning" by local people, or by "escaped fires". "Intended burning" means intentional setting of fire and for the purpose of land clearing, in contrast with "escaped fires" which cause a fire to start and spread unexpectedly.

One factor deserving attention is that even with Intended burning conducted by a company, local people actually set of fire in many cases. Companies pay 200,000 to 250,000 Rupiahs to local people to have them do contract work starting fires for Intended burning on industrial plantation sites (large scale monoculture plantations for industrial uses such as pulp wood), oil palm estate land, and transmigration project sites (Transmigrasi) (Hafild 1997). Guidelines exist which prohibit Intended burning to clear the land in transmigration project sites, and also give instructions to use trees as chip wood without burning during site preparation for industrial plantation sites. However, companies choose the low cost Intended burning method.

Another important factor is that "forest fires" referred to by forestry experts, do not include Intended burning. "Forest fire" as a technical term indicates a fire that starts from escaped fires in vegetation on land classified as forest land. Accordingly, Intended burning in production forests for the purposes of industrial timber plantations or for oil palm estates are not referred to as "forest fires".

What kinds of economic activities could cause forest fires? Apparently both the government and non-governmental organizations have considered agricultural estate developments such as for oil palm to be the most important factor, followed by industrial timber plantations. Other causes mentioned include slash-and-burn agriculture conducted by local people, and escaped fires due to slash-and-burn agriculture, land clearing for transmigration projects, and land clearing for the million hectare paddy field development project in Central Kalimantan, etc.

The causes of fires conjectured by this author are referred to in Table 1.

(3) Policies to date related to causes of fire

(3)-1 Agricultural estate development

With regard to agricultural estate development, the Ministry of Agriculture, Directorate General of Estates (Direktorat Jenderal Perkebunan) previously had authority. However, with the new cabinet formed in March 1998, the whole Directorate General of Estates was moved under the of the Ministry of Forestry. The name of Ministry of Forestry was changed to Ministry of Forestry and Estates (Departemen Kehutanan dan

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Perkebunan).

(i) Types of agricultural estates

Agricultural estate projects have a long history which began in the era of Dutch colonization 170 years ago. From the beginning, two types existed: large agricultural estates (Perkebunan Besar) and small agricultural estate (Perkebunan Rakyat). The third type, a combination of these two, called "Nucleus Estate and Smallholders" (Perusahaan Inti Rakyat Perkebunan or PIR) was introduced since the 1977/1978 fiscal year.

(ii) Nucleus Estate and Smallholders (PIR)

- Responsibilities of companies with under the nucleus estate and smallholder system are as follows.
Construct satellite estate by small holders.
- Prepare housing, agricultural land for food production, and other facilities (such as schools, health care centers, and chapels, and markets) utilizing the budget of the Ministry of Transmigration.
- Provide technical guidance to participants in the system.
- Purchase products from satellite estate at the price determined by the government.
- Percentage of land in estates under the PIR system must be 40 percent of the total estates (this ratio was previously 20 percent).

In addition, PIR participants are typically able to acquire 3 hectares prepared land. This included 2 hectares of land for oil palm cultivation, 0.75 hectares of land for food production and 0.25 hectares for housing. However, there are slight differences in land area allocated, depending on the type of estate.

PIR projects are currently classified into the following types (Tim Khusus Proyek Perkebunan Inti Rakyat, 1992; Sekretariat PIR, 1997).

A. PIR-BUN (PIR Perkebunan)

This is a common type of PIR, applied in 80 locations in 19 provinces, with 74 projects having been implemented up to the present. There are 3 types of PIR-BUN as described below.

A-1) Aid type PIR (PIR Berbantuan)

For this type the source of capital was credit from overseas (World Bank, Asian Development Bank, etc.) when this type of PIR started. It is also called the Nucleus Estate and Smallholder system. The sources of capital include credit from the Indonesian government and foreign countries. Initially, participants were only local people, but later they included people from transmigration projects (voluntary transmigrants). Those participants are provided a total of 2.5 to 4.0 hectares of land comprised of satellite agricultural estate (1.5 to 3.0 hectares), agricultural land (0.75 hectares), and housing land (0.25 hectares).

A-2) Independent type PIR (PIR Swadana)

A-2-1) Special PIR (PIR Khusus)

Domestic banks and the Indonesian government are sources of capital. This type of estate opens up new areas, and most of the participants are people from transmigration projects (voluntary transmigrants). Participants are provided a total of 3 hectares of land, comprised of satellite agricultural estate (2 hectares), agricultural land (0.75 hectares), and housing land (0.25 hectares).

A-2-2) Local PIR (PIR Swadana - PIR Lokal)

This is same as the Independent type PIR, except that it does not develop new areas, and participants are local people.

B PIR-Trans (PIR Transmigrasi)

This is a PIR combined with transmigration projects, and was started based on Presidential Decree No. 1 in 1986. The participants acquire housing land (0.5 hectares) and satellite agricultural estate (2.0 hectares). Since PIR-Trans began, most projects were in the western part of Indonesia. New projects have been stopped since 1990 due to a lack of capital.

C. PIR-KKPA (PIR Kredit Koperasi Primer untuk Anggotanya)

Under this type, when developing a satellite agricultural estate, members of a cooperative association receive bank loans (KKPA) through the cooperative association.

C-1) PIR-BUN KKPA Kawasan Barat Indonesia

This is a PIR-BUN which made efficient use of KKPA loans, applied in the western part of Indonesia.

C-2) PIR-Trans KKPA Kawasan Timur Indonesia

This is a PIR-Trans which made efficient use of KKPA loans applied in the eastern part of Indonesia. PIR-Trans projects, which had halted after 1990, were re-started in 1996. This type was applied in the eastern part of Indonesia, and KKPA loans were included.

(iii) Results

With regard to estate developments overall, this paper will simply summarize documents (Satoh, 1995) which analyse 1990 statistics of the Ministry of Agriculture, Directorate General of Estates due to a lack of updated data. The biggest three agricultural estate crops are oil palm, coconuts, and rubber. Comparing the size of estates by area, the largest share is for coconut production (3,334,000 hectares), the second is rubber (3,040,000 hectares), and the third is oil palm (1,146,000 hectares). However, the land area for oil palm had the highest annual average growth rate from 1985 to 1990 (13.9 percent), compared to coconuts and rubber (both 1.8 percent). The rapid growth rate of area for oil palm cultivation is remarkable. The production volume of oil palm (including crude palm oil and palm core production) made it Indonesia's top agricultural crop after surpassing rubber in the early 1980s, and coconut in 1990 (copra production volume).

The high rate of growth means a vast area of agricultural land is newly developed every year. Also, by presidential decree, new development of oil palm estates was limited to PIR-Trans projects since 1986. At the same time, the ratio of estate land area was changed from 20:80 for nucleus estate to satellite estate, to 40:60, limited to the first 10 years. This had the effect of easing conditions for nucleus companies establishing satellite estates.

Newly developed area of oil palm estates in the fiscal year of 1997 was estimated to be 9,600 hectares in total based on statistics of the Ministry of Agriculture, Directorate General of Estates. (Emoto et al, 1997)

(iv) Measures for fire prevention

No particular measures exist.

(3)-2 Industrial plantations

(i) Definition for industrial plantation projects

The term industrial plantations (Hutan Tanaman Industri or HTI) refers to an artificial forest on land classified as production forest land where a business entity has acquired an "industrial plantation concession" (Hak Pengusahaan Hutan Tanaman Industri or HPHTI). The objectives of industrial plantations are to strengthen the Indonesian timber industry as well as to promote environmental protection by afforestation of degraded land.

According to a Ministerial Decree of the Ministry of Forestry (regulations with regard to procedures to apply for HPHTI and related criteria), industrial plantations are divided into those for the purpose of chip production as raw materials for pulp, and other purposes. In any case, only low production forest stands with 25 cubic meters or less of stand volume per hectare are considered for industrial plantations (which conduct clearcutting).

(ii) Types of industrial plantation

A. HTI-Pulp (HTI pulp): for the purpose of raw material production for pulp

This type of plantation is extremely large in scale, with concession areas reaching a maximum of 300,000 hectares. Almost all trees planted are of the species *Acacia mangium*. The land is used on a short rotation of 7 to 15 years. As a condition to receive a concession, companies are obligated to own a pulp factory on their land, or have a plan to construct one in the near future. It is assumed that the large harvests of timber expected in the future will be consumed by the company owning the concession.

B. HTI-Perkakas (Other HTI): for the purpose of raw materials production for lumber, etc., (excluding pulp)

Although this category of HTI is smaller in scale than for pulp, concession areas still reach up to 60,000 hectares. Species for planting include *Acacia mangium*, *Eucalyptus* sp., *albizia* (*Paraserianthes falcataria*), *gelina* (*Gmelina arborea*), *merkus pine* (*Pinus merkusii*), and *mahogany* (*Swietenia macrophylla*), etc.

C. HTI-Trans (industrial plantation type transmigration projects)

These "transmigration projects combined with industrial plantations" (abbreviated as Trans-HTI) are a combination of transmigration policy and industrial plantation, and started in 1990. The participants acquire a house, 0.25 hectares for housing, and a one year supply of rice. Besides these benefits, employment opportunities related to industrial plantations are guaranteed. The government bears the cost of site preparation for housing, house construction, the construction of offices and clinics. In addition, since the 1996 fiscal year, they obtain ownership of 1 hectare of rubber plantation per household. Standard transmigration policy aims to reduce population pressures in rural areas of Java, and to promote sedentary agriculture. In contrast, HTI-Trans is basically a policy to secure a work force for industrial plantation projects. For this reason, the connection between the participants and companies are strong (Yokota and Inoue, 1996).

(iii) Results

Based on materials from the Ministry of Forestry, the newly developed areas over the four year period between fiscal 1994/95 and 1997/98 are shown in Table 2. For 1997/98, data represent site preparation before 19 November.

The point should be noticed here is that plantation sites established as HTI-Trans include industrial plantations for both the purposes of pulp wood and non-pulp wood production. In any case, it is clear that the plantation for pulp wood production are the focus of HTI-Trans projects.

In addition, HTI-Trans plantation area is included with the area of transmigration projects. Accordingly, to avoid double counting, in this paper the newly developed industrial plantation area in fiscal 1997 is estimated as 84,178 hectares which excludes HTI-Trans projects.

(iv) Fire countermeasures

The Ministry of Forestry has been announced the following regulations after the experiences from fires in 1983, 1991, and 1994.

a. Decree No. 243 (1994), Director of the Nature Conservation Directorate General "Technical guidance for control and prevention for forest fires in forestry project areas and other forest use areas"(Keputusan Direktur Jenderal PHPA No. 243/Kpts/DJ-VI/1994 tentang Petunjuk Teknis Pencegahan dan Penanggulangan Kebakaran Hutan di Areal Hak Pengusahaan Hutan dan Areal Penggunaan Lainnya):

These include guidance for making the optimal use of cut trees as chip wood to minimize the amount of burning. Ultimately this decree makes it possible to cancel of the rights of holders of logging concessions (HPH) and industrial plantation concessions (HPHTI), who are negligent in their effort to control forest fires.

b. Decree No. 244 (1994), Director of the Nature Conservation Directorate General "Technical guidance for extinguishing forest fires"

(Keputusan Direktur jenderal PHPA No. 244/Kpts/DJ-VI/1994 tentang Petunjuk Teknis Pemadaman Kebakaran Hutan): In categories such as ground surface fires, sub-surface fires, and tree crown fires, this decree provides guidance not only on technical matters such as building fire breaks and preparation of tools such as shovels, but also how to organize for systematic fire fighting .

c. Decree No. 245 (1994), Director of the Nature Conservation Directorate General

"Procedure to use equipment for extinguishing forest fires" (Keputusan Direktur Jenderal PHPA No. 245/Kpts/DJ-VI/1994 tentang Prosedur Tetap Pemakaian Peralatan Pemadaman Kebakaran Hutan): This decree includes operational procedures and functions such as for cutting tools like axes, raking tools, tools for extinguish fire, helicopters, fire trucks, etc.

d. Decree No. 246 (1994), Director of the Nature Conservation Directorate General

"Preparing signs about forest fires, and instructions for their siting" (Keputusan Direktur Jenderal PHPA No. 246/Kpts/DJ-VI/1994 tentang Petunjuk Pembuatan dan pemasangan Rambu-Rambu Kebakaran Hutan): This decree gives instructions for the size of the signs (1 m x 1.2 m), color (basic color is yellow green, fire is yellow

and red, etc.)

e. Decree No. 247 (1994), Director of the Nature Conservation Directorate General

"Instruction for standardization of facilities with regard to control and prevention for forest fires "(Keputusan Direktur Jenderal PHPA No. 247/Kpts/DJ-VI/1994 tentang Petunjuk Stabdarisasi Sarana Pencegahan dan Penanggulangan Kebakaran Hutan): This decree covers establishment of monitoring towers, and fire extinguishing tools, etc.

f. Decree No. 248 (1994), Director of the Nature Conservation Directorate General

"Technical instruction for control and prevention for forest fires in the forestry project area and other forest use area" (Keputusan Direktur Jenderal PHPA No. 248/Kpts/DJ-VI/1994 tentang Prosedur Tetap Pencegahan dan Penanggulangan Kebakaran Hutan): This decree covers instructions regarding obligation to report fires, fire fighting team organization, patrols, and fire extinguishing tools.

g. Notification No. 188 (1995) Minister of Forestry

"Establishment of National Central Committee for Forest Fire Response " (Keputusan Menteri Kehutanan No. 188/Kpts-II/95 tentang Pembentukan PUSDALKARHUTNAS): This notification covers establishment of National Committee for Forest Fire Control, etc. (Explained in section 5)

h. Notification No. 260 (1995) of Minister of Forestry

"Instruction of prevention for forest fires and fire fighting activities" (Keputusan Menteri Kehutanan No. 260/Kpts-II/95 tentang Petunjuk Tentang Usaha Pencegahan dan Pemadaman Kebakaran Hutan): This includes instructions regarding monitoring towers, patrols, fire extinguishing tools, obligations for governmental organizations and local people, etc.

i. Decree No. 48 (1997), Director of the Nature Conservation Directorate General

"System of command for extinguishing for forest fires" (Keputusan Direktur Jenderal PHPA NO. 48/Kpts/DJ-VI/1997 tentang Sistem Komando Pemadaman Kebakaran Hutan): This decree is about the system of command depending on the size of the fires.

(3) -3 Transmigration projects (Transmigrasi)

Since 1983, transmigration projects have been managed and supervised by the Ministry of Transmigration (Departemen Transmigrasi), which expanded its range of authority since 1993, becoming the Ministry of Transmigration and Forest Developer Settlement (Departemen Transmigrasi dan Pemukiman Perambah Hutan).

(i) Types

Matters relating to transmigration projects are stipulated by law. The latest law was established on 9 May 1997, Law No. 15 of the Republic of Indonesia (Undang-Undang Republik Indonesia Nomor 15 Tahun 1997 Tentang Ketransmigrasian) (in effect from the date the law was passed). According to this law, there are three types of transmigration projects, as follows.

1) General transmigration (Transmigrasi Umum): This is funded and implemented by the government. The government provides support to transmigrants by providing land, housing, and food, etc.

2) Assisted voluntary transmigration (Transmigrasi Swakarsa Berbantuan): This is implemented through cooperation between the government and companies. The government is responsible for implementation of transmigration projects, representing the welfare of the transmigrants. Companies conduct project activities together with the transmigrants. The government supports transmigrants by providing land, housing, and food, etc., and companies provide them capital financing, and guarantee the sale of their products.

3) Independent voluntary transmigration (Transmigrasi Swakarsa Mandiri): This is implemented by individuals or a group of local people. Some cases involve the cooperation of with companies; others do not. Transmigrants can acquire land and housing, but no support for food is provided.

(ii) Basic activity types and land allocation

These transmigration projects are implemented through a number of basic activity types (Pola Usaha

Pokok). According to the explanation of Law No. 15 (Penjelasan Atas Undang-Undang Republik Indonesia Nomor 15 Tahun 1997 Tentang Ketransmigrasian), there are three types of basic activity: main activities (cultivation, fisheries, livestock, agricultural estates, forestry, mining), secondary activities (processing, manufacturing), and other activities (such as commercial business). The types of the land which transmigrants can acquire are housing land (Pekarangan), agricultural land I for which the government arranges soil preparation (Lahan Usaha I), agricultural land II for which transmigrants arrange soil preparation (Lahan Usaha II), and satellite estates (Plasma), etc. The land area for each major basic activity type is as follows.

- Cultivation agriculture: housing land (0.5 hectares) + agricultural land I (0.5 hectares) + agricultural land II (1.0 hectares) = 2.0 hectares
- Started from fiscal year 1993. Before 1993, the allocation was: housing land (0.25 hectares) + agricultural land I (1.0 hectares) + agricultural land II (0.75 hectares) = 2.0 hectares.
- PIR: housing land (0.5 hectares) + satellite estate (2.0 hectares) = 2.5 hectares
- Fishery: housing land (0.25 hectares) + agricultural land I (0.5 - 1.0 hectares) + fish pond (0.5 hectares) = 1.25 - 1.75 hectares
- Industrial plantation: housing land (0.25 hectares) + rubber plantation (1.0 hectares) = 1.25 hectares
- Since 1996, ownership of land for rubber plantations became available.
- Livestock: housing land (0.5 hectares) + agricultural land I (2.0 -3.5 hectares) = 2.5 - 4.0 hectares
- Sericulture: housing (0.5 hectares) + agricultural land I (1.0 hectares) = 1.5 hectares.

(iii) Recent results

The results of number of transmigration families during the sixth 5 year planning period are shown in Table 3

The area of cleared land for transmigration projects not only includes the land allotted to transmigrants but also the land for schools, roads, public offices, and clinics, etc. Accordingly, the area of land cleared for transmigration projects in fiscal 1997 is more than 260,000 hectares, assuming 2 hectares allotted per family.

(iv) Measures for Fire Prevention

The Ministry of Transmigration has been working with Gadjah Mada University and Bogor Agricultural University to improve land clearing techniques through the study of "land clearing without the use of fire" (Pembukaan Lahan Tanpa Bakar or PLTB). In the General Director General of Settlement Circular No. 58 (Surat Edaran Direktur Jenderal Permukiman Nomor : SE-58/PL/1995), it was stated that land clearing on the transmigration project site would be done by PLTB method starting in fiscal year 1995/96.

PLTB techniques are stipulated in the following order: cutting, bucking, tree selection, yarding, and site preparation. For example, for bucking, instructions are to cut trees to 2 meter lengths if they appear to have no utility value, to about 4.2 meters if they have commercial value, about 4 meters for lumber, 2 meters for trees which can be used as firewood by transmigrants, and 1~2 for miscellaneous wood such as branches, etc. Also, as for yarding, miscellaneous wood is intended to be kept at the back of the housing lots and be used as firewood for transmigrants, or as chip wood for the company.

In spite of the existence of such rules, it is uncertain whether the companies doing land clearing have been following these rules.

(3) - 4 Million hectare paddy field development project

The project generally called "million hectare paddy field development project" is more accurately called the Million Hectare Peatland Development Project for Food Crops and Horticulture in Central Kalimantan (Pengembangan Lahan Gambut Seluas 1 Juta Ha Untuk Tanaman Pangan Dan Hortikultura Di Kalimantan Tengah). The following is an explanation of this project, based on government materials (Direktorat Bina rehabilitasi dan Pengembangan Lahan, 1996) and the results of interviews at the Ministry of Agriculture.

(i) Objectives (Tujuan) and Targets (Sasaran)

The objectives can be summarized by the following four points as being to: a) maintain rice self-sufficiency of and increase secondary crops (corn and potatoes) and horticultural products; b) improve farmers' welfare; c) create employment opportunities; and d) decrease dependence for food production on Java Island and support the development of eastern Indonesia

The three targets are: a) 796,000 hectares will be developed for food, horticultural crops, perennial crops,

livestock and fisheries, of which 638,000 hectares are designated for food and horticultural crops; b) establish new administrative areas (Desa or village, Kecamatan or sub-district, and Kabupaten or district); and c) improve support for private sector activities in services and agricultural industries.

(ii) Construction of canals

The project area is divided into 4 sections. These four sections, totaling 1,134,494 hectares, will benefit from canal construction. There are several different sizes of canals. The largest one, the Trunk Canal (Saluran Induk), is 25 meters wide, 6 meters deep, and a total of 110 kilometers long has already been constructed near the provincial capital of Palangka Raya City. The second largest, the Main Canal (Saluran-Primer) is 25 meters wide and 5 meters deep, and 80 percent of the planned 1000 kilometers have already been constructed.

(iii) Land use techniques

The following are the land uses based on soil type, hydrological conditions and meteorological conditions.

- Shallow peaty alluvial soils (peat layer less than 1 meter thick) are used for paddy fields. This accounts for about 85 percent of all land use.
- Soil with a peat layer 1 to 2 meters thick is mainly used for fruit trees, corn, potatoes and vegetables. Rice production is also possible.
- Soil with a peat layer 2 to 3 meters thick is used to produce perennial crops for export. Rice crops are not possible.
- Soil with a peat layer over 3 meters thick will not be developed for the purpose of conservation and in order to maintain the water storage functions preservation.

(iv) Development strategy

The million hectare peatland development project for food production will be implemented with the following strategies.

- * Develop the technical package and make models.
- * Develop water management methods locally to neutralize acidity in the soil.
- * Develop the "Surjan" system, which alternately arranges rice fields and fields, which cultivate corn, potatoes, vegetables, fruit trees, etc.
- * Improve capacity of human resources.
- * Implement agricultural techniques.
- * Improve regulations and services.
- * Expand the agribusiness for certain crops.

(v) Results of the development

The goal is to 300,000 families settle farmers through the transmigration project. About 20 percent of the participants of the transmigration project are local people and 80 percent are transmigrants from Java and elsewhere.

This project started in fiscal year of 1995. The following are the results.

- * Fiscal year 1995: 15,000 hectares
- * Fiscal year 1996: 40,000 hectares
- * Fiscal year 1997: 100,000 hectares
- * Fiscal year 1998: 180,000 hectares (projected)

By fiscal year 2002, the goal is to complete the entire development.

(vi) Fire prevention measures

As the development project is operated through the transmigration project, the contents correspond with the description under the transmigration project.

(3) - 5 Slash-and-burn agriculture

For this study, time was not sufficient to collect information about slash-and-burn agriculture. It is certain that slash-and-burn agriculture will involve controlled the use of fire. Therefore, to calculate the area under Intended burning, it is necessary to grasp the number of households conducting slash-and burn agriculture.

2. AREA OF LAND BURNED

At present, there is no accurate estimate of the area burned. However, provisional estimates have been calculated by the government, Indonesian Environmental Forum (WALHI), and World Wide Fund for Nature (WWF) etc., using NOAA weather satellites and geographical information systems (GIS).

(1) Estimates by the government

(i) Ministry of Forestry

The Ministry of Forestry estimates the area of "forest fires" caused by escaped fires to be about 170,000 hectares. See Table 4.

The details of each province (January 1997 to November 1997) from largest to smallest are: West Kalimantan (23,264 hectares), East Kalimantan (17,543 hectares), Maluku (12,985 hectares), Central Kalimantan (12,950 hectares), South Sumatra (8,185 hectares).

(ii) Ministry of Agriculture

According to the daily newspaper "REPUBLIKA", on 7 October 1997, the Minister of Agriculture estimated that 121,630 hectares of agricultural estates had been destroyed by fires. Of that figure, 88,700 hectares were on previously cleared estates, and 1,500 hectares on newly cleared land.

(2) Estimates by NGOs

(i) WALHI (Wahana Lingkungan Hidup Indonesia, or Indonesian Environmental Forum)

WALHI estimates the burned area as in Table 5, based on information from 335 cooperating organizations in 23 provinces in the country.

(ii) WWF

WWF Indonesia has collected information from the staff of 16 projects which were conducted in 7 provinces. Based on this information, WWF international estimates that the total burned area, including natural forests is 2 million hectares (WWF, 1997).

(3) Estimate of the minimum area burned

Now, we estimate the minimum burned area referring to the above information.

(i) Forests

The government estimate for production forests (123,536 hectares) relates to forest fires caused by escaped fires. We assume that Intended burning was done on all of the new sites prepared in 1997 in industrial plantations (84,178 hectares). Therefore, the area burned becomes the total of fires caused by escaped fires and Intended burning, or 207,714 hectares.

The area of forest fires caused by escaped fires in Protection forest s, national parks, recreational forests and research forests is 41,825 hectares according to the government estimate. We assume that Intended burning was not conducted in these forests. Although there are many reports that local inhabitants conduct slash-and-burn agriculture in forests, the exact number of households practicing slash-and-burn agriculture is unclear. Therefore, we will use the estimate by WALHI, 3000 hectares.

(ii) Non-forest

Fires caused by escaped fires in existing estates totaled 90,000 hectares, according to government estimates. We assume that the area under Intended burning for new agricultural estates is equal to all of the new land cleared for oil palm production (189,600 hectares). The total of these two is 278,300 hectares.

Regarding the Million Hectare Paddy Field Development Project in Central Kalimantan, if we assume that Intended burning was conducted on all of the area of new land cleared in 1997 according to the Ministry of Agriculture, the area burned would be 100,000 hectares.

(iii) Totals

If we total all of above, the estimated burned area by December 1997 is at least 914,661 hectares (Table 6).

3. COUNTERMEASURES AGAINST FIRES

(1) Domestic Measures

(i) Systems for preventing and extinguishing fires

For forest fires in areas classified as forest, on the National level, National Committee for Forest Fire Control (PUSDALKARHUTNAS: Pusat Pengendalian Kebakaran Hutan Nasional) takes the initiative. In this committee, the person of ultimate responsibility is the Minister of Forestry and the head is the director of the Nature Conservation Directorate General.

Coordination among ministries and agencies for fires outside of areas classified as forests is done by National Coordination Team for Forest/Land Fire Control (Tim Koordinasi Nasional Pengendalian Kebakaran Hutan dan Lahan). In this team, the person responsible is the Minister of Environment (who also serves as Chief of the Environmental Impact Management Agency, and the Director of the Nature Conservation Directorate General of the Ministry of Forestry is responsible for implementation.

On the provincial level, Provincial Committee for Forest/Land Fire Control (PUSDALKARHUTDA: Pusat Pengendalian Kebakaran Hutan dan Lahan Daerah Tingkat) takes the initiative. On the district level, District Executive Headquarters (POSKOLAK: Pos Komando Pelaksanaan) takes the initiative. On the Sub-district level, the Sub-district Fire Prevention and Extinguishment Executive Force (SATLAK: Satuan Pelaksana) takes the initiative.

(ii) Other

On 8 August 1997, in Circular No. 899 (Surat Edaran No.899/Menhut-VI/1997), the Minister of Forestry announced to the local head officials of the Ministry of Forestry of all of Sumatra and Kalimantan that it is prohibited to conduct Intended burning for soil preparation of agricultural estate developments, industrial plantations, and transmigration project developments. Companies not complying with this rule will be stripped of their timber use rights (IPK).

On 12 September 1997, in Circular No. 2183, on receipt of a Presidential Decree, the Director General of Forest Enterprise announced to local head officials of the Ministry of Forestry the prohibition of clearing by Intended burning in all areas except Java and Bali.

Following these announcements, the timber use rights of 154 companies were actually cancelled (Soemarsono, 1997).

(2) Measures at the ASEAN level

In June 1995, the Environment Ministers of ASEAN countries agreed to collaborate on the issue of transboundary pollution. Based on this, they agreed to take action against smoke pollution (Regional Haze Action Plan, 22 December 1997, Singapore).

In this agreement, they agreed to complete plans by March 1998 for severe restrictions on land clearing by the Intended burning during the dry season, strategies to establish laws and other measures to manage air quality, guidelines to suppress activities that could cause fires, operational procedures to mobilize resources rapidly in order to prevent fires from spreading, and so on.

It was emphasized that one of the ways to improve local monitoring systems would be to strengthen the ASEAN Specialized Meteorological Center (ASMC). In addition it has been agreed to make a program to improve fire fighting capacity for ground fires and forest fires and investigate the possibility of technical cooperation from outside ASEAN to meet this plan. In these efforts, the Asian Development Bank (ADB) is supposed to provide advice.

Recently, at a meeting of Environment Ministers held in Brunei it was agreed to establish a fund to prevent smoke pollution caused by Indonesian fires (Asahi Shimbun, 7 April 1998).

Table 1: Speculated causes of fires

Category of land		Causes of fires		
		Escaped fire	Intended burning by companies	Intended burning by local people
Forest	Protection forest	*	-	# (slash-and-burn)
	Production forest	*	*(industrial plantation)	*(slash-and-burn)(Note 2)
	National parks, etc.	*	-	# (slash-and-burn)
	Conversion forest	*	*(Note 1)	*(slash-and-burn)
Non-forest	Large plantation	*	*	-
	Small estate/nucleus estates	*(cleared land)	*(newly cleared plantation)	*(newly cleared plantation)
	Transmigration project	*(cleared land)	*(new project site)	*(slash-and-burn)
	Agricultural land (paddy field, orchard, etc.)	*(cleared land)	*(newly cleared site)	*(newly cleared site)

Remarks: *confirmed cause, # possible cause, - unlikely cause

Note 1) Intended burning for the purpose of land clearing such as agricultural estate, transmigration project, agricultural land, and housing site

Note 2) Land clearing area of forests due to slash-and-burn agriculture is estimated to be approximately only 1 hectare per household.

Source: Makoto Inoue, Causes of Fire and Estimated Area. From Table 1 (pp. 128-144) of "Environmental science study on smoke pollution due to forest burning in Indonesia in 1997" in "Report on research results by subsidies for academic research" (Kokusai Gakujyutsu Kenkyu).

Table 2: Newly developed area for industrial plantations(hectares)

	1994/95	1995/96	1996/97	1997/98
HTI-Pulp	126,096	160,568	170,967	65,674
HTI-Perkakas	37,410	28,608	38,313	18,504
HTI-Trans	47,633	48,917	59,420	24,116
Total	211,139	238,093	268,701	108,294

Source: Materials from Ministry of Forestry

Table 3: Results of number of families transmigrating
(units: number of families)

Fiscal Year	General + Assisted Voluntary	Independent Voluntary	Total
1994/95	50,000	15,000	65,000
1995/96	50,000	27,000	77,000
1996/97	55,000	35,000	90,000
1997/98	65,000	65,000	130,000

Source:Material from Ministry of Transmigration and Forest Dwellers

Table 4: Estimated total area of forest fires

Forest type		Area of fires (hectares)	percentage
Protection forest	Hutan Lindung	10,921.30	6.60%
Production forest	Hutan Produski	123,536.19	74.70%
Nature conservation forest	Hutan Suaka Alam	9,141	5.50%
Recreational forest	Hutan Wisata	1,829	1.10%
National park	Taman Nasional	18,652	11.30%
Large forest park	Taman Hutan Raya	1,237	0.70%
Research forest	Hutan Penelitian	44.75	
Total	Jumlah	165,361.83	100%

Source:Directorate General of Nature Conservation, Ministry of Forestry, 23 October 1997.

Table 5: Estimate by WALHI of total burned area

Type of land	Burned area
Production forest (including industrial plantation)	578,000 ha (of which over 400,000 ha industrial plantations)
Conservation area (protection forest, national parks, etc.)	45,000 ha
Agricultural plantation (mainly oil palm agricultural plantations)	798,000 ha (mainly Central Kalimantan)
Million ha peat development projects	260,000 ha (Central Kalimantan)
Transmigration project site (newly cleared land)	30,000 ha
Slash-and-burn agriculture by locals	3,000 ha
Total	1,714,000 ha

Table 6: Estimated burned area (hectares)

Land Class		Estimates by the Government	WALHI	WWF	Author's Minimum Estimate	
Forest	Production forest	123,536 (Note 1)	578,000 (Note 3)	includes 10million hectare of raw forest fire	231,536	(Note 4)
	Protection forest	10,921 (Note 1)	45,000		41,825	(from gov't estimates)
	National parks etc.	30,904 (Note 1)				
	Slash-and-burn by local people	?	3,000		3,000	(WALHI estimates)
Non-forest	Agricultural plantation (oil palm etc.)	121,630 (Note 2)	798,000		278,300	(Note 5)
	Transmigration project	?	30,000		260,000	
	Million Ha Development*	?	260,000		100,000	(Note 6)
Totals		290,000 + ?	1,700,000	2,000,000	914,661	+ ?

* Central Kalimantan province. Mostly peat layer

Note 1) Area of "forest fires" caused by escaped fires reported by the Ministry of Forestry at the end of October 1997. The total is 165,362 hectares.

Note 2) Reported by the Ministry of Agriculture in the beginning of October 1997. Of this amount, existing agricultural estates were 88,700 hectares, newly developed agricultural estates were 1,500 hectare.

Note 3) Includes not only "escaped fires" but also "Intended burning" for industrial plantations (more than 400,000 hectares)

Note 4) Government estimates plus area of new site preparation of industrial plantations in fiscal year 1997 (84,178 hectares).

Note 5) Burned area of existing agricultural estates (88,700 hectares) plus newly developing area of oil palm agricultural estates (189,600 hectares).

Note 6) Newly developed area in fiscal year of 1997 of the Million Hectare Paddy Field Development Project in Central Kalimantan according to interview with the Ministry of Agriculture.

THE GROWTH OF OIL PALM PLANTATIONS AND FOREST DESTRUCTION IN INDONESIA

Sachie Okamoto¹

1. Foreword

According to the Food and Agriculture Organisation (FAO) Indonesia has experienced the greatest destruction of forests of any country in the Asia Pacific region, losing 1.212 million hectares per year from 1981 to 1990 and 1.084 million hectares per year from 1991 to 1995.

Causes of forest loss that have been identified include forestry policies which prioritize timber exports and neglect the management of forests after logging, as well as large scale domestic transmigration programmes, mining and plantation developments. In recent years especially, the expansion of oil palm plantations has been identified as the biggest cause. With this trend expected to continue, concerns exist that the destruction of Indonesia's forests will worsen. It has been pointed out that the uncontrolled use of fire to prepare land for plantation developments was a major cause of the catastrophic forest fires that occurred in 1997 and 1998 (Note 1). It is no exaggeration to say that the conversion of land from forest to plantation is only a final phase in the process of forest destruction.

With the arrival of lower oil prices in the early 1980s, the government of Indonesia promoted industrialization, aiming to escape from an overdependence on oil and natural gas. At the same time its policies placed a greater importance on increasing the production of the plantation crops of rubber, oil palm, cocoa and coffee, as primary export commodities, to replace timber which was starting to be depleted due to overlogging. Above all, the increase in area cultivated for oil palm was the most remarkable (Table 1). It grew from 105,8008 to 2,633,899 hectares between 1967 and 1998 (PDBI, 1998). Plans are for 3 million hectares planted by 2000, and if projects already approved are included it is predicted that in the future 5.5 million hectares will be under oil palm cultivation (Kompas, 1998/3/21).

The expansion of area being cultivated for oil palm are closely linked with Indonesia's forest policies. These policies progressed from the large-scale logging days of the 1970s known as the "timber rush", through the banning of log exports and promotion of plywood industries in the 1980s, to the promotion of industrial plantations (particularly monoculture crops such as for pulpwood) from 1990 onward. In parallel with industrial timber plantations, the conversion from forests to land for plantations for oil palm cultivation in particular has been aggressively promoted.

Only 6 percent of all companies hold logging concession rights (Hak Pengusahaan Hutan or HPH) in 1996/97 were considered well managed. By June of 1998 forest destruction was visible on as much as 16.57 million hectares of concession areas under the control of concession holders (Hakim,1999). In addition, forest logging projects are being converted to oil palm plantations (Note 2). In West Kalimantan, since the beginning of 1990, a growing number of timber companies have been going bankrupt due to shortages of raw logs, and from about 1992, many concession holders have been shifting their investments to oil palm plantations. This marked the end of the golden era of timber and the dramatic start of the golden era of oil palm. It is said that that timber can not possibly be a principle commodity to help obtain foreign exchange ten years from now (Kompas, 1999/8/23).

As numerous papers have already been published regarding Indonesia's forest policies this paper will not go into more detail on that subject. However the enduring impression is that the government's policies after logging emphasize the conversion to industrial plantations such as for pulp wood and oil palm, rather the restoration of forests.

After the mid-1990s it was non-governmental organizations (NGOs) in particular that sounded the alarm about the rapid growth in the land area cultivated for oil palm. At first, the most common criticisms concerned land-related issues of indigenous peoples, and the rights of local communities. However, more recently much criticism has emerged regarding environmental problems such as forest lost and the destruction of ecosystems.

Despite this criticism, the expansion of oil palm plantations appears rather to be accelerating in the midst of the economic crisis which started in the latter half of 1997. It is true that during the period of political and social instability following the economic crisis, investment in the oil palm plantation sector slowed temporarily.

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However, after the weaknesses of the industrial sector resulting from the currency crisis were exposed, the idea that exports of agricultural products are the safest and most certain for the economic recovery has become predominant among the government, economists and financial circles.

Strong demands for reforms arose from inside and outside the country as a result of the economic crisis and the collapse of the Suharto regime in 1998. Under pressure to reform the industrial structure from international financial institutions such as the International Monetary Fund (IMF), the Indonesian government conducted numerous policy changes. The forest and agricultural estate sectors are no exception. Fearing an oversupply of palm oil in March 1997, the Indonesian government adopted the policy of not allowing foreign investment in the oil palm estate sector. However after agreement with the IMF in January 1998, foreign investment controls were abolished. As a result, after 1998, ministerial decrees about plantations were announced frequently. From these laws and regulations, one could read that the government recognized the oil palm industry as the sector with the most promise to drive Indonesia's economic recovery, and sense the pressure from international financial institutions such as the IMF and World Bank (such as for the elimination of monopolies held by conglomerates), demands for decentralization, and demands for guarantees for the rights of local communities.

Now we will consider the issues surrounding Indonesia's oil palm plantations. We will analyse the Nucleus Estate and Smallholder (NES) system and forestland conversion policies which were the driving forces of oil palm plantation policies until now, as well as some of the main revisions emerging from the series of ministerial decrees after the agreements with the IMF.

2. Background of the Boom in Oil Palm

2-1. Volume of Production

Africa was the original source of oil palm trees, which were transplanted to Indonesia in 1848. The best habitat for oil palm is the tropical region from the equator to 12 to 15 degrees of latitude north and south where the average annual rainfall ranges from 2,000 to 2,500 millimeters. Since the size of harvest shrinks during the dry season, it is important that there are no long dry spells throughout the year. Humidity, which has a major impact on the growth of oil palm, should be high, from 80 to 90 percent. Temperature, which affects the flowering period and the maturity of fruit, is best at 29 to 30 degrees. At altitudes of 500 meters and above, flowering is one year later than at lower levels. Since the seedlings are sensitive to wind, cultivation is difficult in areas where typhoons occur.

It is clear that oil palm can only be cultivated in a limited number of regions. Tropical forest areas are ideal, where rainfall is plentiful, and temperatures and humidity are high. Neither tropical monsoon regions with distinct dry and rainy seasons, nor savannas are suited to the cultivation of oil palm. All of Indonesia is suited to oil palm cultivation, excluding eastern Java island, the Lesser Sunda islands, and part of Sulawesi.

The area under cultivation in Malaysia, currently the world's top producer, has reached the saturation point and cannot be expanded. Accordingly, it is predicted that Indonesia, with more land area, will one day take the place of Malaysia in terms of both area and production.

Table 2 shows the production by country. Indonesia's annual growth rate of 11.53 percent considerably exceeds Malaysia's 5.77 percent. In 2010, it is predicted that Indonesia's production of 12.29 million tonnes, will exceed Malaysia's 11.05 million tonnes, making it the world's largest producer of palm oil (Terampet, No.1/IV/1996).

2-2. Steady Growth in Demand

The growth in demand for palm oil is shown in Tables 3 to 6. Indonesia's domestic consumption of cooking oils (i.e. palm oil which is a raw material) increased from 4.97 to 11.23 kilograms per capita between 1987 and 1996. At the same time, the consumption of vegetable oils is increasing worldwide. Soybean oil accounts for the largest amount at 20.74 percent of the total, with palm oil second at 16.24 percent. The same trends are evident in other food and industrial products which contain palm oil as a raw material.

Reasons for the growth in demand for palm oil include health-conscious trends worldwide as well as the versatility of uses of palm oil. In countries such as China, Pakistan and India, it is mainly consumed as an cooking oil. In advanced industrialized countries such as Europe, North America and Japan, besides health-consciousness, nature awareness is growing as well. As a result of rising awareness about the global

environment, corporate image strategies promoting palm and other oils are effectively boosting demand by implying that vegetable oils are good for the environment.

In the vegetable oil market, palm oil is in fierce competition with soybean oil. In 1999 palm oil exports from Indonesia fell below forecasts as a result of a temporary halt in trade when diesel was discovered mixed with crude palm oil (CPO) destined for Europe; at the same time palm oil exports destined for China, Pakistan and India dropped due the lower price of soybean oil. However, demand is expected to grow in the health-conscious European market as a result of the belief that palm oil is relatively safe, compared to genetically modified soybeans.

2-3. Developments in the Processing Industry

Besides being used as cooking oil, palm oil is used for vegetable fat not only in foods such as margarine and shortening, but also in a wide variety of other applications such as an ingredients soap, shampoo and cosmetics, as an additive for leather and textile industries, a de-inking agent for paper, and in industrial uses such as anti-friction agents in metal processing.

In addition, in its economic development policy Indonesia is promoting "full-set" industrialization which develops industrial processes both upstream and downstream in each industry within the country; at present this is driving expansion from agricultural plantations downstream to palm oil processing, cooking oil manufacturing and oleochemicals. The fact that production costs are low due to Indonesia's cheap labor force is another reason this sector is seen favorably.

3. Major Policies Driving Oil Palm Plantation Expansion, and Related Problems

3-1. The Nucleus Estate and Smallholder (NES) System

3-1-1. History of Oil Palm Plantations

Large-scale cultivation of oil palm in Indonesia began in 1911. During period of Dutch colonization, plantations grew from an area of 1,272 to 92,307 hectares between 1916 and 1938. As problems with cultivation and processing technologies were resolved, Indonesia surpassed West Africa to become the world's top exporter. However, the profits from expanded exports were repatriated to the Netherlands, and land was expropriated from local communities for the agricultural estates. The people of Java were put forced into labor as workers for the agricultural estates. During this era, plantation developments were concentrated in Sumatra. Because a priority was placed on food production rather than cash crops during the period under Japanese military control (1942-1945), the cultivated area declined by 16 percent at the same as time worldwide demand dropped. In addition, as it was difficult to ensure the safety of marine transportation, the volume of exports declined. Next, agricultural estates suffered damage during the struggle for independence (1945-1948) and the Netherlands reclaimed the agricultural estates.

In 1957, the Indonesian government, having achieved independence seized and nationalized all agricultural estates that were owned by foreigners. The government then stationed military leaders as estate operators, and formed military-affiliated workers (BUMIL) where estate laborers and the military worked together. The role of military-affiliated workers was to be involved as advisers relating to the labor of the national military, as well as monitor labor movements of estate laborers as well as the work performance of the laborers. This era of nationalization was unstable politically, and Indonesia yielded to Malaysia the position of the world's top producer. (Note 3)

3-1-2. Introduction of the Nucleus Estate and Smallholder System

The Indonesian government started promoting oil palm cultivation in earnest in the 1970s in order to obtain foreign exchange. For that reason, the Nucleus Estate and Smallholder system (in Indonesian, Perkebunan Inti Rakyat or PIR) was adopted. It has supported Indonesia's oil palm plantation industry to this day.

Under the Nucleus Estate and Smallholder system the state-run or private-run company became the nucleus estate (Inti) of the system, and each smallholder (Plasma, or participating farm household in the NES schemes) in the vicinity was allocated 2 hectares per household for cultivation, and 1 hectare for housing and

subsistence gardening. The nucleus company provided cultivation technology and agricultural supplies to the smallholders, and purchased their harvest. Under this framework, the smallholders would then pay back loans in the form of "credit units" for what they had received, including the land.

The first time this system was introduced was during the Second Five Year Plan (REPELITA II, 1974-1979, which was actually implemented starting in 1976). Participating farm households received 2 hectares of land each and started cultivating oil palm as part of a pilot project in Labuhan Batu in North Sumatra, as a program of the World Bank. Because the specified land allocation was 20 percent for the nucleus estates and 80 percent for the smallholders, the costs and risks of supporting the smallholders was high; as a result, initially the Nucleus were almost entirely government-operated agricultural estates (Sato, 1995). Furthermore, because initially this project mostly focused on plantation land that had been abandoned by the Netherlands, in one sense it was welcomed as a solution to problems of poverty, such as landless farmers and the need to support smallholders.

Later, by Ministerial Decree No. 853 in 1984 from the Minister of Agriculture, when private corporations entered into oil palm plantation cultivation, it became mandatory to adopt the Nucleus Estate and Smallholder framework. In addition, by Presidential Decree No. 1 of 1986, for oil palm estates being newly developed it became mandatory to follow the Nucleus Estate and Smallholder system linked to the transmigration program (PIR-TRANS), regardless of whether they were run by state or privately.

In other words, in order to start an oil palm agricultural estate project, it was required to involve people from the densely populated areas of Java and Bali as smallholders. The government planned to relocate 15 million persons from densely populated Java, Bali and Madura to the sparsely populated areas such as Kalimantan and Irian Jaya.

By setting up plantations as nucleus estates, it was anticipated that attracting international financial assistance would be easier, as they would be considered as having economic and social objectives. This approach probably has some connection with the World Bank's announcement in 1984 that it would not give financial assistance for Indonesia's transmigration program. The World Bank still continues providing financial assistance to the Nucleus Estate and Smallholder program. Besides transmigrants, the smallholders targeted include farmers who live in the area where the estate projects are conducted and shifting agriculturalists. Until that point, the government had been promoting policies to settle shifting agriculturalists, but the transmigration-style Nucleus Estate and Smallholder program gave a great boost to those policies. The Minister of Transmigration determines the proportion of transmigrants and local farmers who become smallholders under the program. In order to encourage the participation of private corporations, the proportion of land was set at 40 percent for nucleus estates to 60 percent for smallholders for the first 10 years.

Under the Nucleus Estate and Smallholder system, the state- or privately-run estate companies would own the nucleus estate and crude palm oil processing factories, and the smallholders were provided 2 hectares per household where cultivation must be conducted, as well as 0.5 hectares of land for a house and garden. The smallholders (who also include local farm laborers) clear the land in 1000 hectare blocks. For the next 3 years cultivation of oil palm is conducted under supervision of the nucleus company. After this period, the farmers own the land that was cleared. Besides initially providing materials for cultivation, the nucleus estate side introduces technologies, and handles the marketing. The amount received to that point by the smallholders is calculated in the form of a credit package and paid off over 20 years, after a deferment period of 6 years before the first payment. The interest rate is 12 percent. Over the first year and a half at no cost transmigrants receive rice, salt, cooking oil, fuels, farm tools, seedlings, and agricultural chemicals. (Note 4)

3-1-3. Problems with the Nucleus Estate and Smallholder System

Privileges for Nucleus Estate Companies

As it evolved the oil palm plantation industry had developed many contradictions. One is the creation of an oligopoly of conglomerate companies.

A long time is needed to recover investments, because whereas oil palm can be harvested for about 25 years, 3 to 5 years are required before the first harvest, and peak production comes about 10 to 15 years later. In addition, enormous amounts of funds are needed for new plantation developments considering the needed credit capital for the introduction of technology to support smallholders and materials for cultivation, as well as the costs of clearing land. The Presidential Decree also stipulates that the nucleus companies must be large estate companies.

For that reason, large corporate groups including Raja Garuda Mas, Salim, Sinar Mas, and Astra became dominant nucleus companies of oil palm agricultural estates. Actually, this system was very favorable for large domestic holders of capital such as these corporations. The oil palm industry is not only a plantation industry to supply raw materials, it also includes an extensive processing industry. The integration of the processing industry with the plantations which can provide a stable supply of raw material boosts profit margins. In reality, the government-operated agricultural estates and those owned by foreign capital generally do not have crude palm oil processing facilities; it is the domestic private agricultural estates which control the manufacturing processes for cooking oils including breaking down and separating the raw materials, and processing olein (Sato, 1995). The work on oil palm estates is labor-intensive and difficult to mechanize. However, the labor force (domestic transmigrants) for this system is already provided. Furthermore, since the nucleus companies purchase the harvest, there is no need to remunerate workers for the labor. The funds for the projects can be borrowed under favorable conditions from international financial institutions such as the World Bank or Asian Development Bank.

Table 7 shows the amount of new investments in the oil palm industry (plantations and processing) from 1995 to 1997. These companies have nearly monopolized of the domestic cooking oil market. Included among these companies are many which are also developing large projects in the timber industry.

Smallholders with No Choice But Dependence

The smallholders are clearly in a disadvantaged position. The government states that smallholders have an advantage because the nucleus companies will purchase all of their output, however it is these companies which decide on the quality and price. The biggest problem is that the product quality drops rapidly if the fruit are not processed within 24 hours after harvesting, so if the nucleus company which owns the CPO processing factory does not accept it the farmer is in trouble. Because the fresh fruit of the oil palm cannot be preserved, this is a matter of survival for the smallholders.

Clearly, in the power relationship with the nucleus company, the farmer is in the weaker position. In addition, since the peak harvest comes 10 to 15 years after starting, it takes time before the work becomes profitable. During this time, in contrast to rubber and other trees, on oil palm plantations mixed cropping is not possible. Smallholders also suffer the insecurity of having oil palm as their only source of income. In addition, the farmers must purchase the materials needed for production from the nucleus company with which they have a contract, from seedlings to fertilizers and agricultural chemicals. By this system smallholders are structurally dependent on the nucleus companies, and must bear considerable risk.

Some Indonesian NGOs have conducted research and identified problems concerning these issues. (Note 5) Below is the outline of one case from East Kalimantan.

In one nucleus estate (PTP VI) in Pasir, East Kalimantan the smallholders are local residents, and the estate laborers have been relocated here from West Nusa Tenggara. Before their involvement in the nucleus estate the local people were growing rattan and rubber.

Land was once transferred to the nucleus, the state-run estate, and then the farmers received 2 hectares for oil palm cultivation and 25 ares for housing and gardening. The site was prepared in 1982, followed by planting of seedlings in 1984, and the first harvest in 1987. Four years later the locals were told that they were in debt by between 8 and 13 million Rupiah. The locals had believed that the agricultural land they had received had been in exchange for the land they had surrendered. However, the nucleus state-run estate demanded repayment, saying that the land the locals had surrendered had been government land and claiming that the money for the land for cultivation and housing had been lent to the farmers. In addition, the entire construction and paving costs for the roads from inside the estate to the CPO processing factory were all charged to the farmers. On other nucleus estates as well, it is generally the smallholders who bear the costs of road construction and paving. Since the company will refuse shipments of fruit if they have been damaged by shaking that might occur by trucks driving on rough roads, the smallholders have no option but to agree to the paving. In one month in 1996 for a typical family, only 200,000 to 300,000 Rupiah remained from 500,000 to 600,000 Rupiah of income, after 300,000 to 400,000 Rupiah were deducted to cover payments for land and road construction, and costs of paving and agricultural chemical. This was the income after the whole family had been involved in the work (Note 6).

Land-related Issues

From 1986 onwards, new developments of oil palm agricultural estates started in areas outside of Java island; most of them were on newly logged or cleared forests or arable land. The forest developments were done before the agricultural estates, and the logging concessions (HPH) and industrial timber and pulp plantations (Hutan Tanaman Industri or HTI) were established without the agreement of the local people; as a result there were constant confrontations between the local people and the logging companies. In other words, the government established the forest designation without recognizing the existence of local people living there. Because the government made it mandatory for new Nucleus Estates to involve transmigration without giving any indication of how to resolve the land problems, it only exacerbated the disputes between the companies and the local communities which had surrendered their land. Cases of land conflict were numerous.

For example, during a one year period in 1998, among 643 cases of land disputes brought to the Indonesian Legal Aid Institute (YLBHI), land-related problems relating to plantation developments were greatest single causes of disputes, accounting for 26 percent of the total (Hakim, 1999).

In the land disputes, there have been many reports of the company side hiring soldiers and of police threatening the locals. The common factor in the majority of cases is that the forests and agricultural land that local people had been using previously was expropriated as national land. In many areas in Indonesia, because land was owned by a collective body under customary law, a land registry based on detailed land surveys for private land ownership was never made (Kano, 1997). In particular, until recently in agricultural communities most people did not have the very concept of land registry or land title. It is the local government which issues the certificate of land ownership. Through some procedure companies obtain a certificate of land ownership within a matter of months. In contrast, there have been many complaints that even if the local people cultivated or otherwise used the land for several decades the government will not issue a certificate. The local people must surrender the land in return for only some compensation for crops, or a lower than standard compensation for the land. It is difficult to estimate how many people have been affected by losing their means of livelihood or the destruction of community organizations and culture. At the conference of indigenous peoples in the archipelago held for the first time in Indonesia in March 1999, this form of development was harshly criticized.

3-2. Policies of Converting Forests into Land for Plantations

3-2-1. Area of Forest Land Converted

One other factor which supported the expansion of oil palm plantations described above is the conversion of forest land to plantations. In order to efficiently produce crude palm oil, it is essential to have a high volume and stable supply of oil palm fruit as a raw material. This inevitably requires an enormous land area. In order to be economically viable, it is said that an oil palm plantation must be at least 3,000 hectares (Toge, 1996). In order to secure such a large area, perhaps it is unavoidable that forests be targeted.

No accurate figures are available for the amount of area that has been converted from forest land classification to land for oil palm plantations. Table 8 shows the area of land classified as forests that was converted to agricultural land, by province. It shows that 4 million hectares have already been converted, and agreements in principle exist for another 4 million hectares to be released from the forest designation. In other words, 8 million hectares have already been or will be converted from forest land to agricultural uses.

The Indonesian government explains that 31 million hectares of conversion forests are allocated to agricultural and other uses for oil palm plantations. Converted forests should include grasslands and secondary forests of low quality. However, it is likely that primary forests and high quality production forests are included in these converted forests. As shown below there are many problems of companies logging just for profit while applying for plantation projects. Hakim (1999) states that almost all of the remaining 8.4 million hectares of conversion forests in 1997 were primary forests. In addition, there have been many reports of national parks being logged to make way for oil palm plantations. Newspaper accounts in 1999 covered several cases where parks were turned into plantations, with road construction making access into the forest easier, allowing illegal logging to run rampant; these parks include Gunung Leuser National Park (TNGL) in North Sumatra, Taman Nasional Bukit Tigapuluh National Park (TNBT) which straddles Riau and Jambi, and a Jambi protection forest, Cabar Biosfir Bukit Dua belas (CBBB) (Kompas, 10 August 1999; Suara Pembaruan, 10 February and 14 April 1999).

3-2-2. Procedure to Obtain Approval for Plantation Projects

In order for corporations to conduct plantation operations on forest land, they must obtain approval for release from forest land (Izin Pelepasan Kawasan Hutan) and the business use rights (Hak Guna Usaha or HGU). The procedure for this is described below.

To begin with requests must be made for approval for release from forest land. The provincial governor compares this with the provincial land use plan (RTRWP), and after receiving a field study report from the director general of forestry and a joint team, grants an approval as allocated land (pencadangan lahan). Receiving this, the Minister of Agriculture considers the project plan and ability of company to implement the plan, and grants an agreement in principle. Based on this, the Minister of Forestry and Plantations approves the release from forest land. The proponent who has received the approval for release from forest land proceeds to the provincial office of the National Land Agency and obtains the business permit. The validity of the business permit is 25 years; an extension is possible for a maximum of 25 more years. For a release from forest land of up to 100 hectares, it is the provincial forest department chief which grants the approval after receiving the allocated land approval from the governor of the province in question (Note 7).

The release from forest land means that forests on state lands will be converted to other uses such as agriculture (food crop cultivation, agricultural estate, livestock, fisheries), and the land ceases to be classified as forests. This involves a decision which takes into account factors such as whether the land is suited to agriculture, whether the land cannot be kept as forest, or whether the land is suited to another type of use. In principle, through this decision, a given forest classification will be changed to agriculture, transmigration plan, or for human settlement, etc. The stipulations relating to this decision are determined by a joint decree of three Ministers (of Forestry, Agriculture, National Lands) relating to approval of the decision for release from forest land and the business use rights.

3-2-3. Issues Relating to Wood Use

If trees from the forest land (for which an application was made for the release from forest land) are to be logged (logging is necessary for site preparation) and used (sold), the company must apply to the provincial government for a wood use permit (Izin Pemanfaatan Kayu or IPK). However, in many cases as the company's real objective is to use the wood, it abandons the land after logging. Indeed, in October 1998 the Minister of Forestry and Plantations admitted that many companies were escaping after logging, and that of the approximately 9 million hectares that had been approved for release from forest land, the lands actually being used amounted to no more than 16 percent. He stated that no new permission for release from forest land would be granted until planting was done on the remaining 7.78 million hectares where projects were not being conducted. In addition, he has also stated that nationwide in Indonesia 52 million hectares of forests had been logged based only on having received wood use permit (Suara Pembaruan, 1998/10/20). Apparently the cause is that many companies apply for release from forest designation for the greatest possible land area, in order to obtain a large profit from the sale of timber. Furthermore, the practice is rampant of companies who have logged an area selling to other companies the permit for release from forest land and business permit.

4. Changes After IMF Agreements

4-1. Details of Changes

After falling into the economic crisis, in return for assistance from international financial institutions such as the IMF and World Bank, Indonesia was forced to review its existing policies. The Habibie administration which carried on after Suharto stepped down from power in 1998 created a reformist cabinet, and various revisions of laws and regulations were carried out. The following are the main Decrees of the Minister of Forestry and Plantations relating to oil palm plantations.

* No. 376/Kpts-II/1998: Decision on criteria relating to forest conversion for oil palm plantations (Kriteria Penyediaan Areal Hutan untuk Perkebunan Budidaya Kelapa Sawit). This decision stipulates that the forest lands which can be released from forest land must (1) be areas which are classified as non-forest land in the provincial land use plans, (2) have no other rights involved, (3) be vacant or cleared land as seen in recent Landsat images, (4) and be at least 100,000 hectares; it also stipulates that small islands with an area of under 10

square kilometers including converted land will not be approved.

* No. 728/Kpts-II/1998: Decision on restrictions on area of logging concession rights and plantations (Pembatasan Luas HPH dan Perkebunan). It was decided that permission for any one company would be limited to plantation project areas of a maximum of 20,000 hectares at the provincial level (60,000 hectares for sugarcane only), and 100,000 hectares in total nationwide. However, exceptions were allowed in Irian Jaya, with up to 40,000 hectares.

* No. 107/Kpts-II/1999: Decision on permits for plantation projects (Perizinan Usaha Perkebunan). The Minister of Forestry and Plantations is the one who gives approval to companies for plantation project permits (Izin Usaha Perkebunan or IUP) for implementation of plantation projects, and at the time of changes in crops cultivated, and expansion of the plantation industry.

* In addition, it was decided that plantation projects would be classified as small (25 to 200 hectares), medium (200 to 1,000 hectares) and large (over 1000 hectares), that approvals for small plantations would be under the authority of provincial governments, and any other plantation industry approvals would be done by the Ministry of Forestry and Plantations.

In addition, the following 5 frameworks were stipulated for the organization of the plantation operations:

- (1) a cooperative owns 100 percent of shares;
- (2) a cooperative owns 65 percent of the shares and the balance is owned by a corporation;
- (3) a corporation owns 80 percent of shares and a cooperative owns 20 percent but the percent owned by the cooperative gradually increases;
- (4) initially a corporation operates the entire project, but after a certain period, all shares are transferred to the cooperative; and
- (5) a corporation operates the plantation and factory, but later transfers them to the cooperative.

* No 614/Kpts-II/1999: Decision on guidelines for mixed forest plantations (Pedoman Pembuatan Hutan Tanaman Campuran). A plantation on forest land obtains approval based on application as an agricultural estate crop plantation rights (Hak Pengusahaan Hutan Tanaman Campuran or Hak Pengusahaan Hutan Tanaman Perkebunan-HPHTP), but the land classification is not changed. Conversion from forest land to non-forest activities is not conducted. In other words, forest land can be used for plantation development, but the classification continues as forest land.

Above we have studied the Nucleus Estate and Smallholder system and forest land conversion policies as well as recent revisions. Now we will consider what problems were resolved, what problems were not resolved, and any new problems that have arisen.

4-2. Increased Opportunities to Enter the Oil Palm Industry

One major revision is that more opportunity was supposedly given to the domestic small-scale private sector and foreign capital to enter the oil palm plantation sector which had been monopolized by large corporations. Plantation permits starting at 25 hectares will now be approved. There is no doubt that as a result, investment into plantations will accelerate. Applications from foreign investors already amounted to 50 companies and 921,000 hectares within 6 months after the controls were abolished.

This change can be interpreted as a revision of the Nucleus Estate and Smallholder system described above. The Minister of Forestry and Plantations stated in 1998 that the Nucleus Estate and Smallholder system must be improved because it promotes conflicts between nucleus companies and smallholders' (Suara Pembaruan, 1998/8/21). Later the Transmigration Programme Office in West Kalimantan stopped the participation of transmigrants which had up until then been starting at the land clearing stage of agricultural estates, and revised it so that transmigration started 3 years after oil palm harvesting had begun. Because corporations prioritize their own agricultural estates and tend to postpone consideration of smallholders, as a result it has been recognized that a gap emerges between the quality of palm oil from the Nucleus Estate and that of the smallholders (Kompas, 1998/2/17).

However, the statements of the Minister and changes in policies did not reveal any ways to solve the problems of smallholders involved in the Nucleus Estate and Smallholder system. Specifically, smallholders are not freed from the situation in which they depend on the income from 2 hectares of oil palms, and there are still as many smallholders as before who have not finished repaying their loans. The changes have in no way meant the abolition of the Nucleus Estate and Smallholder system.

Rather, the purport of the Minister's words could be actually taken to be, 'Until now farmers could only operate in agricultural estates, and could not participate in the high value-added oil palm processing sector. I think that if the market price is high, the farmers will want to sell oil palm also to parties other than the nucleus companies. On the reverse side, if the nucleus company has surplus production, I don't think it will be interested in buying from contract farmers (smallholders). So we will enable the smallholders to enter into the processing industry. By the contract farmers holding shares in the processing sector, they will realize the importance of supplying of raw material in a stable way for the processing industry'.

It can be seen from this that the farmers as well as medium and small companies are being brought into the agricultural estate and oil processing sector, and that large corporations, having greater financial power, are being shifted further into the oleochemical and other processing industries. The changes are part of an overall effort by Indonesia to promote its oil palm industry.

The changes are described as a stimulus of the "people's economy" (ekonomi kerakyatan) as a part of reforms. Perhaps this creation of business opportunities for various levels of society should be acknowledged as good. But even so, should it still be welcomed in the case of the oil palm industry?

Prices for cooking oil skyrocketed as a supply shortage emerged in Indonesia with the economic crisis that started in the second half of 1997. Because the international price of crude palm oil had surged, domestic palm oil producers had rushed to export their product. At that point the government raised the export tax on crude palm oil to 60 percent in order to control exports (the tax was later reduced gradually to 40 and then 30 percent). This was a major blow to small agricultural estates (5 hectares and less) and to farmers involved in nucleus estates. Corporations passed the burden of the export tax on to small agricultural estates from which they were buying crude palm oil and contract farmers from whom they were buying palm fruit. In addition, large corporations such as Sinar Mas and Salim Group which had ownership in not only the crude palm oil but also processing industry sectors had the option of obtaining the cheapest raw materials, and concentrating on the most profitable sectors. While the international price of crude palm oil had skyrocketed, palm oil companies enjoyed a surplus of crude palm oil as a result of the export restrictions, and the purchase price of fresh fruit bunches was kept low. Oil palm farmers were not able to benefit adequately from the situation. On the contrary, because fertilizers and other materials for production were imported, the price they paid for them stayed high. This situation continued until the end of 1998.

However, in 1999 the price of crude palm oil fell rapidly, as forecasts indicated a 40 percent increase in worldwide production compared to the previous year, and demand dropped as a result of consuming countries such as China and India switching to inexpensive vegetable oils such as from soybeans. The domestic price of cooking oil dropped below the 3000 Rupiah per kilogram that was said to be the appropriate price. As a result, the purchase price of fresh fruit bunches plummeted further, leading to the abandonment of some agricultural estates in some cases, and other cases in which smallholders even attacked cooperatives and nucleus companies (Kompas, 1999/6/29, 7/2, 9/28).

The clear message here is that the privileged position of large corporations which have processing industries has not changed. In addition, corporations have no more need to pay costs to support farmers. This means that farmers are facing the fierce competition of the international market. To be sure, the idea of stimulating the "people's economy" sounds appealing, but the question should be asked whether the people (even in the form of a cooperative) understand that this means being responsible on their own, while participating in the global market. If the people were prepared for this competition there would be no problem. However, under the current conditions, not only does the government fail to provide them adequate information, but farmers have limited access to information, in contrast to the corporations, and no insurance system has been put in place to compensate farmers when prices drop. Under these circumstances, the changes in the nucleus estate system can only be described as being for the purpose of further expanding the oil palm industry to make the economy recover.

4-3. Types of Operators

The purpose of No. 107/Kpts-II/1999 is supposedly to provide as many people as possible the opportunity to participate in the oil palm industry, however the only operators recognized are cooperatives or corporations. The point here appears to be that if, for example, corporations can only show that they will work with a cooperative, obtaining approval will become easier. It could be said that conditions have further weakened compared to the Nucleus Estate and Smallholder system which is based on forcing many smallholders to fulfill their contracts, even with its problems of conflicts between transmigrants and local people.

However, the problem is that for some reason the Indonesian government can only think of cooperatives when speaking about local community organizations. In reality many people in Indonesia are using and managing natural resources in a much more sustainable way than the large-scale state or corporate developments, through common use of land and forests under customary law (indigenous people have customary community organizations). In 1998 the government defined projects where local communities use and manage forest resources; indigenous people who had until then used and managed the forests traditionally expressed disappointment and harsh criticism because the government had stipulated that cooperatives would be the implementing organizations. As Indonesia's cooperatives had been fostered under government guidance as a part of economic development policies, their relations were poor particularly with indigenous people who lived near forests. The latest changes in oil palm plantation policies repeat the same shortcomings. It appears that whatever happens, the government, which sees all forests as state forests, does not want to recognize the traditional communal management rights (*tanah ulayat*) or forest use rights. However, as long as it does not recognize the rights of indigenous peoples who have traditionally used the forest resources and land, the mistrust towards the government will probably grow, and no solution will be in sight for the land disputes between companies and local communities, relating to development.

4-4. Policies of Converting Land from Forest Use

To begin with, confusion is caused by the fact that forest classification does not reflect the actual vegetation and the existence of people living in the area who make a living using the forest resources. As seen above, good quality forest is included among the land classified as conversion forest. In addition, as one can see in Table 9, the area of conversion forests in Irian Jaya is considerably more than in other provinces; since it is certain that the focus of oil palm developments will shift to Irian Jaya, it is important that the proper forest classification be done here as soon as possible. If this is not done, it will be impossible to avoid worse problems than those that have been occurring in Sumatra and Kalimantan.

What can be considered the next big problem is Minister of Forestry and Estate decree No. 614/Kpts-II/1999 on guidelines for mixed forest plantations. The contents of this ministerial decision as reported by the newspaper *Suara Pembaruan* (28 Sept 1998) will change the thinking towards forests which has existed until now. The reason for this is that plantation projects will be approved without the need to release from forest designation, and for that it is necessary to obtain an agricultural estate crop plantation project permit (HPHTP). Even if the vegetation changes as a result of the plantation and the forest functions are not maintained, the land is still recognized as forest land, and no change is recognized in the area of the forest. According to that paper, the policy of not conducting a release from forest designation is part of the content of the agreements with the IMF.

Because this author has not obtained the actual text of the law, it is not clear whether or not oil palm is excluded from the definition of 'plantation crops'. No. 376/Kpts-II/1998 in fact treats oil palm plantations as non-forest land in provincial land use plans.

However, from the perspective of forest loss, this decree gives confusing signs from the Ministry of Forestry and Plantations which has authority over forest lands. On one hand it appears to not want to have its authority reduced by the reduction of forest area, and on the other it wants to avoid criticism of the reduction of forest area as a result of expansion of oil plantations. Even if oil palm were not included in plantation crop category, the enlarged gap between the reality and the classification on paper would invite confusion.

4-5. Bickering between Central and Regional Governments

As described above, No. 376/Kpts-II/1998 stipulates that oil palm plantation developments can be approved in places the provincial land use plan (RTRWP) classifies as non-forest lands. However, the land use classification in the RTRWP prepared by the provincial government and the forest classification in the forest use plan according to national government (TGHK) do not always match each other. The provincial land use plan prepared by each province is usually compared with the forest use plan made by the Ministry of Forests in 1983, and based on this, a completed provincial land use plan (RTRWP-Padu Serasi) is prepared. Generally, after the completed provincial land use plan is decided on, the forest use plan by the national government is no longer utilized (WALHI, 1999).

Table 10 shows a comparison of the provincial land use plan of East Kalimantan and the forest use plan according to national government. Under the provincial land use plan the permanent production forests and

protection forests are being reduced. The figures for conversion forests have disappeared from the provincial land use plan. On the other hand, the non-forest area increases suddenly. The reason that the area of non-forest land in the 1996 provincial land use plan grows by 64.5 percent compared to the forest use plan based on the 1983 agreement (TGHK) is that the conversion forest in the forest use plan based on the agreement is included in the non-forest land in the provincial land use plan. In addition, the fact that the non-forest area increased signifies greater business opportunities for plantation operators. Furthermore, officials from the provincial government say that in cases where logging rights have been set in areas classified as non-forest land, the land must be changed from logging operation to plantation within a set period of time. Of course, the state government welcomes the fact that the non-forest area increases. This is because authority for the use of non-forest land belongs to the provincial government (Hakim, 1999).

It is said that the government of East Kalimantan is allocating 1 million hectares to the cultivation of oil palm (WALHI, 1999). It probably enthusiastically classified production forests which can be converted as non-forest areas because it wishes to attract investment into the plantation sector. However, because approval must be obtained from the national Ministry of Forestry and Plantations for release from forest land in order to convert from forest land, things may not necessarily proceed as the provincial government expects. Through this the provincial government is pressuring the Ministry of Forestry and Plantations to speedily transfer authority for non-forest land to itself. The intention here is to speed up this part of procedure for approval of plantation projects by handling everything at the provincial level, because approval of release from forest designation at the national level is slow (Suara Pembaruan, 20 October 1998).

In its 1995 provincial land use plan, West Kalimantan decided to make 2.5 million hectares, or 48 percent of its actual land area available for plantations (WALHI, 1999), but plans to expand this to 5.15 million hectares in 2000, aiming to have the nation's largest area under plantations within 5 to 10 years (Kompas, 21 March 1998). (Currently North Sumatra has the largest plantation area). It is conjectured that this same trend is occurring in other provinces. In the future it will probably be important to study the land use plans of each province in the eastern part of Indonesia where an expansion of oil palm plantations is expected.

Decision No. 107 of the Minister of Forestry and Plantations stipulated that small-scale plantations would be under the authority of provincial governments. However, the important export commodities of oil palm, sugar cane, tea and rubber are under the authority of the Minister of Forestry and Plantations. Amidst demands for more decentralization of powers to regional governments, the central government is beginning to take policies which transfer power relating to the forest sector to the regions, but even so, the government is not enthusiastic on items involving vested interests such as the granting of approval and permits. Here one witnesses the tug-of-war between the central and regional governments.

Incidentally, regional decentralization cannot be denied as a sign of the times, but at the same time it should not be accepted unconditionally. As we saw above with the procedures in the approval process of the business permit for oil palm plantation developments, the role of provincial governments until now was certainly not small. One could conjecture that the provincial governments could have affected the process. When a provincial government received an application, had it studied the actual site, followed policies to consider impacts on forests and livelihoods of local communities, and predicted negative impacts on them as a result of a project, it could have prevented the application from going to the national Ministry of Agriculture. Had this been so, one could expect to see less conversion of forests to plantations than actually occurred. Furthermore, plantations of 100 hectares or less are already under the authority of the provincial government. As long as the provincial government attaches greater priority to economic growth than environmental conservation and the welfare of local communities, the same results can be expected regardless of which government has authority. If decentralization means only greater opportunity for regional officials to hold the power previously held only by central government officials, the result can only be "regional decentralization without fundamental reform, in effect creating little kings here and there" (Note 8).

4-6. Rights of Local Communities

The strongest demands for reform are for guarantees of the rights of local communities and indigenous peoples. However, in the recent reforms, the rights of local communities were almost paid no attention. To begin with, as discussed above in the sections on land-related issues and project structure, most customary land uses by local communities have not been guaranteed.

Next, local communities are not informed as to the classification of the land where they live, whether it be for forest use or part of the provincial land use plan, etc. Even worse, they are almost never informed in advance

that their land has been planned for plantation development. Similar to the logging concession rights it is difficult to obtain information, such as in which locations the business permit has been granted. It is no less than a basic right to be able to obtain this kind of information. However, this time again, no policies have been shown which enable local communities to access information. As is clear from the contents of procedures, there is no structure to reflect the opinions of local communities in the process of approving permits. In the future, a step is needed in the approval process to confirm the will of the people who will be directly affected by projects. At least the results of preliminary studies should be provided to the local communities. Furthermore, it is a problem that only preliminary studies are conducted, not environmental assessments, even though plantations cover large areas. If environmental assessments had been conducted as a part of the approval process for operating permits in national parks and protected forests, it is likely that not as many forests would have been converted to oil palm.

4-7. Problem of Pollution from Agricultural Chemicals

Generally implementation manuals for oil palm plantations encourage the use of fire first as the method to clear the land (Note 9). In particular, for very dry peat which is a humus soil, extensive burning is recommended for the purpose of exterminating the isoptera termite, which is very damaging to oil palm trees (Risza, 1994). The use of this method to clear land is one of the reasons forest fires have become so serious. Using the occasion of the forest fires of 1997 and 1998, the government restricted the use of fires when clearing land. However, this will clearly be more expensive. In addition, the number of new plantations is still expected to grow. The restrictions probably have some effect, but many doubts remain about their real effectiveness.

However, it is difficult to rejoice just because fire will not be used for clearing land. If fire is not used it simply means that large amounts of herbicides will be used. Even not counting that, oil palm plantations use enormous amounts of agricultural chemicals. Malaysia, having considerable experience with oil palm, has studied and reported on the health damage of workers on agricultural estates. It is likely that workers in Indonesian estates are also suffering health damage, but this issue has received almost no attention there. Unfortunately, the plantation policies of the government to date have completely ignored the pollution of ecosystems and the environment as a result of the use of agricultural chemicals.

4-8. Restrictions on Land Area of Projects

Decision No. 728/Kpts-II/1998 of the Minister of Forestry and Plantations places restrictions on the area of forestry and plantation operations, but almost all companies which hold logging concessions for large-scale forestry operations had their operating permits extended before this decision went into effect (Kartodihardjo, 1999). Although adequate information is not available, it is conjectured that the same was done in the plantation sector. For this reason, it is unlikely for this decision to have any immediate effect. However, it will be important to monitor its effects in the future.

5. Concluding Comments

As described here, the changes in Indonesia's oil palm industry which emerged from agreements with the IMF could appear to be for the purpose of promoting more inroads into the industry in order to aid the economic recovery. On the surface, the changes may seem to be the result of pressure to answer the demands of international financial institutions for structural reforms, but in reality it appears that the government's intentions to promote the oil palm industry were given the greatest priority. A little consideration was given to demands for regional decentralization, and in response to demands for guarantees for the rights of local communities, references were made to "local participation" and the "people's economy". However, the reality is that these were turned to the government's advantage, and it appears that it is trying to involve as many of its citizens as possible in the globalization of its economy in which only the biggest and most efficient operations can survive.

However, one characteristic of oil palm as a commodity crop is that it is a lucrative industry for large capital. In addition, 3 companies (PT. London Sumatera, PT. Marihat, PT. Socfindo) have control of the supply of oil palm seeds and seedlings (Note 10). It is risky to depend on oil palm alone to make a living, because in contrast to other crops such as rubber, mixed cultivation is not possible for oil palm. In addition it is not a prudent policy to increase the dependency of the entire country on the oil palm industry.

Next, a fundamental revision of the government's forest policies is necessary from the perspective of

sustainable use of forest resources. Clearly the forest policies which emphasized macro-economics have failed. Over and above what has already been done, more forests should not be converted to oil palm. Land classifications should reflect the actual vegetation and the presence of the people living in the area, and these classifications should be coordinated between the central and provincial governments. If things continue unchanged, with the central government classifying land as forest even if it is being used for cultivation of plantation crops, while the provincial government for its own purposes classifies good production forests as non-forest land, the gap will grow between these artificial classifications and reality.

To deal with firms which apply for plantation operations with only the timber use permits in mind, it is necessary to review the punitive measures of only canceling permits or charging a penalty fee, and to establish stricter penalties. In addition, for land which has been abandoned after logging, the government is actively giving this land to new plantation applicants; however, this practice should be stopped, and in cases where local communities had been conducting forest management in a traditional way, restorative operations should be conducted for the forests, after taking into account the wishes of the local people.

Illegal logging and the failures of forest projects are said to be a result of a lack of personnel and capacity on the part of the administrative officials concerned. In the case of Indonesia, even if regulations existed, the problem was that they were not being enforced. If the efficiency and capacity of the administrative agencies are not raised simultaneously, they will be ineffective no matter how admirable the laws that are written. In addition, if reforms are further postponed, forest destruction in Indonesia will proceed irreversibly.

Pressure from Indonesian citizens is needed of course, but it goes without saying that the efforts of international community are also needed.

L. Potter and J. Lee are proposing for pressuring reform amongst estate companies would appear to be some kind of certification system that identifies palm oil that is produced using environmentally and socially acceptable techniques (1998). At the same time, there is a need to investigate the flow of funds into the oil palm sector from international financial institutions and private banks of developed countries including Japan, as the flow of funds is not clear at present. It is important to propose how investment can be balanced with environmental conservation in the truest sense.

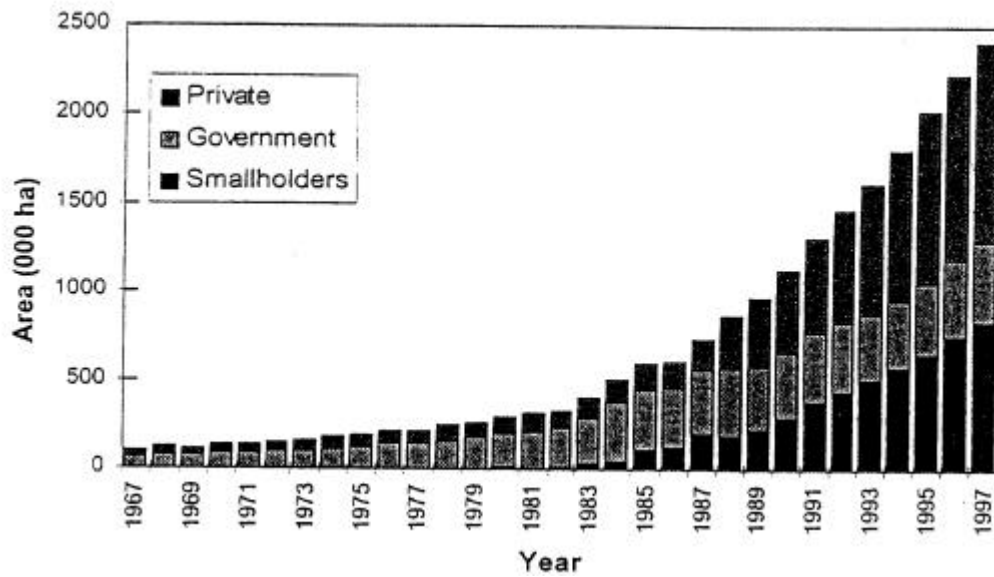
Notes

- 1) According to the Jakarta Post, 2 Sept 1997, the Ministry of Agriculture admitted that in reality 80 percent of the 1997 forest fires were from plantations.
- 2) Detailed cases studies are reported in Potter and Lee, *Tree Planting in Indonesia: Trends, Impacts and Directions*, 1998.
- 3) This is taken from Tim Penulis PS; *Kelapa Sawit*, 1999.
- 4) Tim Wahana Informasi Masyarakat (WIM), PIR: *Anugerah atau Bencana*, wim-fns, 1994. The same document reports mandatory cultivation area of 3 hectares, housing and garden of 2 hectares for a total of 5 hectares, but in this paper the area stipulated in the Presidential Decree of 1986 was used. Before transmigration-type Nucleus Estate and Smallholder system became mandatory, various forms of nucleus estates existed and it is thought that conditions varied depending on the form.
- 5) Besides the Wahana Informasi Masyarakat (WIM) noted above, this is covered in WALHI's newsletter and other documents. The debate is from the perspective of land use issues.
- 6) Koesnadi Wiasapoetra; *Koloni Sawit di Tanah Pasir*, 1997. This was written as information for advocacy for indigenous rights relating to oil palm nucleus estates in Indonesia.
- 7) A number of documents were available about the procedures, but since they each differ slightly, this paper refers to Pamulardi, Bambang, *Hukum Kehutanan dan Pembangunan Bidang Kehutanan*, PT Raja Grafindo Persada, 1996 which summarizes forestry laws and regulations.
- 8) From statements made by participants in the Workshop on Customary Forest Management (SHK) held by JANNI and LBBPJ in December 1998 in Samarinda, East Kalimantan.
- 9) Ir. Suyatno Riza, *Kelapa Sawit: Upaya peningkatan produktivitas*, 1994 and Tim Penulis PS, *Kelapa Sawit: Usaha Budidaya, Pemanfaatan Hasil, dan Aspek Pemasaran*, The first edition was 1992. This reference is from the 1999 edition.
- 10) PT. London Sumatra which has the largest share of all companies, has a large land area in the plantation sector, and has caused confrontations with local communities as well as forest fires in East Kalimantan.

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a. Oil Palm Area by Producer Category



b. Oil Palm Production by Producer Category

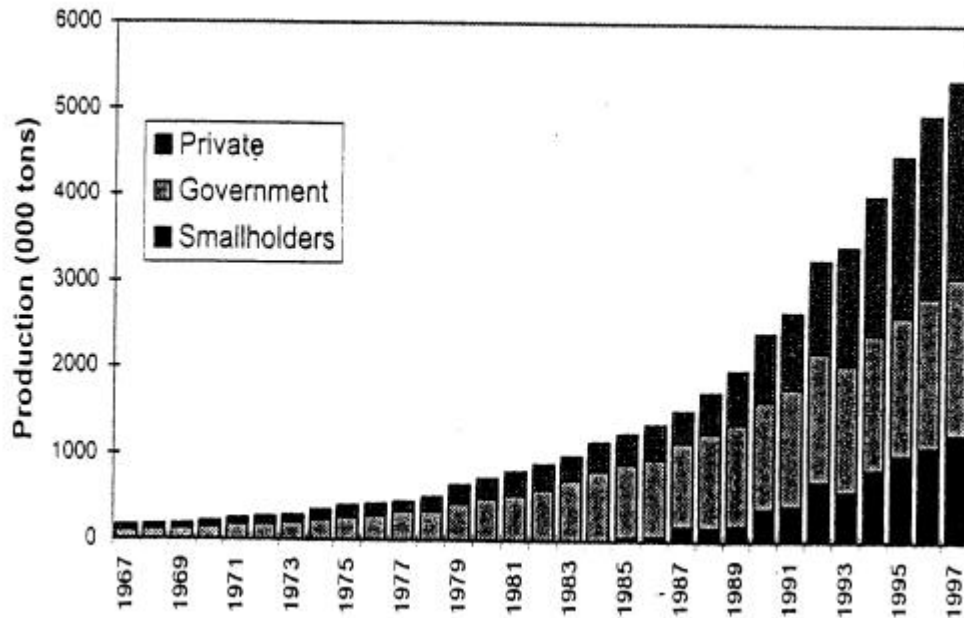


Figure 1. Area and Production of Oil Palm in Indonesia

Source: CIFOR Occasional Paper No 18.
 Tree Planting in Indonesia: Trends, Impact and Directions

Table 2. Indonesian Share of Production
Development of world crude palm oil production, 1991-1996 (000 tons)

Producer	1991	1992	1993	1994	1995	1996	Average Growth
Country						%/yr	
Malaysia	6141 (53%)	6371 (53%)	7402 (54%)	7222 (51%)	7810 (51%)	8059 (50%)	5.77
Indonesia	2658 (23%)	2970 (25%)	3421 (25%)	3860 (27%)	4200 (28%)	4746 (29%)	11.53
Nigeria	646 (6%)	633 (5%)	645 (5%)	640 (5%)	650 (4%)	660 (4%)	0.44
Ivory Coast	280	275 (2%)	320 (2%)	290 (2%)	290 (2%)	295 (2%)	1.38
Colombia	253 (2%)	205 (2%)	323 (2%)	350 (2%)	388 (3%)	380 (2%)	8.56
Thailand	234 (2%)	260 (2%)	297 (2%)	315 (2%)	360 (2%)	374 (2%)	9.68
PNG	180 (2%)	202 (2%)	222 (2%)	224 (2%)	223 (1%)	228 (1%)	6.22
Other	1082 (9%)	1128 (9%)	1173 (9%)	1233 (9%)	1279 (8%)	1388 (9%)	3.58
Total	11474	12044	13803	14134	15200	16130	6.83

Source: Oil World Annual 1996, processed by ICBS(1997)

Table 3. Growth of the consumption of palm-oil based cooking oil in Indonesia, 1987-1996

Total population	Per capita consumption (million)	% growth per year (kgs/ yr)	Total (tons)	% growth per year
1987	172	4.97	-	855784
1988	175	5.28	6.24	923736
1989	177	5.50	4.17	977460
1990	179	5.56	1.09	997464
1991	182	6.82	22.66	1241240
1992	185	9.30	36.36	1723290
1993	189	9.47	1.83	1790770
1994	192	10.33	9.08	1985426
1995	195	10.39	0.58	2029167
1996	198	11.23	8.08	2226909
Average			10.01	11.76

Source: Oil World Annual 1996 as represented in CBS (1997:186)

Table 4. Development of CPO consumption by consuming industry in Indonesia, 1991-1996

Industry type	CPO consumption per year (tons)					Change1	
	1991	1992	1993	1994	1995		
Cooking oil	1302308	1498554	1508462	1788369	2014062	2249706	11.72
Bath & laundry soaps	43840	56960	61520	65920	79104	87014	15.02
Margarine	178077	195440	210660	240046	303640	333083	13.54
Oleochemical	155349	174531	196066	215673	210290	262862	11.43
Total	1679574	1925485	1976708	2310008	2607096	2932665	

Note: Change = Average annual change %/yr

Source: CBS (1997: 225)

Table 5. Growth in the world consumption of five major vegetable oils, 1990-1996

Table 6: World palm oil imports by country, 1991-1996 (000 tons)

Countries	1991	1992	1993	1994	1995	1996*
PR China	1,205	871	1	1,880	1,577	1,400
Pakistan	911	932	1,141	1,230	1,130	1,240
India	213	207	150	407	835	700
Singapore	765	765	631	473	559	580
England	372	366	425	474	462	475
Netherlands		353	372	419	442	440
Egypt	310	338	473	390	369	390
Germany		403	409	361	427	365 375
Japan	320	323	356	349	351	360
Turkey	208	154	250	201	220	235
Other	3,473	3,707	5,238	4,424	4,225	4,492
Total	8,533	8,444	9,445	10,697	10,533	10,697

Note: * to September 1996

Source Oil World Annual processed by ICBS (1997; 234-235)

Table 5. Growth in the world consumption of five major vegetable oils,
1990-1996

Oil	Description	Unit	1990	1991	1992	1993	1994	1995	1996	Growth 1
Soybean oil	Volume	000ton	15,840	15,716	16,727	17,844	18,713	19,610	19,779	
	Share	%	19.75	19.10	19.85	20.65	20.98	21.23	20.74	
	Annual increase	%	-	0.78	6.43	6.68	4.87	4.79	0.86	3.81
Palm oil	Volume	000ton	11301	11602	12243	13259	14530	14712	15492	
	Share	%	14.09	14.08	14.54	15.35	16.30	15.93	16.24	
	Annual increase	%	-	2.67	5.53	8.29	9.59	1.24	5.30	5.44
Sunflower oil	Volume	000ton	7,955	8,383	8,223	7,746	7,696	8,495	8,953	
	Share	%	9.92	10.18	9.76	8.97	8.63	9.20	9.39	
	Annual increase	%	-	5.39	1.91	5.81	0.64	10.38	5.39	
Rapeseed oil	Volume	000ton	8,730	8,847	9,459	9,274	9,623	10,368	11,332	
	Share	%	10.89	10.74	11.23	10.74	10.79	11.22	11.88	
	Annual increase	%	-	1.34	6.92	1.95	3.76	7.74	9.29	4.52
Coconut oil	Volume	000ton	3,054	3,222	2,895	2,935	3,072	3,189	3,132	
	Share	%	3.81	3.91	3.43	3.40	3.44	3.45	3.28	
	Annual increase	%	-	5.52	10.14	1.37	4.68	3.79	1.79	0.57

Note: Growth % Average annual growth % / yr

Source: ICBS (1997: 229)

Table 7. Newly invested projects by monopolized oil palm plantation companies from 1995 to 1997

Companies		Number of Projects Investment (million Rupia)	Area(ha)
Raja Garuda Mas	17	4,425,863	362,585
Salim	20	2,095,319	328,659
Benua Indah	7	1,833,630	214,300
Surya Damai	13	1,679,138	213,611
Napan	8	1,366,560	135,182
Bumi Raya Utama	7	1,084,250	122,000
Timur Djaja	2	939,125	107,020
Sahabat	9	840,360	126,000
Tirtamas	2	814,344	94,000
Astra	9	617,047	98,433
total	94	15,695,636	1,801,790

Source;PDBI(Pusat Data Bisnis Indonesia), Hakim, PERKEBUNAN KELAPA SAWIT, 1999

Table 8. Area of cancelled protection forest aiming to convert agricultural use

Province	Based on General Agreement (ha)	Permission of Cancellation	Total
Aceh	58,652	254,602	313,254
North Sumatra	140,528	95,408	235,936
West Sumatra	53,542	134,121	187,663
Riau	441,949	1,508,198	1,950,147
Jambi	64,086	315,114	379,200
Bengkulu	17,975	50,222	68,197
South Sumatra	183,149	57,909	241,058
Lampung	3,585	92,320	95,905
NTB	93	753	846
West Kalimantan	262,474	89,400	351,874
Central Kalimantan	1,788,249	428,054	2,216,303
East Kalimantan	376,825	434,738	811,563
South Kalimantan	77,580	189,679	267,259
North Sulawesi	0	8,888	8,888
Central Sulawesi	40,165	79,473	119,638
South Sulawesi	43,070	84,937	128,007
Southeast Sulawesi	25,210	7,862	33,072
Maluku	16,413	17,406	33,819
Irian Jaya	455,960	163,862	619,822
	4,049,505	4,012,946	8,062,451

Source;Hakim, PERKEBUNAN KELAPA SAWIT, 1999

Table 9. Converted forest land (ha in March, 1990)

Island	Area (ha)
Sumatera	3,785
Jawa	
Kalimantan	1,793
Sulawesi	1,494
Bali	
Nusatenggara	181
Maluku	
Irian jaya	11,775
total	**30,000

Source:Ministry of Forestry, 1989/90, JICA's Country Basic Statistics

Note; Converted forest land and other land use were not subdivided from production forest in six provinces ; Riau, Middle and East Kalimantan, Bali, West Nusatenggar and Maluku. **: Tentative figures

Table 10. Land clarification of East Kalimantan by TGHK and RTRWP

Land Category	Area in 1983 reported by TGHK		Area in 1996 reported by RTRWP	
	Area(ha)	%	Area(ha)	%
Production Forest	5,513,060	26.1	4,727,500	22.4
Conditionally Production Forest	4,826,100	22.8	4,955,500	23.4
Conversion Forest	1,340,380	6.3		
Protection Forest	3,626,300	17.2	2,935,500	13.9
National Parks, etc	1,968,600	9.3	2,166,200	10.2
Other Forests (for Education, etc.)	17,560	0.1	21,200	0.1
Non Forest Land	3,852,000	18.2	6,338,100	30
Total	21,144,000	100	21,144,000	100

Source;Chyat, 1998, Hakim, PERKEBUNAN KELAPA SAWIT, 1999

TRENDS IN RUSSIA'S FOREST INDUSTRY AND INTERNATIONAL FOREST PRODUCTS TRADE – INTRODUCTION TO REPORT BY DR. SHEINGAUZ

Hiroaki Kakizawa¹

1. Trends in the Forest Industry in Russia

The purpose of this paper is to give an overview of the Russian forest industry and international trade of forest products, and to introduce a separate report written by Dr. Alexander S. Sheingauz entitled *Forest Industry of the Russian Far East: A Status Report*.

a) Trends of output

Table 1 shows trends of output of forest products. It is clear that output dramatically decreased in the 1990s and that the rate of decrease was different according to forest product. While timber production decreased by 75% from 1985 to 1997, output of plywood decreased by 39% and paper by 56% in the same period.

In the 1980s Russia ranked second in the world for timber, lumber and pulp production. However, with rapid decrease of output, Russia dropped in rank; for example, its timber production ranked eighth in the world in 1997.

b) Regional distribution of the forest industry

Trends in the output of forest products varied by region. Before discussing the trends in the Far East, we will examine the regional structure of the forest industry in Russia. Table 2 shows the output of forest products by region. First of all, it shows that the share of the Far East and Siberian region in the entire country was not high. Many Japanese believe that Siberia and the Russian Far East is major timber production area because Japan imports a large volume of timber from these regions and people are aware of the region's abundant forest resources. However in reality, timber production of these areas accounts for only about one third of Russia's total production, and the region west of the Urals dominate the production (Burdin et al. 1998).

This trend was even stronger in value-added products. For example, nearly half of pulp and paper production was concentrated in the Northern region, and the production of board was concentrated in the Northern and Central regions. East Siberia ranked second for pulp production, and third for particle board production, but the Far East produced a small amount of value-added products in comparison with its timber production.

This situation can be attributed to the investment policies followed in the Soviet era. Most of the population lives west of the Urals, which means the consumption of forest products is also concentrated there. As a result the investment in the forest industry by the Soviet government was also concentrated there, especially in the Northern area abundant with forest resources and Central region where population is concentrated. During the Soviet era, East Siberia was seen as a new frontier for the forest industry and intensive investment was made there (Bradshaw: 1991). On the other hand, the Far East was not recognized as an important supplier of forest products, and investment there was neglected. The Far East was categorized as a log supplier for central Asia, and an exporter for Japan's domestic demand.

c) Trends of output by region

In this section we will compare trends of output by region, and make identify the characteristic of the Far East region. Table 3 shows the output of forest products in the Northern, Central and Far East regions. Each region can be described as follows:

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- North - Forest resources are abundant and proximate to large urban areas such as Moscow and Saint Petersburg.
- Central - forest resources are not abundant but the region includes the city of Moscow and a population of over 30 million.
- The Far East - forest resources are abundant but the population is sparse.

From Table 3 one can see that the recent decrease of production was relatively low in the Northern and Central regions, especially for production of plywood, fiberboard pulp and paper. On the contrary, the decrease in the Far East region was more drastic, especially in value-added products. In the Far East, pulp and paper production almost completely collapsed.

The effects of the country's economic crisis were not so severe for the North and Central regions, which are proximate to metropolitan areas and had earlier enjoyed priority in the distribution of investments. However, the Far East region, where facilities and infrastructure deteriorated and which are located distant from major metropolitan areas, felt the serious impacts of the economic crisis.

2. Trends of international trade of forest products

Table 4 shows trends of exports of forest products from Russia. Although export of most products decreased in the early 1990s, they increased and in late 1990s with the export of many products actually exceeding previous records. For example, exports of lumber and plywood in 1997 were 1.5 times the volume in 1985. With the depreciation of ruble since the economic crisis in 1998, exports have increased again, contributing to improvements in the economic condition of Russia.

By comparing Tables 1 and 4, it is clear that ratio of exports to production increased rapidly. In 1997, an estimated 64% of plywood and 54% of paper production was directed to export.

Because of the economic crisis, domestic demand for forest products shrunk rapidly, and many of forest industrial companies nearly went bankrupt. Under this situation, the importance of foreign markets increased and above all, producers and exporters were eager to increase exports to get hard currency. Thanks to increased exports decreases in production were less they would have been otherwise. It could be said that exports sustained the forest industry in the crisis.

The composition of countries which imported Russian forest products also changed since the 1980s. Table 5 shows the major countries which imported forest products from Russia in 1985 and 1996. First, countries to which Russia exported forest products are distinguishable by kind of products they imported. In 1985, most logs were exported to East Asia, especially to Japan, followed by Scandinavian countries. Lumber was mainly exported to European countries followed by Egypt and Japan. Newsprint was exported mainly to developed countries.

Secondly, countries and volumes of export changed from the 1980s to the 1990s. Log exports to Scandinavian countries increased, and exports to Finland exceeded those to Japan. East Asia continued to be a major importer of Russian logs, but Korea appeared as a new major log importer. Recently, China increased the import of logs dramatically, an issue further discussed by a Friends of the Earth Japan report. Lumber exports to Eastern Europe decreased because economic tie with Russia weakened. Russia developed its newsprint market in developing countries and has increased total exports to them.

3. Exporters of forest products in Russia

Under the planned economy, the export of forest products from the former Soviet Union was monopolized by specialized state companies. As part of economic reforms by former President Mikhail Gorbachov, timber exports were liberalized in 1987. However, 1992, the permit system for exporters was revived and only 20 companies were given permission to export forest products from the Far East.

In 1995, the export of forest products was totally liberalized and anyone could engage in timber exporting without special permission. Because exports of forest products, especially logs, provide an easy way to obtain hard currency, many exporting companies were established and now compete with each other. Under such a situation, former state companies known as Dalles lost their competitive powers and fell into serious crisis.

The liberalization of exports had an enormous effect on the trade of forest products. In the Far

East region, it is said that with increases of competition between exporters, the quality control of forest products has improved and Japanese importers have enjoyed the benefits of liberalization. However, liberalization has also caused problems of illegal logging and trade as described in Friends of the Earth reports.

4. Investment by Foreign Companies

Investment of foreign capital to the Russian forest industry is divided into two parts: Investment into the Far East by Asian and North American companies; and investment into European Russia by European companies.

Investment into the Far East began in the late 1980s by Japanese companies. With the opening up the Russian economy, Japanese trading house and timber companies began to establish joint stock companies with Russian state forest industry complexes and constructed sawmills. Japanese companies intended to strengthen ties with the Russian forest sector, and to secure a future timber supply from Russia. However, because of the unstable supply of material, steep rises of production costs such as energy and transportation, and unreasonably high taxes, most of these companies faced management crisis. American companies also made investments into Khabarovskiy Krai, but they are also in serious condition. Recent trends of foreign investment to the Far East are described in detail in Dr. Sheingauz's report.

Foreign investment into European Russia has been more active and diverse. European capital, especially from the Scandinavian forest industry has been actively invested in the forestry and forest industry sector in Russia. These investments include the establishment of joint stock companies, purchasing shares of forest industry complexes, direct investment, and logging operations by the investing companies themselves, etc.. For example, Stra Enso, a Finnish company, imported more than 5 million m³ of logs from Russia, was able to obtain forest licenses and operate their own logging operations, and established a joint venture packaging factory and a panel factory (Ovaskainen: 1999).

Another point of difference between European and Asian forest investments is the influence of the environmental movement. In Scandinavian countries, the boreal forest protection movement has been active, and the Finland-based Taiga Rescue Network provided a global network for taiga forest protection. Such movements have a strong interest in Russian forest conservation, and have appealed to the forest industry not to exploit the old growth forests in Russia. Since the European market is quite sensitive to corporate attitudes toward forest conservation, many companies have taken some form of measures to avoid exploiting the old growth forests in Russia.

5. Conclusion

Under the economic crisis and confusion caused by economic transition, the forest industry in Russia deteriorated seriously. Many forest industry companies suffered management crises which resulted in neglect of investment. Production facilities and infrastructure deteriorated and are outdated in many companies, so the reconstruction of the forest industry will be quite a difficult task.

The deterioration of the forest industry is especially serious in the Far East region, because its productivity was low, deterioration of the infrastructure was more serious than in other regions, the local market is small, and energy and transportation costs are higher.

Under these circumstances, timber exports have been the only reliable source of profitability, and hard currency. Exporters have become quite active and exports increased during the 1990s. Exports now play an important role in the forest industry sector. Although this sector has helped sustain the Russian economy to a certain extent, profit are rarely reinvested in the forest industry sector, but kept by the small number of corporate owners. Illegal logging and trade have also increased.

As Dr. Sheingauz pointed out in his paper, it is impossible to make policy recommendations with immediate effect. Under the present condition with the shadow economy prevailing and the market economy not properly functioning, typical measures to vitalize the forest industry, such as subsidies for investment, will be in vain.

Under current situation, the development of continuing education system would be a good

measure to take. Because no good continuing education system for foresters and forest workers exists, their knowledge is now outdated, especially in the areas of environmental conservation and the market economy.

I add one comment to Dr. Sheingauz's recommendations to establish industrial development programs for small and medium business. One of the problems of the forest industry today is lack of effective linkages between key players. The establishment of a smoothly circulating financial system – including a good cycle of investment - is critically important to revitalize the forest industry and local economy. In this sense, Dr. Sheingauz's fifth recommendation is important and should be tried as model for locally based revitalization. Japanese importers and users of Russian logs should be encouraged to help with these model programs.

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Table 1 Trends of output of forest products of Russia

	1970	1975	1980	1985	1990	1995	1997
Timber (million m ³)	354	367	328	337	304	116	84
Lumber (million m ³)	92	94	80	80	75	27	20
Plywood (1000m ³)	1421	1558	1459	1594	1597	930	968
Particle board (1000m ³)	1377	2618	3491	4672	5568	2206	1483
Fiber board (1000m ²)	171	324	386	453	483	234	200
Pulp (1000 tonnes)	4735	6409	6756	7954	7525	4197	3120
Paper (1000 tonnes)	3476	4317	4462	5030	5240	2771	2229
Paperboard (1000 tonnes)	1973	2514	2876	2876	3086	1301	1102

Source: All Russian Institute for Economy of Forest industry

Table 2 Output of forest products, by region in 1990

	timber	lumber	plywood	particle board	Fiber board	pulp	paper	Paper- board
Northern	681	11830	268	975	117.2	3374	2251	750
Northern Western	10.4	2460	138	231	13.7	528	595	303
Central	23.4	7340	276	1219	70.0		180	446
Volgo-Viatski	20.0	5750	96	119	58.5	235	627	170
Cebtral Black Earth	1.5	914		14	20.6			
Povolzhski	5.8	2635	117	430	81.5		85	263
North Caucasian	2.9	1880	68	584		37	17	100
Urals	44.1	11220	346	802	81.5	529	993	197
West Siberia	31.8	8420	60	480	23.6			107
East Siberia	65.9	17020	202	542	70.6	1809	111	478
Far East	29.6	5410	25	189	23.8	540	215	241
Total	303.5	74879	1590	5567	561.0	7525	5074	3055

Source: All Russian Institute for Economy of Forest industry

Table 3 Trends of output of forest products in Northern, Central and the Far East regions

Northern

	1980	1985	1990	1994	1995	1996
Timber (million m ³)	76.0	75.7	68.1	29.4	28.9	23.8
Lumber (million m ³)	13378	13113	11830	5640	4657	3720
Plywood (1000 m ³)	231	236	268	163	145	130
Particle board (1000 m ³)	592	918	975	439	365	202
Fiber board (1000 m ²)	93.8	110.4	117.2	60.6	46.1	40.0
Pulp (1000 tonnes)	3137	3354	3374	1765	1974	1496
Paper (1000 tonnes)	1167	2079	2251	1142	1267	1101
Paperboard (1000 tonnes)	675	665	750	439	469	354

Central

	1980	1985	1990	1994	1995	1996
Timber (million m ³)	25.9	25.6	23.4	10.5	10.1	8.3
Lumber (million m ³)	7883	7431	7340	3830	3033	2730
Plywood (1000 m ³)	297	303	276	192	206	233
Particle board (1000 m ³)	960	1190	1219	827	685	548
Fiber board (1000 m ²)	59.4	69.8	70.0	26.3	29.8	22.2
Pulp (1000 tonnes)						
Paper (1000 tonnes)	166	172	180	60	62	53
Paperboard (1000 tonnes)	367	450	446	150	132	86

The Far East

	1980	1985	1990	1994	1995	1996
Timber (million m ³)	33.0	34.5	29.6	10.1	9.6	9.1
Lumber (million m ³)	6254	6179	5410	1180	963	720
Plywood (1000 m ³)	36	36	25	2	1	1
Particle board (1000 m ³)	102	117	189	52	28	12
Fiber board (1000 m ²)	18.9	23.0	23.8	5.6	5.0	2.9
Pulp (1000 tonnes)	498	574	540	47	60	9
Paper (1000 tonnes)	322	228	215	11	14	7
Paperboard (1000 tonnes)	169	192	241	8	13	7

Source: All Russian Institute for Economy of Forest industry

Table 4 Trends of export of forest products from Russia

	1980	1985	1990	1994	1995	1997
Timber (1000 m ³)	16933	15431	15200	13500	18000	17500
sawlog		6513	7743	7700	7250	10000
pulp log	5736	6425	6400	6250	8000	7500
pulp log	5736	6425	6400	6250	8000	7500
Lumber (1000 m ³)	7131	7629	4500	5400	4200	3900
Plywood (1000m ³)	314	410	254	591	660	621
Particle board (1000m ³)	332	298	46	18	20	19
Fiber board (million m ²)	91	72	15	31	30	41
Pulp (1000 tonnes)	821	965	427	944	1300	970
Paper (1000 tonnes)	647	708	514	637	1020	1210
Paperboard (1000 tonnes)	372	392	380	413	430	430

Source : All Russian Institute for Economy of Forest industry

Table 5 Russian export of forest products, by country

1985

	coniferous log	pulp log	lumber	newsprint
Japan	4514	1122	144	
Korea	1940			
China				
Finland	667	2539		
East Germany		799	1875	
England			1039	
Hungary			841	
India				58

1996

	coniferous log	non coniferous log	lumber	newsprint
Japan	4517	405	406	
Korea	1037	26		
China	200			
Sweden	475	1083		
Finland	2562	3867		
Germany			239	54
England			1464	27
Hungary			133	
Egypt			702	
India				105
Taiwan		330		179
Turkey		62		133

Source: FAO Yearbook of forest products

FOREST INDUSTRY OF THE RUSSIAN FAR EAST A Status Report

Alexander S. Sheingauz¹

INTRODUCTION

The forest sector in the Russian Far East (RFE) has been subjected to dramatic changes since 1989. In this report the analysis is done in a time of new stage of transition. This stage is not accompanied with some reorganization but mostly it contains a new stage of hidden struggle for property redistribution. The slump in output that had begun in 1986 was quite stable (with two small exceptions in 1988 and 1995) until the deep financial crisis in August of 1998. This crisis was the downfall of the state financial pyramid and the stoppage of strong hard currency regulation (the crisis stopped currency regulation that had place before crisis and was one of its reasons). The crisis' shock in the Russian Far East went on only three to four months. The ruble's devaluation was for the forest sector (strongly linked to export) as breath of fresh air. Figures from 1999 demonstrate the stimulation of forest industry, but this gave rise to industry bosses' struggles for power.

Unfortunately, the information reliability in such a situation becomes lower, especially that related to real output, production costs, profitability etc. At the least one can see the official figures of forest industry non-profitability, at the same time as a strong willingness of many entrepreneurs to establish new forest businesses. The latter testifies that non-profitability is only the official picture but the real, shadow situation shows high profits, including the seeking of economic rent.

1. Trend of Investment Profitability of the Forest Industry Sector in the Russian Far East

Investments in the forest sector are destined for operational costs and fixed capital. In the behavior of the Russian forest industry (harvesting), they are divided as shown below.

Operational costs go to

- a) Construction of forest primary roads;
- b) Reimbursement of current expenses (salary, fuel, etc.);

Fixed capital goes to

- a) Construction of forest main roads;
- b) Construction of buildings, bridges and other structures;
- c) Machine purchasing and renewing.

Our official statistics show only investments in fixed capital and an estimation of fixed capital amounts. The latter was reevaluated during economic reform three times, so, its dynamics are not very reliable even if estimates take into account the according dynamics of the ruble/dollar exchange rate. However such attempt is illustrated in Table 1.1.

Table 1.1 shows that after reevaluation in 1993 the overall trend demonstrates an increase of fixed capital until 1997 and then a decrease. This is as a result of some different factors:

- a) Decrease of investments in fixed capital,
- b) Change of price structure,
- c) Ruble/dollar exchange rate dynamics,
- d) Fixed capital depreciation.

The latter became abnormal and remained so after the mid-1990s. (Table 1.2).

Such big and abnormal depreciation is the result of a lack of investment in recent years. So called base enterprises (old *lespromkhozes*) got used to receiving state investments during the Soviet era. Now that they are burdened with big debts they don't have their own funds for investment. New firms for the most part don't view themselves as constant and long-term hosts of business. Most of them prefer to take the largest possible current profits and invest as little as possible -- only in necessary machinery and labor payments. The increase in forest industry production gave firms a chance

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to invest some funds in 1999. Moreover, the increase was impossible without the purchase and maintenance of machines. (Tables 1.3 and 1.4).

Foreign investments are not included in domestic investments and as Table 1.4 shows in 1998, they make up an amount that sometimes is comparable to ruble investments. The same can be stated for 1998 and 1999 in Khabarovskiy Krai (Table 1.5).

It is not propitious that in this situation the profitability of the forest sector and its industries is mostly negative by official reports (Table 1.6). However, profitability in Primorskiy Krai remained positive during all years. The explanation is that in any province total non-profitability includes results of both profitable and non-profitable enterprises. And in Primorskiy Krai, the share of non-profitable businesses is less than in other provinces because the concentration of harvesting is closer to export ports. (Table 1.7 and 1.8).

More detailed analysis of firms in Khabarovskiy Krai illustrated more of a mixed picture. Table 1.9 shows that there are no linkages of profitability with either annual productivity per capita or with capital-labor ratio. It is likely that the main influencing factors are managerial skill, the market situation of individual firms and the quality of timber.

In addition, other industries and the forest industry sector as a whole are involved in total system-wide insolvency and are burdened with debt. For example, the debt of all enterprises to the state budget of Khabarovskiy Krai at the end of 1999 was 3668.2 million rubles. According to the volume of debt, the forest industry ranked 4th with a debt of 237.8 million rubles.

Debt of enterprises to the state budget of Sakhalinskaya Oblast at the end of 1999 was 4240.6 million rubles. The Sakhalin forest industry sector also had 4th rank among other industries. Its debt was 260.1 million rubles. At the same time, almost all enterprises owe the debt of salaries for their employees and debt of payment for their firm-partners. Those debts are bigger than the debt to the state budget.

From one perspective, such insolvency can be considered as shadow non-profitability and from other as shadow loans among partners.

2. Outline of Forest Industry Policy and the Organizing Structure of the Forest Sector of the Russian Far East

The organizing structure of the forest sector has changed during each period of reform. The structure of the Forest Service is more stable and is very similar to its structure at the time of the pre-reform era. Organizing structure of forest industry today is very different than that in the Soviet era. It obtained the following new principal features:

- 1) The former structure and indivisible vertical management of the production process from Moscow to the most remote *lespromkhoz* has been destroyed because of private firms;
- 2) The former main level of regulation that was on the central government has now shifted to the provincial level.

The depth of transformation of the organizing structure and a degree of its elaboration depend on the role of the forest sector in a provincial economy. In the RFE the most elaborate and dynamic is the organizing structure of the forest sector in Khabarovskiy Krai. This is not astonishing because the *krai* accounts for more than 40 percent of the RFE forest sector output.

It is possible to say that with the pace of reforms the managing structure of the forest sector became more complicated. In 1992, when the Soviet Krai Executive Committee was replaced by Krai Administration, forest sector management was concentrated in the Committee of Economics. Later the Directorate (currently a Department) of Natural Resources and Resources Extracting Industry was released from the Committee. The Directorate is active now in leasing out forest resources and since early 1999, it has a special forest industry division. At the same time, the State Enterprise Khabarovskglavles was established to regulate the forest industry.

At the beginning of the 1990s, a Commission of Forest Use appeared (one of the firsts in Russia). It unites various agencies and has under its authority use of all forest resources in the *krai*. The commission's activities were regulated by a special *krai* law (currently by the *krai* Forest Code). The Head of the Commission is the First Vice-Governor on Economy.

Thus, the direct regulation of forest use on the *krai* level is executed by the following organizations (Fig. 2.1):

1. Commission on Forest Resource Use. Headed by the First Vice-Governor. Considers applications to get forest resources for use. Makes decisions on competitions for lease rights. Cancels lease agreements. Now it is responsible also for forest payments and all forest industry tax collection.
2. Krai Administration Committee on Economy. Compiles the *krai* budget including the portion relative to forest use and forest regeneration, steers the most important economic projects related with forests. In particular, it currently implements all the activities related with the Pilot project of the World Bank. The committee has on its staff a special officer – a Senior Specialist who deals only with forest projects.
3. Committee on State Property Management. Headed by a Vice-Governor, it organizes open auctions/competitions for getting lease rights and has under its authority forest units and stock packages that belong to the state.
4. Department of Natural Resources and Resource Extracting Industry. The Department Chief is the Deputy Chairman of the Krai Commission on Forest Resource Use. The Department implements a general state strategy of nature use in the *krai*, compiles normative-legal aspects of nature use including the Division of Licensing which deals with nature use licensing including forest use and the Division of Forest Industry The Department supervises Khabarovskglavles.
5. State Enterprise Khabarovskglavles. The Head is a member of the Krai Commission on Forest Resource Use. It implements state policy in the sphere of wood harvesting and processing, and industrial potential of the *krai* forest sector development. It formulates proposals on regional strategy of forest sector development, particularly the restructuring of forest firms, as a part of its duties.
6. Forestry Service Directorate of Khabarovskiy Krai. The Chief of the Directorate is the Deputy Chairman of the Krai Commission on Forest Resource Use. In addition to that, the Directorate delegates to the Commission the Chief Forester and Forestry Department Head (Secretary of the Commission). Officially only the Directorate is responsible to dispose of forests because they are federal property. According the Decree of the President of the Russian Federation of 17 May 2000, it became as a division of the Krai Committee of Natural Resources, the local representation of the Ministry of Natural Resources of the Russian Federation.

The structure in Primorskiy Krai is similar to the structure in Khabarovskiy Krai before the organization of Khabarovskglavles, i.e. the Krai Administration there is a special Department of Forest Industry and Wood Processing that is supervised by the vice-governor of industry. There are the following specifics:

- 1) In Primorskiy Krai Administration there is the Committee of Nature Resources (higher rank) instead of the Khabarovsk Department of Nature Resources and Nature Extracting Industry.
- 2) The Committee of Nature Resources of Krai Administration has in its structure the Forest (not Forest Industry) Division.
- 3) In Primorskiy Krai there is no such body as Khabarovskglavles.

The Sakhalin administration has in its structure the Department of Forest Complex that concentrates all responsibilities in its hands and is supervised by a vice-governor.

Other provincial administrations don't have special forest sub-divisions and all forest regulations are the responsibility of Economic Committees. It is especially astonishing in Amurskaya Oblast. However, all provinces have Forest Service Directorates (Upravlenie Lesami). In the Sakha Republic it is named the Ministry of Forestry. According the same Decree of the President of the Russian Federation of 17 May 2000, all directorates lost their independence and became as divisions of the local representatives of the Federal Ministry of Natural Resources.

However, no one administration now has direct levers of command to manage the forest industry. About 98 to 99 percent of the forest industry is private in all provinces. In the first years after reform, administrations tried to control the forest industry sector through such old and usual (for them) structures as Dallesprom, Primorsklesprom, Sakhalinlesprom, etc. especially because administration officers maintain old command behavior even now and many of them didn't transform their mentality to the new market style.

At the same time these big production structures changed into privatized holdings with state blocks of stocks and allotted other new holdings that were purely private and belonged to forest industry bosses. Dallesprom organized Flora; Sakhalinlesprom organized Sakhalinles. Terneiles had

separated from Primorsklesprom with the help and commercial interest of the former Primorsklesprom's General Director. (See Figure 2.1.)

Now three main forest provinces of the RFE - Primorskiy and Khabarovskiy Krai, and Sakhalinskaya Oblast -- have some holdings that in sum provide the majority of the harvest:

- Primorskiy Krai - Primorsklesprom and Terneiles, about 80 percent;
- Khabarovskiy Krai - Dallesprom, Flora, Khabarovskglavles, about 70 percent;
- Sakhalinskaya Oblast - Sakhalinles, Sakhalin Forest Company, Tymovsk Forest Industry Company, Nord-Les, about 80 percent.

In the next phase, the new holdings very often became strong competitors of their parent holdings. This manifests itself particularly in the bankruptcy of Sakhalinlesprom that is under processing now. Some persons were appointed as external managers and are trying to find property of Sakhalinlesprom to sell it and cover debts. Most of that property is under lease or other form of use in the hands of new firms, the first being Sakhalinles.

A special situation arose in Amurskaya Oblast. The former forest sector as a whole and Amurlesprom as the main structure almost stopped their production. Only two or three *lespromkhozes* near the Baikal-Amur main railroad are operating. The commercial conditions of Amurskaya Oblast changed dramatically because its distance from ports is greater than in other provinces. In addition, the forest sector of Amurskaya Oblast is under the influence of total economic collapse that in the Oblast is more serious than in other provinces of the RFE.

The forest policy of all administrations in the last two years was very simple: to extract out of forest firms as much income as possible. The main lever to solve this problem is the allocation of long-term leases. Especially, systematic pressure was made in Khabarovskiy Krai. In 1999 alone, long-term leases were canceled for 150 of 400 forest users. The main reasons for canceling were non-payment of taxes and forest duties. As a result, the collection of all types of forest fees increased in Khabarovskiy Krai from 45 to 50 percent in 1998 to about 85 percent in 1999. In Sakhalinskaya Oblast, the forest sector covered all debts owed to state and municipal budgets at the end of 1999.

The covering or the significant decrease of debts that took place in 1999 was a result of two causes: 1) the intensification of administrative pressure, and 2) the increase of real profitability of firms after ruble's devaluation.

Another typical feature of local governmental policy aspiration to strengthen control over forest use. It coincides with the overall policy of Russian provinces to strengthen their power that was typical in the last years of Yeltsin's era.

Three points of control were important to provincial authority:

- 1) The regulation of exports, mostly in the direction of increases but under administrative supervising that is not possible in full degree because of the market type of economy.
- 2) Regulations of wood processing volume especially in Khabarovskiy Krai. The goal to achieve twenty percent of processing that has been announced by the governor's decree has not been achieved, but one can note some real increases of wood processing, although they can be considered a result of greater overall activity of the economy.
- 3) Regulation of the rapidly expanding hardwood use that is driven by the demand of Chinese merchants. The authority wants to have part of the producers' and traders' surplus. So, in the end of 1998 - beginning of 1999 they introduced special constraints to control all hard wood flows with special state units and in the same time increased stumpage fee by 4 times.

The forest user policy is very simple: to maximize income, to extend their power on new resources and to avoid taxes. In each province some groups of big users have formed. As it mentioned in the Introduction a new stage of struggle for property and resources is underway. But the groups involved are not the usual competitors; the share of the shadow economy is big. The latter is half based on crime, so its methods of competition are also illegal. For example most people are sure that the double attempt upon the life of Eugene Zenin, General Director of Exprales, and the murder of Bogdan Kovalyuk, General Director of Khabarovskglavles, are reflections of this struggle for property and resources.

Big firms implement these strategies to avoid taxes:

- 1) Official applications to decrease customs tax and some local taxes (such as transport tax) because of the non-profitability of low-quality products.
- 2) Concealment of information about production costs, profitability, etc.

Small firms have another very effective instrument whereby they establish firms for only two or three months of activity and close them very soon. As a result, tax police cannot find them and collect taxes.

These relations became more acute in 1999 because it was a year of recovery for the economy as a whole, including the forest industry (Table 2.1). The economic data of 1999 is not yet complete and will undergo some changes after adoption of State Statistics Committee of Russia, but it is evident that output increased for most of the provinces and products.

The total output of the forest sector in 1999 increased in value in comparison with 1998, in Sakha Republic (Yakutiya) by 8.3, in Primorskiy Krai by 22.7, in Khabarovskiy Krai by 33.9 percent.

In Yevreiskaya Autonomous Oblast the total output in 1999 decreased in comparison with 1998 by 17.9 percent, in Kamchatskaya Oblast by 10.8, and in Magadanskaya Oblast by 33.3 percent.

In Primorskiy Krai, about one-third of roundwood output was by Terneiles but its increase in 1999 was only 7.2 percent. In 1999, private business in the forest industry sector accounted for 99.4 percent of *total krai* output. The main producers of sawn wood (77 percent of output) were concentrated in the cities of Artem and Dal'nerechensk, in the Kavalerovskiy and Terneiskiy Raions.

In Khabarovskiy Krai in 1999, large and middle enterprises saw increases of only 31.7 percent. Small business was more dynamic. In Kamchatskaya Oblast, the most decrease falls on share company Kamchatlesholding (by 13%), Klyuchevskoy (16%) and Kozyrevskiy (25%) *lespromkhoz*s. However, other economic indexes were not so good. For example, there was an interrupted increase of prices (Table 2.2).

In the same time dynamics of average salary in the forest sector did not increase in the same proportion (Table 2.3).

The discussion above mentioned the debts of forest enterprises for salaries and about the total impossibility of covering all debts. The restructuring of firms was announced three years ago as a way of problem solving. Boris Masliy, General Director of Sakhalinlesprom at that time was one originator of such ideas. However, he was dismissed from his position by antagonistic groups during a struggle for power in the Sakhalin forest sector. However, he later became a Deputy Minister of Economy and officially announced restructuring for the entire Russian forest sector (he 'lost' later his position in the Ministry).

The key idea of restructuring involves organization of a new firm to replace the indebted firm, and bankruptcy of the old firm. But bankruptcy is a very long and complicated procedure and it requires the firm to cover first of all debts in salary, even if that is only part of debts. So, in practice it was implemented for a very small portion of firms. It turned out that one of the main creditors of such firms was the state budget (federal and provincial) and that the same budget is the main source to cover debts. Thus, in reality, restructuring has changed into a mechanism to obtain big blocks of shares as state (provincial) property.

Practically at the moment, restructuring was implemented to a small portion of the most prospective firms. For example in Khabarovskiy krai only 2 *lespromkhoz*s were fully restructured: De-Kastrinskiy and Sredneamgunskiy. Under processing now is Vega (former Ukturskiy *lespromkhoz*). It is possible that the next firm will be Komsomolskiy *lespromkhoz* but its situation is a very knotty problem of multiple debts repeatedly being divided-up. One of the firms with good conditions and economic position for restructuring is the former Koppinskiy Lesocombinat. However, one of its big debts is \$1,500,000 is owed to the Japanese firm Nichimen and there is no source of funds to cover such a debt, even in the *krai* budget.

The same slow and ineffective restructuring is evident in *Primorskiy krai*. In the Sakhalin restructuring of Sakhalinlesprom the beginning of its bankruptcy became possible only after the establishment of Sakhalinles and the sale of a large share block to foreigners. (This was the turning point in the career of Boris Masliy because he was dismissed by foreign shareholders).

However, the establishment of Rimbunan Hijau in Khabarovskiy krai was the last introduction of foreign capital into the RFE forest industry. Now it seems that foreigners have lost any interest in this sphere. This is not astonishing after the ruin of most joint ventures. Only a few firms with foreign capital remain as working units. In Khabarovskiy Krai there are now about 10 firms that account for 20 percent of the *krai*'s output. The most successful are Pioneer Starma Techniks, Vanino-Tairiku but now they too are burdened with debts. For several years, Sovgavan-Les was involved in a legal dispute with Krai Administration for property near the Sovetskaya Gavan forest port. A cou-

ple of months ago, both rivals reached agreement on this problem. Great potential was expected for Rimbunan Hijau but this has not materialized. Moreover, it hired some non-professionals as high ranking officers and their decisions now seem to have been inadequate.

In Primorskiy Krai, about 15 joint ventures are now officially operating. Their output is about 4 to 5 percent of the total for the *krai*. Interestingly, the most successful firm, Terneiles, has a big Japanese share block and in reality is a firm supported by foreign capital. As mentioned, the main and the most promising Sakhalin firm, Sakhalinles, is also supported with foreign capital.

I think that now the main form of foreign investment is the purchase of shares, however this does not involve active investment into production.

An astonishing situation one can observe is that there are no aspirations on the part of Moscow firms to enter into the RFE forest industry, although they are now in other industries (energy production, airplane building, shipping, etc.). This may be a sign that Russian tycoons:

- a) Don't think that the RFE forest industry is very profitable.
- b) Think that all spheres in the RFE forest industry are already divided up and there are no convenient niches remaining for them.

3. Case Studies of Institutional Changes

It may seem that information about institutional changes is open and transparent, such as with the official registration of any new enterprise. However, information is closely guarded under the pretext of commercial secrets in reality because tendency to conceal all tricks with property and profits. It is evident that criminal characters in the forest business have become stronger in recent years.

Khor Unit of Enterprises

In the Soviet era the Khor Unit (Khabarovskiy Krai) consolidated the Khorskiy Complex Lespromkhoz and Khorskiy Wood Processing Integrated Plant (*'derevoobrabatyvayushchiy kombinat'*) in the structure of Dallesprom. In 1993 they were privatized. Very quickly Khorskiy Complex Lespromkhoz was burdened with debts and in 1994 it was bankrupted (at that time, there was no federal law on bankruptcy, and it was easy to declare bankruptcy). A new open type joint stock company named Khorles was established on its foundations.

Before privatization, milling and sawing machines, including a line for log sorting, were purchased for the Khorskiy Wood Processing Integrated Plant at the expense of centralized state investments from the Swedish firm Soderhamns. Machines were earmarked for production for export of sawn wood and of wood chips for hydrolysis. It was designed so that small-sized logs could be sawn with the new machines and the larger logs with the existing machines of the plant. The latter machines were band saws and a power-saw bench.

As part of privatization, Khorskiy Wood Processing Integrated Plant was divided into three new firms:

- 1) An open joint stock company known as the Khorskiy Wood Processing Integrated Plant (but in a truncated form);
- 2) A closed company, Lakta.
- 3) A closed company, Istok.

The founders of Istok are bosses of Dallesprom and the former General Director of the Khorskiy Wood Processing Integrated Plant. Istok possesses controlling blocks of shares of Lakta and the new Khorskiy Wood Processing Integrated Plant. New Swedish machines were given as property to Istok.

Dallesprom forced Khorskiy *lespromkhoz* as well as the other nearest *lespromkhoz*es to send their logs for sawing in Istok. Istok made exportable sawn wood and returned it to *lespromkhoz*es for export. But the volume of returned wood was usually 20 to 25 percent less than what can be produced with such high quality machines. *Lespromkhoz*es believed that Istok stole a share of their sawn wood but they can't verify this with the current system of stock-taking, especially because all logs and sawn wood that belong to different *lespromkhoz*es are mixed in the yards of Istok.

Khabarovskglavles has made some attempt to understand and to make the situation clear but could not obtain the necessary documents.

Now the Khorskiy Complex Lespromkhoz company is facing bankruptcy. In the process of bankruptcy the Krai's Directorate of State Property wants to withdraw its forest lease and machines to cover its debts. After that, a new *lespromkhoz* will be united with the Khorskiy Wood Processing Integrated Plant. However before that, the Khorskiy Wood Processing Integrated Plant must be separated from Istok very exactly. This is possible only under power of the Auditing Directorate of Finance Department of the Krai's Administration. It is expected that such a process will be executed during the second half of 2000.

De-Kastrinskiy Lespromkhoz

Before privatization, the De-Kastrinskiy Complex Lespromkhoz (Khabarovskiy Krai) was the biggest forest industry unit in Khabarovskiy Krai. At that time after the beginning of *perestroika* it had become one of the founders of the Russian-Japanese joint venture saw mill Somon. It also had in its structure a special forest port-point De-Kastri. Lespromkhoz has purchased many modern Finnish harvesters, skidders, and lorries.

Three new firms were created in the separation:

- 1) A closed company- Torgoviy Dom (Trade House)
- 2) An open type joint stock company- Taiga
- 3) A limited liability company- Dalna

Initiators of the split-up of the firm and founders of new companies were bosses of Dallesprom and the former *lespromkhoz*.

The most productive and efficient machines were given to Taiga and Torgoviy Dom. The maximum amount of income concentrated in these companies. The greater part of forest resource base was taken from old *lespromkhoz* and given to new firms.

Almost all timber products, including logs and wood chips were sent off for export. Export payments did not go directly to De-Kastri firms but to Dallesprom as the paying agent. Dallesprom would hold the payments for many months in its bank, at a good interest rate and only after that sent them to the De-Kastri firms. At the same time, all quality complaints of Japanese consumers were ascribed to firms directly.

In 1999, the De-Kastri Lespromkhoz was guided through the procedure of bankruptcy and restructured into the new open type joint stock company De-Kastriles in which 51 percent of shares belong to Khabarovskglavles, 14 percent to Dallesprom, and the other 35 percent to Rosexportles (formerly known as Exportles).

New enterprises must solve many problems: to elaborate a concept of development, to optimize re-equipment for harvesting and wood processing, to find alternative sources of energy supply, to increase the commercial value and competitiveness of products. The main instrument to help address these problems must be Khabarovskglavles.

Vaninskiy Forest Industry Integrated Plant

Six years ago the Vaninskiy Forest Industry Integrated Plant (Khabarovskiy Krai) had a forest base with allowable annual cut (AAC) equalling 500,000 cubic meters. It has harvested 360,000 cubic meters annually, producing for export sawn wood and wood chips. It also established the Russian-Japanese joint venture Vanino-Tairiku to manufacture lumber for export.

With privatization, the Plant separated into three new open-end companies:

- 1) Vega
- 2) Extrales
- 3) Mezhdurechie (the place between two rivers)

The Vaninskiy Forest Industry Integrated Plant itself transferred a whole forest resource base to new firms and now only a saw shop remains.

In recent years, the potential of the forest resource base became worse and capacity to export big-sized logs decreased. As a result, today the plant has been declared bankrupt. All three firms also have big debts owing to the *krai* budget, road fund, etc. Because the plant is the main shareholder of all three firms, the common decision was adopted: 10 percent of Vega shares, 25 per-

cent of Extrales shares, and 25 percent of Mezhdurechie shares will be transferred into the property of Khabarovskglavles. The latter will also receive the saw shop of the Plant.

Accordingly, Khabarovskglavles will become the main owner (as a representative of *krai* authority) of the new firm. It must create a system of measures for the processing of bw-quality wood into export sawn wood and wood chips, for full and multiple use of the timber.

4. Policy Recommendations for the Forest Industry Sector of the Russia Far East

The recovery of 1999 was evoked by two main reasons: the appearance of good opportunities for export after devaluation of ruble in August of 1998, and revitalization of the overall economy after August of 1998. It is evident that such opportune circumstances cannot continue very long. Therefore, it is necessary to use them for creation of long-term conditions. In 1999 this was not done. Now there are two choices for the Russian economy: either the new central authority will make something to strengthen and support the positive economic trend of 1999, or it will stop in 2000-2001.

No measures will be implemented in the RFE forest industry sector in reality as long as crime systems exist. (these sentence is superfluous and I obliterated it) If the RFE can be returned to a normal situation, it will be possible to recommend a program for forests.

Measures for the development of the RFE forest industry sector can be considered to have two stages. The first stage must be devoted to the elimination of the chaotic features that have arisen in the forest use system as result of:

- a) Spontaneous influence of long-term (not only August 1999) economic crisis and reforms that could neither completely end the old system, nor complete restructuring of the production sphere. Very often that restructuring was not only ineffective but also faulty.
- b) Existence of a very significant shadow economy that was generated, on one hand, by the abnormal legislative and economic environment in the country, and on the other, by criminal aspirations to misappropriate profits.
- c) Lack of clear concepts and programs for sectoral development on both federal as well as provincial levels.

Such characteristics of main reasons predetermine the activity of the first stage. It is possible only after transformation of the tax system, and creation of a reliable bank and loan system, because these are basic conditions to abolish the shadow economy. Measures of the first stage in such opportunities should include the following:

1. To elaborate a concept and program of development for the forest industry sector that will focus on:

- Rational forest use along with the obvious reforestation and forest rehabilitation; elimination and prohibition of exhaustive methods of forest use;
- Development of forest use;
- Achievement of social goals (full employment, development of infrastructure in rural and taiga areas, etc.);
- Provision of ecological conservation.

2. To redistribute the forest resource base more rationally the following should be done:

- Assess all firms and enterprises from two points of view: a) to what degree are they in line with goals of the development program; b) can they develop and expand or are they likely to remain at the same size?
- Cancel forest lease agreement with all firms that have no future prospects because they use the forest base inefficiently;
- Assess all forest tracts that are vacant or released from leasing., rank them according economic effectiveness of forest use, and then to establish a rational sequence to involve them in development;
- Carry out competitions/auctions for the leasing of the tracts that will be based not only on price bidding but also on program proposals. Competition conditions will have to coincide with main conceptual goals (wood processing development, full employment achievement, ecological tech-

nology implementation, reforestation, fire control, participation in social programs, etc.). Programs that will be devoted to the maximum multiple utilization of forest resources should be given preference.

3. Improve the system of forest use payments, to ensure that payments are effective, simple and flexible in order to:
 - extract the maximum owner's rent to its income;
 - stimulate rational forest resource use;
 - cover costs for reforestation and forest rehabilitation;
 - avoid placing impossible burdens on users.
4. To compile and to realize development programs of integrated and wood processing manufacturers that will be different for different regions and over time but will include obviously:
 - legal and administrative measures, including partial or full prohibition of the sale of unprocessed raw forest materials.
 - tax and loan incentives for firms that develop wood processing and expand the variety of production;
 - in contrast to previous point, more strict tax and loan system for firms that produce only non-processed raw materials;
 - development of forest mortgage system that will take collateral in the form of users rights to finance projects and business-plans of integrated and wood processing manufacturers;
 - shared participation of local administrations in similar projects.
5. To organize and to realize sub-programs of co-operation, especially between small and middle-sized firms, with the participation of local authorities for solving of social problems, infrastructure development, processing production development, expanding of finance-credit systems, etc. To establish and develop a special bank and other credit bodies that can carry out financing of especially important projects, including privileged loans and subsidies. To set aside for the latter special funds on the base of forest use payments.

The longevity of the first stage will be 10 to 20 years after the creation of normal framework conditions (it is impossible to estimate how long the preliminary stage of normalization will be because it is not an economic, but rather a political process).

The second stage will preserve all measures of the first one, but it must go on to create and implement large projects of development of some *raions* or their sub-units (especially areas that are depressed) on the basis of the sustainable use of all natural resources (not only forests) with the potential to solve a wide spectrum of social, ecological and economic problems. For that purpose, it is necessary in each project to:

- determine goals;
- develop territorial zoning according to the goals and functions of natural resource (including forests) use;
- estimate the total natural resource potential of each zone and its tracts as well as potential to use them;
- evaluate the economic effectiveness of natural resource use;
- utilize to the maximum the potential of project self-financing.
- create common administration of a projected territory and provide it with all the necessary means for project realization.

In conclusion, I think that to achieve ideal forest use is possible only in a framework of multiple complex management. This is the necessary strategic direction. But now the forest industry sector needs to have very simple, clear, transparent and regular order of activity in which all events are predictable, and there is only one dictate – the dictate of law (this was the slogan of Vladimir Putin for his election).

Table 1.1. Fixed Capital at Year-end (in current prices estimated in US. dollars using the exchange rate). Units: million U.S. dollars

Index	1992	1993	1994	1995	1996	1997	1998
Yevreiskaya Autonomous Oblast							
Forest Sector, total	6.6	1.1	11.3	22.1	30.0	...	...
Primorskiy Krai							
Forest Sector, total	59.0	14.2	113.9	222.6	373.1	279.2	198.5
including:							
harvest	25.1	7.3	57.7	112.6	197.5	129.3	112.5
wood processing	31.2	6.3	56.1	109.8	175.7	149.9	72.7
Kamchatskaya Oblast							
Forest Sector, total	...	...	...	30,8	41,3	33,1	...

Table 1.2. The Depreciation of Fixed Capital in the Forest Sector as a Whole. (%)

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998
Sakha Republic	29.0	33.0	31.0	35.0	41.0	...	...	...	...
Yevreiskaya Auton. Oblast	...	...	46.9	47.1	54.8	51.3	43.8	43.5	51.5
Khabarovskiy Krai	...	...	...	...	52.3	53.5	56.1	56.4	54.3
Amurskaya Oblast	40.0	43.6	42.2	35.6	43.3	...	...	...	...
Kamchatskaya Oblast	48.7	46.8	44.1	...	53.1	53.2	51.0	55.5	61.9

Table 1.3. Investments in Fixed Capital in the RFE in 1999.

Province	Economy, total	Industry as a Whole	Forest Industry	Local Forest Service
(In millions of rubles)				
Sakha Republic	5419.3	3743.6	0.001	0.057
Primorskiy Krai	...	...	253.7	...
Khabarovskiy Krai	...	1798.1	518.4	17.9
The Same (in millions of dollars)				
Sakha Republic	222.5	153.7	0.00004	0.002
Primorskiy Krai	...	...	10.4*	...
Khabarovskiy Krai	...	73.8	21.3	0.7

*Primorsklesprom and Terneiles account for 80 percent of Krai's forest production.

Table 1.4. Investments in Fixed Capital in Primorskiy Krai

Sector of Economy	1994	1995	1996	1997	1998
Investments in total economy: (in millions of rubles)	1358.6	2937.4	3668.4*	3647.4*	3165.8
re-calculation into USD: (in millions)	662.1	665.3	714.3*	629.1*	509.3
Investments in forest industry sector as a percent of the total economy:	1	2	2	5	3
foreign investments in wood processing: (in millions of USD)	...	1.5	-	1.6	11.3

* including an estimation of the shadow economy.

Table 1.5. Foreign Investments in Khabarovskiy Krai, million USD.

Sector of Economy	1998	1999
Economy, Total	40.1	33.2
Industry as a Whole	5.7	31.0
Forest Industry Sector	5.7	22.5

Table 1.6. Profitability of the RFE Forest Industry Sector.

Province	1993	1994	1995	1996	1997	1998
Primorskiy Krai	32,5	9,4	22,8	3,7	16,8	15,3
Khabarovskiy Krai	...	...	...	-17,2	-9,7	-11,1
Amurskaya Oblast	...	...	2,9	-13,7	-11,9	-11,1
Kamchatskaya Oblast	16,9	-9,8	-17,8	-30,9	-19,8	-12,1

Table 1.7. Non-Profitability of the RFE Economy, 1999.

Index	Share of Non-profitable Enterprises, %	Loss	
		million rubles	Percent of Industry as a Whole
Sakha republic: Forest Industry Sector	72.2	...	...
Yevreiskaya Autonomous Oblast:			
Industry as a Whole	63.3	174.6	100
Forest Industry Sector	66.7	3.1	1.8
Primorskiy Krai:			
Industry as a Whole	43.6	1168.1	100
Forest Industry Sector	29.2	43.2	3.7
Khabarovskiy Krai:			
Industry as a Whole	40.6	732.1	100
Forest Industry Sector	51.9	337.1	46.0
Kamchatskaya Oblast:			
Industry as a Whole	45.2	450.0	100
Forest Industry Sector	80.0	8.2	1.8
Sakhalinskaya Oblast:			
Industry as a Whole	47.3	798.3	100
Forest Industry Sector	44.0	40.0	5.0

Table 1.8. Economic Characteristics of Base Firms in Primorskiy Krai.

Indices	Primorsklesprom		Terneiles	
	1998	1999	1998	1999
Investments in Fixed Capital (millions of rubles)	4.0	61.0	45.8	192.7
Production Costs (rubles per 1 m ³)				
all species	561.0	708.6	380.0	1000.0
hardwood	757.0	960.0	415.0	1248.0
Profitability (%)	13.3	13.9	16.3	15.3
Average Exchange Rate (ruble/USD)	9.98	24.36	9.98	24.36

Table 1.9. Economic Characteristics of Some Firms of Khabarovskiy Krai, 1999.

Firm	Per- sonnel, persons	Harvest, thou. m ³	Annual Produc- tivity per Capita, m ³	Fixed Capital, thou. ru- bles	Capital- Labor Ratio, thou. rubles per capita	Production costs, ru- bles per m ³	Sale Price, rubles per m ³	Profit- abil- ity, %
Firms with Share Block of Khabarovskglavles								
Vyazemskiy Lespromkhoz	473	99.8	211	11812	25.0	608	638	4.9
Sredneamgunskiy Lespromkhoz	352	129.6	368	27005	76.7	496	824	66.1
Firms with Share Block of Dallesprom								
Komsomol'skiy Com- plex Lespromkhoz	375	122.7	327	18830	50.2	667	877	31.5
Ulikanskiy Complex Lespromkhoz	271	56.1	207	8215	30.3	427	567	32.8
Lazarevskoye Com- pany	239	72.2	302	12730	53.3	1118	1165	4.2
Firms with Share Block of Flora								
Evoronskiy Lespromkhoz	349	205.7	589	29332	84.0	630	1010	60.3
Gorinskiy Lespromkhoz	260	161.2	620	35949	138.3	743	894	20.3
Independent Joint Stock Companies								
Shelekhovskiy Lespromkhoz	355	160	451	75475	212.6	433	793	83.1
Suluk	274	100.1	365	22192	81.0	1141	1210	6.0
Sikhote-Alin'skiye Resursy	165	64	388	10655	64.6	774	1250	61.5
Lesnoi Complex	44	31.4	714	1041	23.7	675	725	7.4

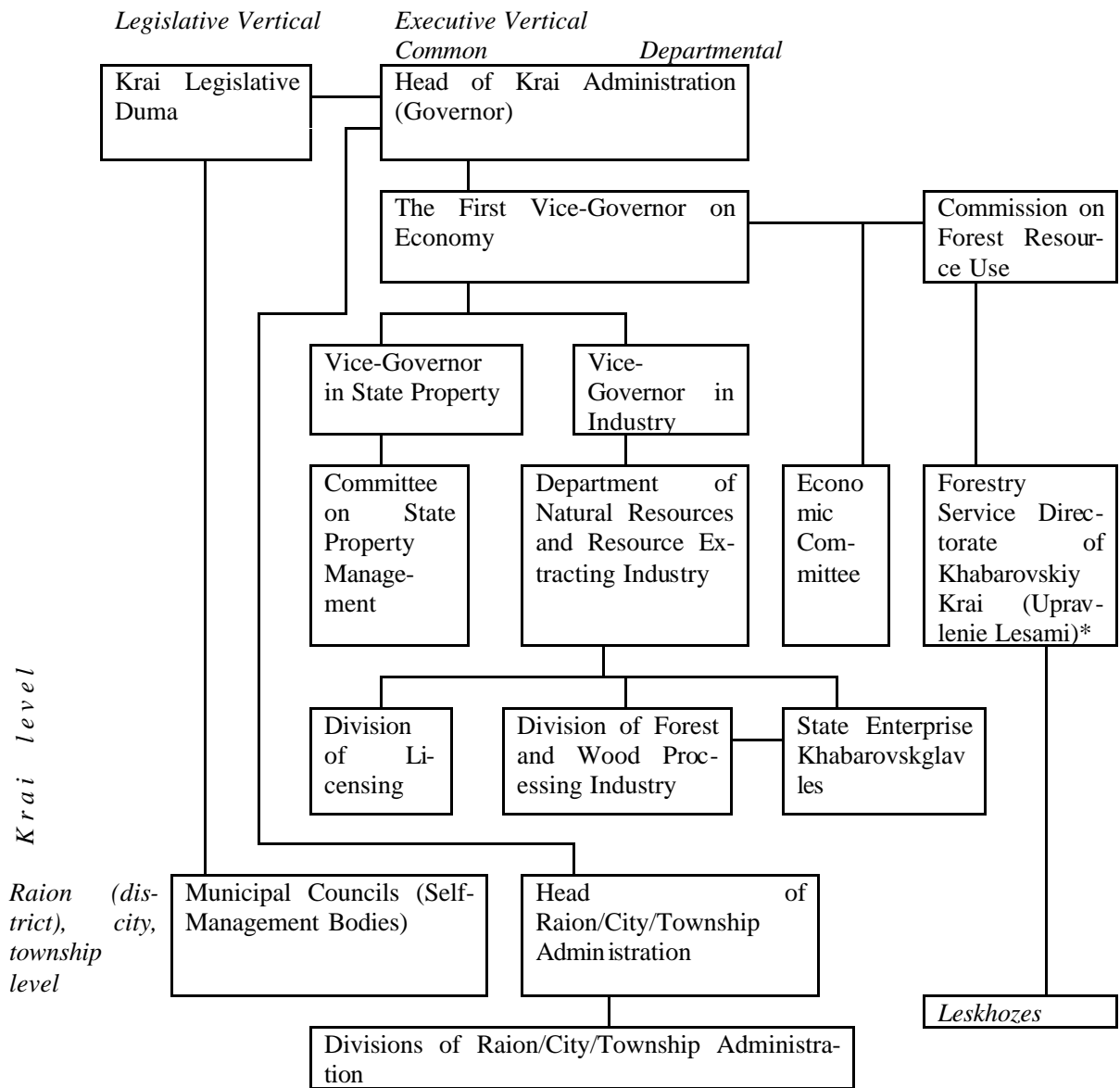


Figure 2.1. Structure of the Forest Resource Management in Khabarovskiy Krai After Being Reorganized March 1999

* After 17 May 2000 the Directorate reorganized as the division of the Krai Committee of Natural Resources, local representation of the Ministry of Natural Resources of the Russian Federation.

Table 2.1. Production of Main Products in the RFE.

Province	Year	Round-wood total, thou. cu. m	Commercial Round-wood, thou. cu. m	Sawn Wood, thou. cu. m	Particle-board, thou. cu. m	Fiber-board, thou. sq. m	Paper, thou. t	Paper-board, thou. t
Sakha Republic	1997	628.0	213.7	114.7	-	-	-	-
	1998	455.8	177.3	106.0	-	-	-	-
	1999	485.1	267.0	101.1	-	-	-	-
Yevreiskaya Autonomous oblast	1997	16.6	9.7	10.3	-	-	-	-
	1998	11.5	7.2	5.5	-	-	-	-
	1999	...	...	...	-	-	-	-
Primorskiy Krai	1997	1281.2	983.4	69.1	-	-	-	-
	1998	1449.0	1090.0	69.0	-	-	-	-
	1999	1432.2	1217.9	102.9	-	-	-	-
Khabarovskiy Krai	1997	4456.6	3632.6	205.8	8.9	3.0	-	3.1
	1998	3324.6	2708	145.6	5.1	2.6	-	3.7
	1999	4564.2	3829.0	171.5	6.2	2.8	-	...
Amurskaya Oblast	1997	937.7	686.9	73.1	-	-	-	-
	1998	601.5	436.8	60.8	-	-	-	-
	1999	...	582.0	57.2	-	-	-	-
Kamchatskaya Oblast	1997	114.3	45.7	22.0	-	-	-	-
	1998	127.0	51.3	22.2	-	-	-	-
	1999	116.8	51.7	19.0	-	-	-	-
Magadanskaya Oblast	1997	5.8	5.8	1.9	-	-	-	-
	1998	4.8	6.5	3.7	-	-	-	-
	1999	...	1.0	1.5	-	-	-	-
Sakahlinskaya Oblast	1997	805.3	560.3	54.0	-	-	0.7	2.0
	1998	426.0	398.0	71.8	-	-	0.2	2.4
	1999	788.9	655.0	48.3	-	-	9.1	9.8
RFE	1997	8245.5	6138.1	550.9	8.9	3.0	0.7	5.1
	1998	6400.2	4875.1	484.6	5.1	2.6	0.2	6.1
	1999	...	...	...	6.2	2.8	9.1	...

Table 2.2. Wholesale Price Index in December of 1999 versus December of 1998, (percent).

Province	Industry as a Whole	Forest Industry Sector		
		as a Whole	Harvesting	Wood Processing
Sakha Republic	116.4	...	107.5	125.8
Yevreiskaya Aut. Oblast	...	143.8	...	...
Primorskiy Krai	146.7	117.6	...	140.0
Kamchatskaya Oblast	157.4	193.8	176.6	259.6
Magadanskaya Oblast	121.4	145.5	...	...
Sakhalinskaya Oblast	102.3	136.0	...	134.6

Table 2.3. Average Monthly Salary at Year End.

Indices	1997	1998	1999
Khabarovskiy Krai			
Industry as a Whole, rubles	1503	1780	2705
Forest Industry Sector: rubles	1303	1247	2768
percent of Industry as a Whole	86.7	70.1	102.3
Kamchatskaya Oblast			
Industry as a Whole, rubles	2728	3001	4457
Forest Industry Sector: rubles	1518	1669	2320
percent of Industry as a Whole	55.6	55.6	52.1
Sakhalinskaya Oblast			
Industry as a Whole, rubles	1753	1924	4438
Forest Industry Sector: rubles	...	993	1417
percent of Industry as a Whole	...	51.6	31.9

**Ethnic and Legal Aspects (Modern Legislative Base)
of the Socio-Economic and Cultural Development of Indigenous Peoples
in the Primorsky and Khabarovsk Regions**

Anatoly F. Startsev ¹

Introduction

This paper analyzes a series of the most important federal and regional legislation concerning the socio-economic and cultural development of the Udegeis, Nanai, Orochi and other indigenous peoples who have lived in the Khabarovsk and Primorsky region. It focuses mainly upon the Udegeis and the attitude of local executive bodies towards them.

Indigenous peoples have lived and still live in the territory of the modern Khabarovsk and Primorsky regions. Until 1935, there were 8 Udegei groups in these two regions. Besides them, there were also Kur-Urma, Aniu, Hungari and Khor groups living in the Khabarovsk region, as well as Bikin, Iman, Primorskaya and Samarga groups in the Primorsky region.

For a long time, legal measures in support of indigenous peoples have existed, but they only appeared on paper. In practice there has been much destruction of their environment, devastating their traditional livelihoods, and their hunting, fishing and gathering territories. The aid they received was not effective to help develop their local economy. Their needs and requirements in housing, necessary goods and food supply, medical, cultural and other services were neglected.

At the international symposium "Human Rights and Peoples of the North" held under the auspices of the Association of Indigenous Peoples of the North in September, 1991, V. Sangi, the president of the Association, stated that indigenous peoples appeared to be forced out of their time-honored territories by outsiders. As a result, their modes of life has been disrupted and their material livelihoods lost. However, neither the State nor the various governmental ministries and departments, whose enterprises had been established on the territories of these northern peoples, have ever compensated them. They have not paid them for use of the land, reservoirs, forest and natural resources. Measured by per capita income, or considering the provision of housing and different kinds of services, peoples of the North are surviving on one-fourth to one-fifth the levels available to outsiders and in some regions, especially the industrially well-developed ones, one-fifteenth or one-thirtieth their levels. It is no mere coincidence that the overwhelming majority of indigenous families live constantly below the poverty line. Hence it follows that their sickness and death rates are 2 to 5 times higher than for new settlers and their life span is 15 to 20 years shorter.

Participants at the symposium pointed out that the most reliable safeguards for the rights of indigenous peoples could be the law, or more precisely speaking, the statute book. This would establish the legal status of indigenous regions, assign territories for the traditional and natural use of the indigenous peoples and determine priorities for their activities and industry for their territories.

Land Rights

Participants at the First Congress of Indigenous Peoples held in March 1990 demanded that attitudes towards indigenous peoples be changed radically. One of the most important questions raised among the participants at the Congress was that land should be assigned to the indigenous peoples.

The Constitution of the former USSR stated that the land, including its natural resources, reservoirs and forests, is "exclusive property of the State." (The USSR Constitution (Basic Law). M.1989. p. 11). However the Constitution of the Russian Federation (with its amendment and addendum inserted by the Laws issued in September 27, 1989; May 31, June 16, December 15, 1990) proclaims that "the land and its natural resources, reservoirs, flora and fauna are the property of the peoples inhabiting the given territory. You cannot own or use natural resources to the detriment of those peoples' interests" (The Constitution of the RSFSR (Basic Law). M.1991, p.11). The same basic concept is also included in the Law of the RSFSR "On the Land Reform." It states

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that “in the territory of the RSFSR, the state monopoly on land has been cancelled (Law of the RSFSR “On Amendment of the Law of the RSFSR...” p. 4).

For the first time, special regulations about land use in areas inhabited by indigenous peoples were mentioned in the Resolution “On Urgent Measures for the Ecological Improvement of the Country” adopted by Supreme Soviet of the USSR on November 27, 1989. The Resolution recommended that “the traditional natural use areas should not be alienated for industrial exploitation but assigned to indigenous peoples of North Siberia and the Far East in 1990.” This recommendation was not implemented.

On February 28, 1990, the Supreme Soviet of the USSR passed the “Basic Legislation of the USSR and Union Republics on the Land.” On April 25, the Supreme Soviet of the Russian Federation adopted “The Land Code of the RSFSR.” According to this legislation, the land was declared the property of the peoples inhabiting a given territory. Only local Soviets could put the land at somebody's disposal within their competence. Article 2 of the Basic Legislation repeated special regulations of the land use in the areas inhabited by indigenous peoples. Usage and withdrawal of rights to that type of land “can be allowed by referendum of the peoples and ethnic groups, subject to consent of Soviets of People's Deputies” (Basic Legislation of the USSR and Union Republics on the Land, p. 4).

According to Land Code of the RSFSR, indigenous peoples and other ethnic groups take priority in usage of both the forest and the preserved or protected lands as well. Article 94 says that “in the areas inhabited by indigenous peoples and ethnic groups, the corresponding Soviets of People's Deputies have the right to put the use of forest lands at the disposal of *Kolkhozes*, *Sovkhozes* and *Gospromkhozes*, to transfer lands to the possession of citizens and to grant the lands on lease to them for deer-breeding and hunting.” The protected lands for deer grazing is permitted (Article 89). “Traditional and extensive use of nature which does not cause transformation of the protected natural complex is permitted on the preserved lands” (Article 90).

In April 1992, a President's Decree “On Urgent Measures for the Protection of Areas of Indigenous Peoples' Residence and Activity” was issued. By the decree, regional and other executive bodies of the Russian Federation together with regional Associations of Indigenous Peoples had to outline Traditional Natural Use Areas (TTP) and assign them to aborigines.

TTP are forests, reservoirs and all other kinds of lands with biological resources good for the traditional economy of indigenous peoples. Indigenous communities, families or private citizens who live and maintain the traditional lifestyle can use them. The use of natural resources of TTP areas to satisfy their own personal requirements in food, clothing and dwelling is free.

The area of a TTP is to be determined according to population. The boundaries of a TTP are determined on the basis of historical, ethnological, socio-economic and ecosystem analysis and, as a rule, usually coincide with the area of rivers, streams and watersheds.

Legal statutes of the Khabarovsk and Primorsky regions, though similar in their main statements, differ in their approach to the problem of land ownership. In the Khabarovsk region, land and forests are transferred to the possession of indigenous communities or granted on lease for periods of up to 50 years, while in the Primorsky region, the forests of TTP are owned by *leskhozes*.

Local legislative acts dealing with TTP in the Khabarovsk Region

It was on June 20, 1991, that the “Provisional Regulation on TTP of Indigenous Peoples of Khabarovsk Region” was adopted (Startsev, Rost Natsional'nogopp. pp. 100-102). This document served as the basis for a revival of indigenous culture and activity among indigenous peoples and was the first regional legal act dealing with TTP.

For the period 1992-1993 all the spadework had been carried out. And it was in 1994 that, by a Resolution of the Head of Khabarovsk region administration, TTP with outlined boundaries and measured areas were assigned to the aborigines of Amursky, Aiano-Maisky, Vaninsky, Komsomol'sky, Nikolaevsky, Okhotsky, Sovetsko-Gavan'sky, Solnechnyi, Ul'chsky and the Lazo districts (Author's Personal Archives, 1996, pp. 75-118).

The administration and the Duma of the Khabarovsk region did not limit themselves to assigning TTP. In 1994 the Duma also adopted a resolution “On Considering Enterprises of Different Forms of Property Indigenous.” The enterprise or unit was considered indigenous if 50 percent of its employees were aborigines.

The above resolution was followed by the resolution “On Releasing Indigenous Communities, Kolkhozes, TOO, AZOT and Cooperative Societies of the Region from Taxes and Transferring Their portion to the Regional Budget” if not less than 50 percent of their employees were aborigines. By this resolution almost all indigenous units were released from assessed tax, land tax, transport tax and road tax; and the tax for needs of educational institutions was abolished.

On November 30, 1995, the Duma passed the *ustav* (regulations) of the Khabarovsk region, several clauses of which were amended on September 30, 1998. Clause 19 of the *ustav* “Safeguards of the Rights of Indigenous Minorities” proclaims that State organisms and those of local self-government of the Khabarovsk region encourage all indigenous minorities living on the territory of the Khabarovsk region to realize their rights for the preservation and development of their original culture, traditions and customs” (Ustav of Khabarovsk region, p. 228).

The most important legal act passed by councils of the Khabarovsk region was the law “On Indigenous Communities of Aborigines of the North.” The Law provided for the creation of facilities for the revival and development of the original economy, indigenous traditions and social defense of aborigines of the North (Ob Obschine, p. 228).

To protect aborigines TTP from encroachments of commercial and state organizations, a law providing for usage rights of natural resources in the Khabarovsk region was passed. Under Clause 54, “before setting up any new enterprise on the usage areas of aborigines in the region, it is necessary to submit not only a business plan but also to include facilities providing for the protection of time-honored environments and traditional life style of indigenous peoples and ethnic groups if, by chance, the project affects those areas or its functioning is involved with them” (O Poriadke, p. 232).

Under Clause 12 of the law, “Aborigines have the right to appeal against illegal actions and/or inaction of State and local self-government bodies or authorities which infringe upon their indigenous community's or members' rights, and can request that damage caused by those actions be compensated.”

Finally, on December 24, 1999 the Duma of Khabarovsk region adopted the law “On Territories of Traditional Natural Usage Areas for Indigenous Peoples of the North Khabarovsk Region.”

Deforestation Threat in the Territory of the Udegei

In the Primorsky region, the attitude towards aborigines was different from that in the Khabarovsk region. Even after the Resolution of the Supreme Council of the USSR “On Urgent Measures for Ecological Improvement of the Country“ had been adopted (November 27, 1989), the Primorsky Executive Committee was still vigorously promoting clear-cutting of the forest in traditional natural use areas, instead of preparing regional legislation to protect these areas. At the time, the Primorsky Executive Committee was enabling the establishment of a joint-stock company under the name of “Svetlaya” in conjunction with the South Korean company “Khiendai.” New enterprises should have been engaged in wood stocking of the forest in the Terneisky and Pozharsky districts. In the Pozharsky district forest, located in the upper Bikin area, an area of hunting and fishing for aboriginal peoples since time immemorial should have been prohibited.

The Pozharsky Executive Committee, the Indigenous Soviet of Krasny Yar village (Bikin Udegeis), some industrial enterprises, public and research organizations were against clear-cutting of the forest in the Bikin River basin. The Supreme Council of the USSR, the Ministry of Forest Industry of the USSR, Goskomles of the USSR, Gosplan of the USSR and Glavokhota of the RSFSR all participated in the discussions. During the process of exchanging opinions they came to the conclusion that the forest in the Bikin River basin should not be logged (Archives of I.I.A.E. F.1. Op.2. D.382, pp. 282-283, 311).

The Supreme Soviet of the USSR not only supported the aborigines' position but also issued a special law “On Free Indigenous Development of the Citizens of the USSR Living Outside Their Indigenous State Units or not Having Them on the Territory of the USSR.” Clause 5 of this law provided for “Preservation of the environment in the traditional areas of indigenous peoples and ethnic groups as well as development of their traditional crafts and activity” (O Svobodnom Natsional'nom Razvitiu Grazhdan SSSR..).

Despite scholarly opinions that logging of the forest was economically inexpedient and in

spite of the law "On Free Indigenous Development of the Citizens of the USSR," the joint-stock company Svetlaya was established on October 11, 1990.

On October 25, 1990, the State Committee of the Nature of the USSR (Goskompriroda) ruled that establishing the joint Soviet-South Korea forest industrial enterprise Svetlaya in the Primorsky region without prior settling of all problems and obtaining the consent of all parties concerned was illegal. The Primorsky Executive Committee was ordered to provide a completed feasibility report to be reviewed by experts of Goskompriroda in the shortest time possible. (Startsev, *Sovremennye Problemy Sokhraneniya i Zakrepleniya Territorii...*p. 147).

On November 19, 1990, the State Committee of the RSFSR on Ecology and Natural Usage issued order (Prikaz) No. 86-11, confirmed by a commission of experts of State ecological examination board. (Archives of I.I.A.E. F.1. Op.2. D.382, p. 361). There were 24 specialists from different fields of science - biologists, geographers, geologists, economists, ichthyologists, ethnologists and the author of this paper working in this commission.

As a result of this thorough examination of all sections of the feasibility report, the experts concluded that the inclusion of hunting and forestry (upper Bikin River basin, 272.6,000 hectares out of 439.3,000 hectares) into the territory approved for the joint-stock company had been made without the consent of the Indigenous Soviet of Krasny Yar village, nor of the Pozharsky Executive Committee and the Soviet of People's Deputies. It had also not taken into consideration existing legislation and the ecological programs of the Primorsky region. Following upon this decision, the Primorsky Executive Committee offered to exclude the territories of hunting forestry in the upper Bikin River basin from the approved areas of the joint-stock company's activity and strike it off its agreement. (Archives of I/I/A/E. F.1. Op.2. D.382, pp. 380-381).

All these decisions were approved by the Council of the State Ecological Commission of Experts on March 22, 1991 and by scholars of the Institute of Ethnology (Sokolova Z.P. pp. 36-45).

By the end of 1991, it became apparent that there was not enough wood for normal functioning of the joint-stock company in the Terneisky district and that they still would require expansion into the Pozharsky district. On February 25, 1992, the local newspaper *Pobeda* published an explanatory note by V. A. Stegnyy, president of Svetlaya. He tried to persuade authorities and population of the Pozharsky district that if the joint-stock company, Svetlaya, were not granted logging rights in the upper Bikin River basin, it would fail and the region would not only miss out on the millions promised for resources but would also be forced to pay a penalty of several million US dollars. (Stegnyy V.A.)

Naturally, the problems of Svetlaya attracted great attention from regional authorities. On March 11, 1992, a meeting of the Small Soviet was held. One of the points on the agenda was "Decisions of the State Ecological Commission of experts on the feasibility report of setting up joint-stock company in Primorsky region." After reviewing the company's proposals, all members of the Soviet came to the conclusion that the area of the upper Bikin River basin should not be logged and should be assigned to the local aborigines.

TTP on the Bikin in the Primorsky Region

On June 11, 1992, V. S. Kuznetsov, head of the Primorsky region administration, issued Order No.165 "On Traditional Natural Usage Areas of Minority Peoples Living in the Pozharsky District." According to the order, 407,800 hectares of hunting areas in the middle section of the Bikin River were assigned to Bikin Udegeis. The Association of Indigenous Peoples of Primorye did not approve the order. (Postanovlenie Glavy Administratsii Primorskogo Kraia No. 165) Nonetheless, the local press, representing the interests of the Executive Committee, published an enthusiastic article by Red'kin. (Red'kin A.). Moscow authorities were informed that the President's Decree had been fulfilled and that the TTP of Bikin Udegeis was now outside of Svetlaya activities.

The situation changed immediately. The Forest Committee (*Goskomles*) permitted Svetlaya to stockpile 200,000 cubic meters of wood in the upper Bikin River basin. (Archives of I.I.A.E. F.1. Op. 2. D.382. p. 392). In July 1992, following that decision, Kuznetsov issued Order No. 455 "On allotting extra limit of woodcutting area on the territory of Pozharsky district in 1992" (Postanovlenie Glavy Administratsii Primorskogo Kraia. No. 455).

Deputies of the Primorsky Regional Soviet objected against the order and, by decision No. 224 (24.07.92) adopted by ten sessions of the Soviet, cancelled it "as contradicting Legislation of the

Russian Federation and a decision of the Regional Soviet of People's Deputies" (Archives of I.I.A.E. F.1. Op. 2. D.382. p. 398).

The decision was approved by V. K. Abramov, chairman of the State Ecological Commission of Experts, and reported to the Supreme State bodies by a special letter (29.07.92). The letter commented that "taking into consideration the fact that the feasibility report of Svetlaya had not been approved and had recommended that forest areas in the Bikin River basin be excluded from the woodcutting area of Svetlaya, this order of the Primorsky Region Administration contradicts Clauses 3, 4, 18, and 36 (Paragraph 1,4) of the Law of Russia "On Preservation of Surroundings." The letter also added that the "solving of ethnic problems by means of allotting the former nut-gathering area of 407,800 hectares located in the Bikin River basin as a traditional natural usage area for the Udegeis and Nanai aboriginals is not convincing" (Archives of I.I.A.E. F.1. Op.2. D.382, pp. 399-403).

On August 5, 1992 P. V. Suliandziga, President of the Association of Indigenous Peoples of the Primorsky region, also Head of the Krasny Yar village Indigenous Soviet, appealed to D. N. Grigorovich, chairman of the Primorsky Regional Soviet of People's Deputies, to cancel Order No. 165 issued by V. S. Kuznetsov. He addressed the same request to the Russian government and to Goskomsever.

On August 18, 1992, D. N. Grigorovich issued Order No. 161 "On traditional Natural Usage Areas of Aborigines Living in the Pozharsky district," prohibiting logging of the forest on traditional natural use areas as well as intrusions into the areas of any department without the consent of the aborigines.

On August 19, 1992, Goskomsever submitted their view on Order No. 165 to the federal government. They reported that the Primorsky region Administration had broken some governmental resolutions and ignored the interests of aborigines by allotting only 407,800 hectares instead of the 1,384,000 hectares deemed necessary for their normal activity.

Despite all protests by the aborigines and despite the recommendations of several ministries, the Svetlaya continued intensive spade work for wood stocking in the Bikin River basin. At the beginning of September 1992, the Krasny Yar village Indigenous Soviet and the Minority Peoples Association of the Primorsky region took retaliatory measures. They placed armed pickets in the upper Bikin River area. Young Udegeis, Nanais, and Orochis took up arms. They were joined by Cossacks from Ussuriisk, protecting taiga from loggers for two weeks. Meanwhile, older Udegeis and Nanais, dressed up in their native garments adorned with orders and medals received during the years of the Great Patriotic war, were having talks with the administration of the region, all to no avail.

The struggle of these aborigines for their TTP attracted great attention among Primorye citizens as well as among foreigners. It was pure coincidence that American scholars David Gordon, manager of the Siberian Forest Preservation project of the Pacific Environment and Resources Center, Mr. Shepard, consultant on the environmental preservation, Katherine Kophirld, chairman of the Council of Directors on the preservation of tropical forests, Boyd Northorn, writer and Tim Krosby, photo-journalist, were all staying in Vladivostok at the time. Together, along with four Russian ecologists, they addressed a request to the then President of Russia, Boris Yeltsin.

They concluded their letter with the following words: "We are addressing you this strong request not to allow the joint-stock company Svetlaya to log in the upper Bikin River basin, but to assign those areas to the Udegeis and other aboriginal peoples of Primorye as their traditional natural use areas (Archives of I.I.A.E. F.1. Op.2. D.382, pp. 419-420).

In response to the aborigines' protest, V. S. Kuznetsov brought an action against the deputies of the regional Soviet demanding that cancellation of his order be voted illegal.

A first court session took place in Vladivostok and later the case was brought to the Supreme Court of the RSFSR. The Supreme Court gave the following judgement: to prohibit logging in the upper Bikin River basin, and that Resolution No. 165 of the Primorsky Executive Committee be considered valid. Thus the problem of Bikin Udegeis' TTP had not yet been solved.

The Krasny Yar village Indigenous Soviet launched another appeal to Supreme State bodies for the upper Bikin River basin to be joined to the TTP that had been assigned to them before.

The Resolution of Soviet of Nationalities of the Supreme Soviet of the RSFSR adopted on February 24, 1993 still did not yield positive results. The resolution conceded that the

Administration of the Primorsky region had ignored aborigines' interests in the Pozharsky district and had formally disregarded Decree No. 397, (April 22, 1992) of the Russian Federation President by allotting only a small area for the TTP that in reality was only 30 percent of the area vitally necessary for aborigines. (O Sokhraneni Prirodnogo Kompleksa,...pp. 225-226).

It was only in 1993, however, that the "Provisional Regulation on TTP of Indigenous Peoples of the Primorsky Region" and later, in 1995, that the "Ustav of the Primorsky Region" were adopted (Statutes of Indigenous Peoples of Russia. Legal Acts. pp. 219-220).

After all of this, however, the problem of assigning traditional natural use areas in Primorey has still not been solved.

Programs for the Socio-Economic Development of Indigenous Peoples, Their Financing and Implementation

Persons concerned about these issues believe that the rights and interests of the indigenous peoples would be well defended if they had an effective economic and legal base. This issue has been raised more than once at Congresses of People's Deputies of the former USSR as well as of the Russian Federation.

(1) Finance and expenditure during 1980-90

In 1990 the period of validity for the resolution "On Measures for Subsequent Economic and Social Development of the Northern Peoples' Areas" adopted by the Central Committee of CPSU and Council of Ministers of the USSR in February 1980 had expired. The resolution had provided for a package of measures on the improvement of cultural and economic structures in the regions of indigenous peoples' inhabitation for the period 1980-1990. It had been planned with consideration for the interests of the indigenous population to expand industrial development, to provide everything necessary for the development of deer-breeding, breeding of fur-bearing animals, fishing and hunting, to develop agriculture, to revive indigenous artistic and other crafts, to improve housing accommodations, to promote cultural, educational, medical, transportation trading and other services.

These plans for social and economic development concerned all people who lived in northern regions but did not effectively reach the indigenous peoples themselves. Different ministries and departments were charged with the implementation of the plans. That is why all these good resolutions remained only on paper. State investment in areas that did not directly relate to indigenous peoples' interests could not essentially change the socio-economic and cultural position of the aboriginal population. Besides, state finances allocated to the peoples of the North very often were re-allocated to other purposes. For example, in 1990, the Primorsky Executive Committee prepared the "1990 Plan for Development of Northern Peoples Populated Areas." According to this plan, in the Roschino village where there were only 30 dwelling houses with a total area of 3,179 square meters for the aboriginal people, they were to have built a hostel, a canteen seating thirty, a hospital with fifty beds, a vegetable storage house with a capacity of 40 tons and a store. Meanwhile, in the Dal'niy Kut village with an aboriginal population of only 36 people, only one duplex was to have been built (Personal Archives of the author, 1995, pp. 204-205).

(2) Original plans for the indigenous people in 1991-95

On February 4, 1991, the Council of Ministers of the RSFSR issued Resolution No. 76 entitled "On Some Measures for Socio-economic Development of Northern Areas." The Resolution provided for the establishment of a fund for socio-economic development in northern areas (Northern Fund), tax privileges for organizations involved in the delivery of essential goods to the northern areas, priority cash and material resources for rapid development of agro-industrial projects in northern areas, and some additional measures to raise salaries for labor, etc. In order to work out proposals on ecological improvement in northern areas, environmental organizations were given the special task of drawing up an ecological map to design critical ecological standards for northern areas and they were supplied with data of pollution levels. All projects listed above should have been financed from local budgets (O Nekotorykh Merakh po Sotsial'no-Ekonomicheskomu Razvitiu Raionov Severa...).

In its intent, it was a very good resolution. In practice, however, it turned out to be a very

ordinary declaration because local budgets had no money to finance new projects.

On March 11, 1991 one more Resolution was adopted: the Joint Resolution of the Minister cabinet of the USSR and the Council of Ministers of RSFSR "On Supplementary Measures for Improvement of Socio-economic Conditions of Life of Northern Indigenous Peoples for the Period of 1991-1995." This Resolution admitted that the economic development of aboriginal territories was being carried out without taking into consideration the socio-economic and ecological consequences that adversely affect the economy, culture and traditions of the indigenous population. The Cabinet Minister of the USSR and the Council of Ministers of the RSFSR proposed measures to provide for increasing employment among the aboriginal population, for priority development of their traditional branches of the economy and for assigning traditional natural use areas to them, etc. (O Dopolnitel'nykh Merakh...No. 84).

The Joint Resolution was supplemented with the "State Program for Development of the Economy and Culture of Indigenous Peoples of the North for the period of 1991-1995" and confirmed by Resolution No. 145 of the Council of Ministers of the RSFSR, on March 11, 1991. By this program, all republic, regional and local bodies were given definite tasks on the development of agro-industrial complexes, communications, transportation, a construction base, use of natural resources and the preservation of the environment. It was made compulsory for all ministries and departments to coordinate all construction and reconstruction projects on territories inhabited by indigenous peoples (Gosudarstvennaya Programma...No. 145).

(3) Budget and Real Expenditure 1991-5

In order to implement this program, the Government allocated large amounts of funds. But most of those funds, as in the eighties, were conveniently used for other purposes. For example, the authorities of the Krasnoarmeisky district in the Primorsky region used funds from this program to build houses in the villages of Dal'niy Kut and Boguslavets, to repair schools and the village palace of culture in the village of Boguslavets as well as to build automatic telephone stations in Roschino and Novopokrovka. During three months of 1992 (April, May, June), they spent more than 5 million rubles on these projects. Authorities of the Krasnoarmeisky district contended that construction of those units did not contradict State Program No. 145. This author holds, however, this construction should have been carried out with funds from the local budget because there were few aborigines in those villages of Novopokrovka and Roschino.

In the Khabarovskiy region, the use of state program funds outside of their avowed purposes also took place. In 1991, for example, funds from this program were appropriated for the construction of fish-processing plants in Bulava, Tyr and Dudi, a bread-baking plant in Kal'ma, a village palace in Kalinovka, a culinary shop in De-Kastri, schools in Tsimmermanovka and Sanniki, cattle-breeding farms in the village of Sophiyskoye, as well as a hospital in Tsimmermanovka.

Normally the construction of industrial units in the villages of De-Kastri and Sophiyskoye and as well as a school in Sanniki should have come out of district and regional budgets because there were only 60 aborigines among several thousand people of different groups there.

After the disintegration of the USSR, financing for the units already under construction trickled to a stop in the middle nineties. As a result, unfinished units went to ruin.

The same situation developed in the Nanai district of the Khabarovskiy region. There was a salmon-breeding plant at Aniyuy with the capacity of 30 million young autumn Siberian salmon per year after construction. Its estimated cost (1991prices) was 13.2 million rubles. Its construction was financed from the Federal budget out of funds ear-marked as indemnity for the loss of the Amur River fish resources caused by the Bureiskaya hydro-electric dam construction. Since November 1994, the construction of the plant had been delayed because of dwindling funds. By May 1995, however, the cost of work completed was only 6.6 million rubles.

In 1994, out of funds allocated to Program No. 145, it was planned to build apartment houses with a total living space of 7,339.4 square metres in the Khabarovskiy region. However, only 31.6 percent of that plan was ever completed, or 2,318.2 square meters at the cost of 2,508.95 million rubles. Of the total number, only 306.8 square meters were built in the Tuguro-Chuminkansky district. In the Nanaisky district, they had planned to build 1,851.6 square meters, yet only 842 square meters were ever readied for use. Apartment houses for aborigines were built in the villages of Innokent'evka, Troitskoe, Sinda and Dada. In the district named Polina Osipenko, merely

20 percent of the housing construction plan was ever completed, amounting to a single house with a living space of 64.2 square meters. Its estimated cost was budgeted at 13.8 million rubles but 86.5 million rubles were spent there. In Kondon, two apartment houses with a total living space of 64.2 square meters were built. In the Ul'chsky district, 12 aboriginal families from the Bogorodskoe, Mongol, Ukhta, Kol'chiem and Bulava villages saw their housing conditions improved. In the Aiano-Maisky district, only 50 percent - or 249.9 square meters - of the housing plan was completed. In the Amursky and Komsomol'sky districts, 103.1 million rubles were spent for housing construction but not one house was completed.

Besides housing, 36 km of the Troitskoey-Naikhin-Dada high-voltage power lines (LEP) were constructed in the Nanai district, at a cost of 495.2 million rubles. In the Amursky district, telephones were installed in Achan at the cost of 16.1 million rubles. Only one industrial unit was built, a milk processing shop in Maimakan, in the Aiano-Maisky district.

It was the same situation in the Khabarovsky district where only 30 percent of the housing and industrial construction for 1995 was completed. Instead of 5,176.3 square meters of residential area, only 1,553.2 square meters were completed, and that, at the cost of 4,359.9 million rubles, was taken from federal budget funds.

Some of the reasons why the plan was not effective were mentioned in an explanatory report (dated 29.01.1996) from A. F. Atroschenkov, vice-chairman of the Construction Committee, and A. F. Morozov, Chief of the Regional Department of the Russian Federation Ministry of Nationalities. One of the reasons put forward was the fact that 20.5 km of their high-voltage power line, were destroyed by a natural calamity in Komsomol'sky (Bel'go village), Nikolaevsky, by the name Polina Osipenko districts were constructed by expending funds allocated for housing construction.

The misappropriation of funds allocated for implementing the State program for the period 1991-1995 adversely affected not only the Khabarovsky and Primorsky regions but also all regions of the Russian Federation. According to official information of the Russian Federation government, only 30 percent in 1991, 17 percent in 1992, 4 percent in 1993-1994 and 2 percent in 1995 of the total demand for funds were ever appropriated (Itogi Vypolneniya Zadaniy Gosudarstvennoy Programmy... pp. 140-141). For these and other reasons, many of the educational, cultural and industrial units in the Khabarovsky and Primorsky regions had not been put in use.

(4) Recent Programs and Funding for the Indigenous People

In spite of shortcomings in implementing State Resolution No. 84 and State Program No. 145, there were several positive results for the preservation of some areas inhabited by aborigines. For example, following upon these Resolutions, it became possible to stop construction of atomic electric power stations in the Krasnoarmeisky district of the Primorsky region and the Solnechny district of the Khabarovsky region.

Implementation of Resolutions No. 84 and No. 145 depended mostly upon pertinent legislation relating to the status of the territories inhabited by minority people and ethnic groups. But neither the Constitution of the former USSR nor the Constitution of the RSFSR contained such concepts as indigenous district and indigenous village soviet. That is why it was so very important for legislative bodies of the State to work out special laws for aborigines of the North outlining the legal status of autonomous districts, indigenous districts, village and settlement Soviets.

On July 6, 1991, the Supreme Soviet of the RSFSR adopted the Law "On Local Self-Government" (O Mestnom Samoupravlenii, p.126-128). This law was also of great importance for the establishment of Indigenous Village Soviets in the aboriginal residential areas of Primorey and Priamurey.

On December 21, 1993, the General Assembly of the United Nations Organization proclaimed the "International Decade of Aborigines of the World" and worked out a program for the consolidation of international cooperation for solving aborigines' problems.

The Russian Association of Indigenous Peoples of the North as well as the Russian Federation government approved the initiative and worked out a program on the development of aborigines' economy and culture for the period up to the year 2005. The program is being financed by local and federal budgets.

On September 13, 1996, in addition to this program, the Russian Federation government

adopted a goal-oriented program: “The Economic and Social development of Aborigines Peoples up to 2000,” instead of State program No. 145. The goal-oriented federal program was supposed to be financed with non-budgetary funds and local budgets. The total sum of money to be spent should have been more than 15,545.1 billion rubles (about 26 million US dollars). In accordance with the program, it was recommended to implement other local programs such as “The preservation of aborigines’ surroundings,” “Housing and cultural-consumer services,” “health services,” “education, culture and spiritual revival,” etc. (Federal'naya Tselevaia Programma, p.139-154).

On the basis of the programs mentioned above, several regions, including Primorey, worked out their own programs for the period up to 2005 to be financed from local and federal funds.

For the period of 1995-1997, the Terneisky district received 166 million rubles (about 28,000-33,000 US dollars) from the Federal budget. 142 million rubles (about 24,000-29,000 US dollars) of that sum were transferred to the village of Agzu to finish the construction of four condominiums and to continue the construction of a fifth one. 24 million rubles (about 4,000-4,800 US dollars) allowed the Administration of Samarga village to build a condominium for one large family.

In 1995, 350 million rubles (about 70,000 US dollars) from the State Subsidies Fund were allocated to deliver goods to the Far North. 250 million rubles (about 50,000 US dollars) of this sum went to the Samarga fishing cooperative society (Rybkoop), and 100 million rubles (about 20,000 US dollars) to the limited company Troika. In 1996, the same Samarga Rybkoop was given 60 million rubles (about 11,000 US dollars), and “Troika” received 200 million rubles (about 36,500 US dollars). In 1997, the Samarga Rybkoop received another 160 million rubles (about 27,000 US dollars). The Troika and Samarga Rybkoop used that money to provide Samarga, Agzu and other villages with necessities and foodstuffs. Besides this, in 1995, the Administration of Agzu village received 28.8 million rubles (about 5,760 US dollars) from the Terneisky non-budgetary fund as material aid for needy families. Annually (from 1995 to 1997), Samarga aborigines received building materials to repair their dwellings and public buildings, as well as financial resources allocated from the regional fund. In 1995 they received 3.5 million rubles (about 700 US dollars) for materials; in 1996, 6 million rubles (about 1,100 US dollars); in 1997, 6 million rubles (about 1,000 US dollars).

An official report entitled: “List of measures carried out within the program ‘International Decade of Aborigines of the World’ for the period of 1995-1997” was addressed to Goskomsever from the Primorsky regional administration. It claimed that the following had been carried out: - in the Krasny Yar village, a souvenir shop was set up, - a woodcarving department attached to the Vladivostok Art School was inaugurated, and aboriginal peoples received medical aid, medical equipment for their hospitals, and books for their schools.

But not all measures listed by Administration corresponded to the facts. For example, medical equipment was bought for the hospital of the district rather than for the village hospital. In another case, in 1997, the village of Agzu had been allocated 500 million rubles (about 83.3 thousand US dollars), of which 220 million rubles should have been spent on housing construction and 280 million rubles - for the purchase of goods on credit. When the Head of the Association of Indigenous Peoples of Primorey was asked how that sum of money had been spent, he replied, “I can't answer the question. There is no money and the village of Agzu did not get that money. It is probably the district administration that used it for other purposes” (Kuklin M. Rodion Suliandziga: “Sud’bu Agzu Reshat’ Udegeitsam”).

In 1997, the Administration of the Primorsky region worked out a complex plan for the period of 1998-2004 to implement requirements of the International Decade of Aborigines of the World. In accordance with the plan, it is supposed to receive 3.5 million rubles (about 140,000 US dollars) annually from the Federal budget. 200,000 rubles of that sum are supposed to be spent on working out statute books for aborigines; 500,000 rubles to hold conferences; 500,000 rubles for medical aid in aborigines villages; 500,000 rubles for children’s summer holidays; 500,000 rubles for annual sport competitions; 500,000 rubles for conducting exhibitions, fairs and auctions; 600,000 rubles for conducting Indigenous festivals, and 250,000 rubles for native personnel training.

According to the report of the Primorsky Administration in 1998, Goskomsever allocated 2.31 million rubles (about 385,000 US dollars) for housing construction in the native villages of

Primorye and 660,000 rubles more (about 110,000 US dollars) for other needs. But only 30,000 rubles (about 5,000 US dollars) of that sum were actually transferred to the region. For that sum of money it was impossible to build even one duplex-house because each one costs approximately 380,000 rubles. Instead, that small sum of money was spent on aborigine's students' training (Gor'kii Mied Udige).

At the same time, the Administration of the Primorsky region had allocated more than 2.5 million rubles (about 125,000 US dollars) from regional funds for the period 1998-1999 to be used for housing construction in aborigines' villages, for reconstruction of boiler-houses, for purchasing and repairing of diesel generators, for purchasing a baker's shop equipment and training appliances. In 1998, the hospitals at Agzu and Krasny Yar villages were provided with 50,000 rubles' worth of medicine. Besides, about 40,200 rubles were spent on students' training (Zaika Z.G. p. 6).

Even though allocated funds were rather large, they were still not sufficient to realistically implement the programs of socio-economic and cultural development for aborigines. Delegates of the Third Congress of Indigenous Peoples held on March 27-28, 1997 demanded that the Government of the Russian Federation should primarily and completely finance goal-oriented programs for the period up to 2000. The delegates of the Congress then cherished great hopes for the stabilization of social and economic conditions of aborigines by 2000 but they were mistaken. Goal-oriented programs as well as the State program No. 145 have not accomplished their objectives because of economic and political crises in Russia.

Summary

This paper has described the modern legislative basis in Russia as it relates to the socio-economic conditions and cultures of indigenous peoples in the Primorsky and Khabarovsk regions of the Russian Far East. In 1998, direct funding from the State for the Udege, which had been provided for many decades through legislated funding measures, stopped almost completely. As a result, Russian Association of Indigenous Peoples of the North and other bodies responsible to support indigenous peoples through financial assistance, have no funds with which to fulfill their major objectives. Meanwhile, logging of the most valuable of the Udege lands continues, with the timber being exported to Japan and China. This logging is benefiting a few privileged parties, but not the Udege people. Given the current situation, it appears that Udege leaders must start to find economic solutions themselves. The indigenous peoples of the Russian Far East should come together in solidarity and create new businesses that will use natural resources in a sustainable manner. .

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APPENDIX

Several State and civil organizations set up to protect the human rights and legal interests of indigenous peoples in the Russian Federation

A. The State Committee on Socio-economic Development in the North of the RSFSR (Goskomsever) was established as a part of the Council of Ministers in 1990. (Voprosy Gosudarstvennogo Komiteta RSFSR...Article 96). According to Resolution No. 615, Dec. 27, 1990, of the Council of Ministers of the RSFSR, Goskomsever was organized for the purposes of:

- protecting the rights, interests and life styles of indigenous peoples;
- creating favorable conditions for the development of their traditional economy;
- taking measures to promote rational employment and protection of social status of indigenous peoples;
- monitoring development projects in the northern areas for possible exploitation of the people by the State and its executive bodies;
- participating on proposals of economic stimulation for rational use of natural resources and preservation of the environment;
- implementing measures to extend and raise the effectiveness of research and experimental works of social and economic development in the northern areas.

Those regulations were confirmed by Resolution No. 329 of the Council of Ministers of the RSFSR on June 14, 1991. Item 12 of the Resolution required that Ministries, State Committees and Departments, Associations, concerns, unions, enterprises and organizations that have their activities in the northern areas of RSFSR follow all its decisions.

B. The Russian Association of Indigenous Peoples of the North (RAIPON)

1. RAIPON was established in 1990 at the First Congress of Indigenous Peoples of Russia's North. Its statutes were adopted on November 24, 1993 and legalized on March 25, 1994 by the Russian Federation Ministry of Justice.
2. RAIPON is aimed at the protection of human rights and legal interests of the indigenous peoples of the North, Siberia and Russian Far East, the resolution of social and economic problems, as well as providing assistance for cultural development and education. RAIPON is working towards the entrenchment of rights for land use and the protection of natural resources, as well as for self-government according to international legal standards.
3. RAIPON comprises about 190,000 indigenous individual members, organized into 29 regional Association chapters.
4. RAIPON is organized according to territorial and territorial-ethnic lines. Its structure involves RAIPON regional (local) chapters possessing organizational and financial independence.
5. RAIPON participates in the development of Federal State Programs on Economic and Social development of the indigenous peoples.

Associations of Indigenous Peoples of the Primorsky and Khabarovsk regions are regional chapters of RAIPON. When they were founded, these Associations were supposed to be financed through grants from the State budget, along with membership dues and financial aid from different organizations. In the initial period of their existence, they did receive aid in this manner but, with the change to a market economy, the transfer of money from the State budget was stopped. Since then, whatever they receive from indigenous communities and membership dues amounts to a very scanty sum. For example, in 1993, the Association in the Khabarovsk region received only about 2,000 rubles (about 20 US dollars), 1 million rubles (about 360 US dollars) in 1994, 10.1 million rubles (about 2500 US dollars) in 1995, 1.3 million rubles (about 260 US dollars) in 1996. To function normally, the Association needs at least 50-60 million rubles (8-10,000 US dollars) per year to keep its office, to provide means of communication and to pay its staff salary, etc. The lack of money from State budgets makes leaders of our regional Associations dependent upon the leaders of administrations.

Social and Economic Status of Samarga Udegeis as a Result of Soviet Policy on Indigenous People and Post-Soviet Reforms

Anatoly F. Startsev¹

Abstract

In this paper the author describes the current situation and problems facing the Samarga Udegei people, who have lived for centuries on the Samarga River in the Primorsky Territory of the Russian Far East. Two plans for forest development on the Samarga were proposed at the end of 1980s. As a result of protests by the Samarga Udegeis against the projects in order to secure their forest and hunting territory, the forest was saved at that time. However, a new forest development project including road construction is being planned, again threatening the area. The Samarga Udegeis opposition this project, and today under difficult living conditions are trying to establish a non-timber forest industry.

Introduction

Aboriginal peoples in the Russian Far East including the Udegeis, have experienced many problems during the Soviet and post-Soviet periods. The history of Primorey and Priamurey Udegeis is a striking example of the disastrous situation of the aboriginal population in the southern Russian Far East.

There were eight territorial Udegei groups in Priamurey and Primorey before the October Revolution. Each group had not only its own territory but also an indigenous name which testified to their ancient ethnic origins.

In the Soviet era, the Kur-Urma and Khungari Udegeis almost vanished as a result of intensive forest exploitation. The Aniu, Khor and Bikin Udegeis also suffered for the same reasons. The Iman Udegeis scattered and settled at different villages of Krasnoarmeisky and Pozharsky districts.

The most intensive logging on territories inhabited by Udegei people started during the 1980s, when forests of the Bikin Udegeis in the Tokholo River basin were clear-cut. Two more hunting areas (more than 50,000 hectares) in the Upper Bikin River were also degraded. The Aniu Udegeis were deprived of suitable hunting areas. Those territories were located in the area allotted by local organs of the Khabarovsk region with the permission of the Ministry of Forest Industry and Gosplan (State Planning Commission) of the USSR. The Khor Udegeis were practically deprived of their hunting areas in the Sukpai and Kafen River basins. At the end of the 1980s regional and republic organs of state and forest-industrial departments decided to start intensive logging in the Samarga taiga forests.

First Plan for Forest Development along the Samarga River

On 16 January 1987 the Ministry of Forest Industry signed an agreement with the Republic of Cuba. Under the agreement logging and processing of timber to be exported to Cuba was to start in the Sukpai River basin, in the Khabarovsk region. For that purpose the Sukpai forest industrial complex was established and the Samarga taiga was to be included in the list of forests to be cut

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down.

As is well known, large scale forest exploitation results in damage to the ecological balance, river shallowing and vanishing of salmon spawning grounds. Information from the USSR Ministry of Fisheries testified to the fact that salmon spawning grounds disappeared after forest exploitation in Takholo, Zmeinaya and Situkhe River basins. For this reason practically no salmon spawning grounds remain today in the Bikin River (Archives of I.I.A.E. F.1.Op.2.D.382. p. 317). According to ichthyologist S. F. Zolotuchin, 61 salmon spawning grounds had earlier been identified in the Bikin River. In 1995 only nine were left in the areas where the taiga was well preserved (Zolotuchin, pp. 148-149).

Samarga Udegeis could have been threatened by a same situation. Bearing in mind that both fishing and hunting for ungulates and fur-bearing animals are important for their livelihood, they held a general meeting of villagers (26 March 1998) where a collective letter to the Primorsky Executive Committee and Supreme Soviet of the USSR was adopted. Their letter stated, "We are extremely concerned about the situation which has arisen and are afraid that the land will lose forests and the river will lose fish if the forest exploitation starts like in South Primorye (Iman and Bikin Udegeis residence) and in the Khabarovsk region. Nature may be devastated. Right now we must think about our children's and our grandchildren's future. They will never leave their places... " (Archives of I.I.A.E..F.1.Op.2.D.353, p. 40-41).

The Primorsky Executive Committee supported the Udegeis' request. In a letter (23 March 1988) addressed to the Council of Ministers of RSFSR they wrote that there was no merit in assigning the Samarga River basin forests to the Sukpai forest-industrial complex as a source of timber. They also wrote that the Samarga River basin was the residence of aboriginal hunters and fishermen and that intensive cutting of the forest "will result in alteration of the river's hydrological regime, exhaustion of fish resources, forest degradation, and negative influences upon Udegei indigenous culture and traditions." (Archives of I.I.A.E.F.1.Op.2.D.353. p. 37).

The USSR Supreme Council supported the Primorsky Executive resolution and informed the Udegei Village Soviet about their decision. The Samarga Udegeis were glad to have the taiga back and protected from being exported to Cuba. However their exuberance did not last for long.

Second Plan for Forest Development on the Samarga

When the Udegei Village Soviet received the positive resolution of the USSR Supreme Council, the Primorsky Executive Committee together with the representatives of the Ministry of Forest Industry of the USSR (Minlesprom), the State Forest Committee of the USSR (Goskomles), the Territorial Industrial Association (TPO) Primorsklesprom, the Institute Giprolestrans and the Forest Territorial-industrial Association, immediately held a meeting devoted to the usage of the Samarga River basin forests on 28 December 1988. They adopted a collective resolution entitled "On the establishment of complex unit for reproduction and use of forest resources in the Samarga River basin under the leadership of Primorsklesprom. The resolution also made provisions for the start of construction on a Sukpai-Agzu-Samarga road in 1990 to transport an output of more than 700,000 cubic meters of timber annually. The Primorsky Executive Committee informed the participants of the meeting that the Udegei Village Soviet and the Terneisky Executive Committee had also supported that proposal, but this was not true. The local people had not been even informed of the matter. The meeting report stated that everything planned would be carried out for the purpose of "preserving the Udegeis' lifestyle, hunting, fishing and gathering." (Archives of I.I.A.E. F.1. Op.2. D.353, pp. 52-54).

It was only at the beginning of January that the Primorsky Executive Committee informed A. V.

Kaza, head of the Udegei Village Soviet, about the resolution adopted on 29 December 1988. Gosplan of the USSR was informed of it on 13 January 1989. The Primorsky Executive Committee had expected their plan of "Complex measures" to be approved by Agzu villagers (Archives of I.I.A.E. F.1. Op.2. D.353, p. 56), but the information aroused the indignation of not only Udegei but also Russian villagers of Samarga, Edinka and Peretychikha.

On 16 January 1989 the Udegei Village Soviet held a general meeting of villagers and 70 persons passed and signed a collective letter. The letter was addressed to the Soviet of Nationalities of the USSR Supreme Soviet, the head of Soviet Government, M. S. Gorbachev, and the head of the Primorsky Executive Committee, V. F. Lutsenko. By the letter the Samarga Udegeis officially informed the authorities of the USSR and Primorsky region that they "categorically object to the future development of Agzu village at the expense of cutting down of the forest and changes in the Udegei lifestyle." The Udegeis wrote that cutting down of the forest and Sukpai-Agzu-Samarga road construction will result in the invasion by outside people, plundering of taiga resources by poachers, outbreaks of forest fires, shallowing of the rivers, and disappearance of fish and animals. As a result, Udegei culture and living conditions would worsen.

To improve economically and develop the *gospromkhoz* (generic term for a locally-based joint-stock corporation (formerly state-run) that processes natural resources) named Samarginsky, the Udegeis proposed that the government reclaim maritime territories (squares 114,115) taken from the Udegeis previously and assign them to Gospromkhoz. They also asked that state order for fur be canceled and insisted on the right to process furs by themselves and sell them as finished goods. Besides that they asked that the *gospromkhoz* be allowed to log (about 5 000 cubic meters annually), to process and sell the timber as finished goods (Archives of I.I.A.E. F.1. Op.2. D.353, p. 43-44). The tone of this letter was quite different from emotional letters sent before. It was supported by facts based on documents and scientific investigation of scholars in different fields of science. The way out of the economic crises of Udegei villages and Gospromkhoz Samarginsky was proposed in the letter as well.

The first to respond positively to the letter was the Terneisky District Executive Committee. By telegram sent on 19 January 1989 they approved the idea of forest regeneration and usage of biological forest resources but categorically objected to logging of the forest in the Samarga River basin (Archives of I.I.A.E. F.1. Op. 2. D.353, p. 55).

Representatives of the RSFSR Department Glavokhota, Industrial Association Primorpromokhota and Nature Preservation Society also objected to clear-cutting of forests in the Samarga River basin. They also proposed that the most valuable forest areas should be declared areas for gathering of nuts, berrys, honey, and herbs, hunting of fur-bearing animals and game stocking areas where only sanitary thinning of forests was permitted. (Startsev, *Iskhodit'*, pp. 7-8).

G. I. Sukhomirov, who is supervising and studying hunting in the Russian Far East, noted in his book *Okhota i Okhotnichie Khoziastvo Dal'nego Vostoka* (Hunter and Hunting Economy of the Far East) (1976) that "when using cedar forests entirely you can get annually 16.6 tons of cedar nuts, 2.1 tons of honey, 4,500 rubles worth of herbs, 260 rubles worth of furs, 70 rubles worth of berries and 1,250 cubic meters of timber (sanitary thinning) from 1,000 hectares of the forest. That provides 3 to 4 times the income compared to clear-cuts at 200 year intervals." (Sukhomirov, pp. 223-224).

Although this calculation was presented more than 20 years ago, clear-cutting is still being conducted for quick and easy profit.

Scholars in the Russian Far East also supported the Udegeis' request. Dr. Gleb Khudiakov, Associated Member of the USSR Academy of Science and the director of the Institute of Geography, Far Eastern Branch of the USSR Academy of Science, called public attention to aborigines'

problems through the mass media. He asked people to help aborigines to defend the taiga from forest development (Archives of I.I.A.E. F.1. Op.2. D.382, p. 285).

Establishment of *Leskhoz*s

While aborigines were addressing Supreme organs of State and different departments, officials of Minlesprom of the USSR and other departments interested in exploitation of the forest launched a new attack on forest resources.

On 5 April 1989 Minlesprom issued Resolution No. 127 "On reorganization of the Ministry structural system". According to this resolution all Far Eastern *fespromkhoz*s should have been reformed into complex units with *leskhoz*s to be included in their structure. The second item of the resolution provided for setting up the Samarginsky complex *lespromkhoz* with the center in Peretychikha village of the Terneisky district. Samarginskoye and Agzinskoye forest areas were to be included in its structure (Archives of I.I.A.E. F.1.Op.2. D.353, pp. 64-65).

On 5 April 1989 the eleventh session of the twentieth convocation of the Udegei Village Soviet was held. The resolution, adopted by the participants of the Session and addressed to the Political Bureau of the Central Committee of CPSU, Council of Ministers of the USSR and Soviet Nationalities of the USSR, contained both their previous requests to cancel the state order for fur and return forests withdrawn before to Gospromkhoz Samarginsky. It also gave a warning, cautioning that if clear-cutting were started, "objectionable conflicts between local hunters and loggers could occur." (Startsev A.F.Rubiat taigu-Vyrubaiut Narod).

Responding to the warning, on 21 April 1989 the Director General of TPO Primorsklesprom issued an order (*prikaz*) providing for the establishment of Samarginsky Complex Lespromkhoz with Samarginskoye and Agzinskoye forest area to be included in its organization (Archives of I.I.A.E. F.1. Op.2. D.353, pp. 66-67). The activity of a "complex *lespromkhoz*" should include: wood harvesting, processing, protection and reforestation. Thus, in the center of the Udegei village instead of protecting organization complex unit for logging had arisen.

Before that time *leskhoz*s and forestry had served as barriers for loggers. They allocated forests to be cut down and monitored the *lespromkhoz*s' violation of timber harvesting regulations. After *leskhoz*s were abolished, *lespromkhoz*s gained unlimited and uncontrolled power in Far Eastern forests. V. A. Kuznetsov, the president of the Nature Preservation Committee of Terneisky district was asked, "What was the aim to be achieved by Minlesprom and TPO Primorsklesprom?" His answer was, "*Leskhoz*s and *lespromkhoz*s have been combined to allow organizations engaged in logging to harvest wood where they want and which they could export to Korea, China, Japan, Cuba and other countries."

There can be no doubt that the quick reorganization of *leskhoz*s was caused by the expected change of leadership of the country including that of the Minister of Forest Industry. That is why the head of TPO Primorsklesprom, Eduard Grabovsky, started reorganization when the former federal government had collapsed and the new one had not yet been formed.

In a hurry with reorganization, authorities of Primorskles did not announce their decision to the Terneisky Executive Committee and Village Soviet, who heard about it only when the order regarding forest sector reorganization had come into force and implementation had started.

Such an attitude towards the Soviets was received by villagers of the region with mistrust of the Soviet power base and great dissatisfaction with Primorsklesprom policy and the inactivity of the Primorsky Executive Committee.

During investigations by the author of social and economic conditions of the population in Terneisky district, villagers of Peretychikha, Edinka, Samarga and Agzu expressed the idea that E.

Grabovsky, Director General of Primorsklesprom, had bribed some officials of the Ministry of Forest Industry as well as the Primorsky Executive Committee. According to their opinion, bribery would explain his behaving as if he owned the taiga.

This information corresponded with information from O. A. Lifant'ev, the secretary of Primorsklesstroy, who said that 360 sets of apparatus (color TV sets with video decks) made in Japan were delivered to the address of Primorsklesprom in November 1988, of which 150 sets were sent to the Ministry of Forest Industry and 50 to authorities of the Primorsky region, and the rest were distributed personally by E. Grabovsky. When Lifant'ev condemned those actions publicly at the CPSU meeting he was told, "[this action] was necessary for business" (Lifant'ev 1997).

Rise of Protest

During investigations by the author of the Samarga Udegei people in 1989 many young and old hunters were asked what they meant by "objectionable conflicts between local hunters and loggers." Their reply was that if forest exploitation in the Samarga River basin were started, the Udegeis would undertake armed defense of their taiga. When asked, "Will you shoot at loggers?" their reply was, "We will. We can't live without the taiga." (Startsev, *My Budem Zashischat'*).

Alarmed by that statement, or for some other reason, leaders of the Primorsky Executive Committee unexpectedly switched to the Udegeis' position. On 1 June 1989 they addressed the Council of Ministers of RSFSR, Gosplan of RSFSR, the Ministry of Forest Industry of the USSR, Goskomles of the USSR, the Udegei Village Soviet and the Terneisky Executive Committee with the letter No. 8 -1/606. By the letter they informed the above organizations that they had canceled their consent with participants of the meeting held on 29 December 1988, now considering logging in Samarga River basin unsuitable. They also petitioned for the withdrawal of 825,300 hectares of the forest (operational reserve of 47.5 million cubic meters) in the Samarga River basin from the Forest Ministry of the USSR (Archives of I.I.A.E. F.1. Op. 2. D.353. p. 69).

But Primorsklesprom and some departments of the USSR were not of the same opinion. For example, the chief technologist of the logging department of Primorsklesprom, Georgy Grabovsky, tried to prove the necessity of logging in Samarga River basin. He stated that in 20 to 40 years the Samarga taiga would die out itself because of the age of forest trees being 220-240 years old (Archives of I.I.A.E. F.1. Op.2. D.353. p. 18).

His blood brothers, Director General of Dal'lesprom Anatoly Grabovsky and Director General of Primorsklesprom Eduard Grabovsky, who had unlimited power over Far Eastern forest resources, were of the same opinion.

In the author's view the risk was not of the taiga dying due to the age of the forest, but rather that Russian Mafia structures had arisen, and seeing the Soviet power weakening, had started robbing resources. There is no doubt that the leaders of Far Eastern *lespromkhozes*, Forest Ministry of the USSR and other departments participated in that robbing. There is no other way to explain the fact that from the logged areas only the timber for export was taken. All the rest was left on the forest concessions.

Documents of the Terneisky Nature Preservation Society said that in 1988 there were about 350,000 cubic meters of timber at the lower timber storehouse in Plastun village, about 30,000 in Malaya Kema village and about 10,000 in Amgu village which had been being stored since the beginning of the 1970s. However, by 1988 this timber was practically useless. According to the information from the *lespromkhoz* Svetlaya every year 30 to 40% of stocked wood was left on concessions to die out or thrown into the river as being not suitable for export.

When flying from Edinka village to Ternei village on 15 August 1989 the author witnessed the

seashore from the mouth of the Velikaya Kema River to the mouth of the Belembe River strewn with logs. One of the Svetlyi villagers explained this by saying that defective timber is being left along river banks. During high water it is being carried with the river current to the sea and the sea casts it ashore" (Archives of I.I.A.E. F.1. Op.2. D.253, p. 29).

The author believes that the desire to log the Samarga forest was not because the taiga is dying out, but because the authorities of the Forest Ministry and the Grabovsky brothers had agreed before logging to sell the timber to neighboring countries. This belief is confirmed by remarks by Anatoly Grabovsky in March 1989 to the "Spravka of Inter-Department Commission on forest resources and ethnic importance of Chuken River basin territory", made up of scholars and heads of some public organizations of the Khabarovsk region. He wrote that they could not cancel logging in the Chuken River basin because by the Agreement between the USSR and Republic of Cuba "1.75 million cubic meters of wood stocked in the forests of Sukpaysky and Nanaisky *leskhoz*s of the Khabarovsk region and the *leskhoz* Svetlaya of the Primorsky region should be delivered to Cuba during the period 1987-1995." (Startsev, *Vedomstvenny*).

Forest Preservation on Smarga

In July 1989 an article by the author on this topic was published in the *Lesnaya Promyshlennost* newspaper and reprinted in a local newspaper of the Terneisky region on 15 July 1989. (Startsev, "Ne Zhit' Udegeitsu"). Thanks to that article various strata of the society of the USSR were informed about the desperate conditions of the Samarga Udegeis. The article had played its part in the preservation of the Samarga River basin forests.

In July 1989 at the thirteenth session of the twentieth convocation of the Udegei Village Soviet the resolution "On assigning of Samarga River basin territory to Udegei Village Soviet" was adopted. Participants of the session asked district and regional organs to confirm the resolution (Archives of I.I.A.E. F.1.Op.2. D.353, p. 74).

The author believes that it was the desperate resoluteness of the Udegei people to bear arms to protect the taiga that made the Terneisky Executive Committee agree to assign the Samarga River basin territories to the Udegei Village Soviet in August 1989. On 6 October 1989 the Primorsky Executive Committee was forced by urgent request of Agzu village natives to petition once more to the USSR Council of Ministers to withdraw from logging 825,000 hectares of forests in the Samarga River basin.

The question banning logging in the Samarga River basin and assigning those territories to the Udegeis had been considered by Supreme organs of State several times. The fortune of small villages and their minority populations had been decided in offices of different ministries. But none of executive ministries in Moscow wanted to take responsibility and stop logging of the forests belonging to the indigenous people. At last on 23 November 1989, Goskomles of the USSR, referring to the letter of Primorsky Executive Committee No. 8 -22/1072, dated 6 October 1989, made a decision to withdraw forest areas from a project under the Samarginsky *lespromkhoz* being under the project.

The Forest Ministry of the USSR and State Plan Committee of the USSR (Gosplan) immediately objected to this resolution of Goskomles. By special letter (No. PR-1-29-/1963, 23 November 1989) addressed to V. K. Gusev, the Chairman of the Council of Ministers of the USSR they tried to persuade him that the resolution adopted by Goskomles would undermine the objectives of CK CPSU and the Council of Ministers. Proceeding from that, Minlesprom of the USSR asked that the resolution of Goskomles be canceled (Archives of I.I.A.E. F.1. Op.2. D.382. pp. 254-255).

Various scientific and public organizations came out against the position of Minlesprom and

Gosplan of the USSR and advocated Ussuriyskaya taiga. (Smirnov, Obratnaya). They insisted on assigning hunting territories to the indigenous population (Khudiakov, *Sud'ba Kraia*).

The information about the struggle of the Samarga Udegeis for preservation of the Samarga River basin from cutting down of the forest became known not only all over the USSR but also abroad. As a result the Supreme Council of the USSR in August 1990 adopted the resolution to withdraw forest areas in the Samarga River basin from the Samarginsky *lespromkhoz* and assign this area of 825 000 hectares to the Udegeis. Nowadays this territory is restricted for loggers and belongs to the Udegeis unofficially (Startsev, *Problemy*).

Soon after these events V. F. Lutsenko, the Chairman of the Primorsky Executive Committee, resigned and V. S. Kuznetsov, known among the intelligentsia and considered an advocate of democracy and fairness, took his place. But his deeds were quite different than expected. It was during his leadership that the Bikin Udegeis placed armed pickets in the Upper Bikin to defend their taiga from logging. The next and present chairman is E. I. Nazdratenko. Despite changes in leadership, the problem of assigning traditional natural usage areas (abbreviated to TTP in Russian) to the Iman and Samarga Udegeis as well as to the Tazy of Ol'ginsky district has not yet been solved.

New Project on the Samarga

Forest-industrial departments of the federal government and some authorities of the Primorsky region still plan logging on the Samarga Udegeis' traditional natural usage areas.

In September and October 1997 a new idea struck the authorities of the Primorsky region: to establish a new logging joint-stock company in the Samarga River basin together with the international companies Starma-Holding and Rimbunan Hijau Far Eastern Co. Ltd.

On 9 July 1997 the Starma Holding company addressed a request to E. I. Nazdratenko to examine its proposal on logging in the Samarga River basin of 1 million cubic meters annually over 15 years. Their rationale was based on the fact that joint cooperation would result in successful development of the regional economy (Archives of Minority Peoples Association of Primorsky region).

On 20 August 1997 L. Panchenko, the representative of Starma Holding informed A. I. Prikhod'ko, the Chief of the Primorsky Forest Department, that if the project were approved the company would pay 500,000 US dollars to the Administration of Primorsky region and the Primorsky Forest Department, 200,000 US dollars to the administration of the Terneisky district and 60,000 US dollars for development of indigenous peoples. The money would be transferred within a month after the areas in the Samarga River basin had been assigned to the company (Archives of the Association of Indigenous Peoples of Primorsye).

It is likely that the authorities of the region were interested in that proposal because they discussed the proposal with the authorities of the Primorsky Forest Department as well as the heads of village administrations of the Terneisky district.

V. Sedov, the head of Edinka village administration, was the only person who rose in opposition to the proposal. In a letter addressed to V. Usol'tsev, head of the Terneisky district he wrote, "The shortcoming of the project lies in the fact that it pursues only one aim -- to export the wood. It may be compared with the next dose of drugs for a drug addict: at first he feels great but afterwards much more worse than before. In other words, in fifteen years the company will harvest wood and will have left with its profit. Local people will have their former problems added to new ones: lack of animals in the taiga and lack of fish in the river." (Archives of the Association of Indigenous Peoples of Primorye).

But the administration of the Terneisky district neglected his warning and offered to consider

the project at the Agzu villagers' meeting. There were only 35 persons (mostly Russians) at the meeting out of 209 villagers in total (including 126 Udegeis). They were offered a proposal to set up a *lespromkhoz* in the Samarga River basin and to build the Agzu-Edinka road. Most of them approved the project. They put their signatures on the consent form that had been prepared in advance (Kuklin, "Sud'bu Agzu").

The promoters of the Samarga project realized that the decision approved by the meeting was illegal because of inadequate villager participation. Thus they decided to collect the missing votes individually by means of questionnaire. The villagers were asked to answer the only question -- whether or not they agreed to the construction of the Agzu-Edinka road. Some days later it was falsely announced that the Agzu villagers had put their signatures under the "Agreement for Collaboration on exploitation of forest resources in Terneisky district, Primorsky region". Arkady Kaza, the former Head of the village administration, appealed to the public procurator of the Terneisky district to stop the deception and cancel the illegal "Agreement" dated 23 July 1997 (Archives of Minority Peoples Association of Primorsky region).

Samarga Udegeis who heard this announcement strongly opposed not only logging in the Samarga River basin but also the Agzu-Edinka road construction.

Having been refused, Starma Holding company set its sights on the forests of the Khabarovsk region. In December 1997, with the approval of the Administration of the Khabarovsk region and V. Ishaev as its head, commercial competition was held for the right to lease two forest areas of Sukpai *leskhoz* bordering on the Terneisky district. According to information from the Nature Preservation Society of the Khabarovsk region the internationally known Malaysian corporation Rimbunan Hijau paid 500,000 US dollars to win the competition. Starma Holding paid no less to obtain a logging license. Thus two foreign corporations took on a lease for 49 years of forest areas with the right to remove 550,000 cubic meters of the wood annually. However to take the wood out they would need a road from Sukpai passing near the Agzu village to a port on the Nel'ma River (Gor'kiy Mied Udige//Vladivostok.1999. October, 6. p. 12).

The idea to build the road met with warm approval from administrations of the Terneisky district and Primorsky region because resource exploitation by Starma Holding and Rimbunan Hijau promised considerable economic benefits for Primorye.

However, the Samarga Udegeis did not want the road to connect their village with the Khabarovsk region. They realize that the road construction will lead to a reduction of their hunting area and number of animals available, disappearance of salmon in the river and the invasion of poachers.

Probably to make the Udegeis give their consent for road construction, district and regional administrations emphasized the economic problems in the region and lack of a road to Agzu village preventing delivery of goods and foodstuffs to the village. Although they are well informed that the prices for foodstuffs in the village are two to three times as much as in Vladivostok. (Gor'kiy Mied Udige, p. 12).

Recent Difficult Circumstances of the Samarga Udegeis

Nowadays the Samarga Udegeis are facing difficult social and economic conditions. Their enterprise -- *gospromkhoz* Samarginsky -- has been declared bankrupt. As their indigenous community Agzu, with Arkady Kaza installed as the head in April 1999, is only barely functioning because of the lack of economic aid from the regional administration, there is no functioning industrial unit in the village. The bulk of the village population is unemployed and has no means of subsistence.

In October 1999 the Udegei village was visited by an impressive delegation which included representatives on indigenous affairs from the regional administration, the head of Administration of Terneisky region, the group of scholars from the TINRO Institute, journalists and persons from Japan, Great Britain and USA. Having been informed that there was no food in the village they brought their own, including bread and flour (Gor'kiy Mied Udige, p. 12). At the meeting of the villagers a Japanese representative by the name of Okamoto offered the Udegeis the suggestion to start breeding salmon and gathering wild plants such as flowering ferns, bracken and herbs. The representative from the USA expressed the readiness to buy honey (100 tons annually) and transport it out by the planned road.

The foreign visitors were displeased by the indifference of the villagers to the proposals. However, the response of the Udegeis is not surprising, considering that at present they produce no honey, do not have a fish-breeding plant and lack the necessary resources for their own economic development. At the meeting, Aleksei Uza, one of the Bikin Udegei, commented, "Is it true that while the taiga forest around the Udegeis is being cut down, they offered to gather sweetbrier and bracken(warabi)? The Sukpai-Nel'ma road is dangerous not because animals will not be able to cross it. They will. But think about that how many poachers will encroach on the taiga. We are lacking in strict laws and the people to enforce them." Clearly, the October meeting failed to encourage the Udegeis because all proposals were on the premise that the road would be constructed.

The problem of assigning of traditional natural usage areas to the Samarga Udegeis has not yet been solved, although it was as far back as 1993 when the Small Soviet of the Primorsky regional Soviet of People's Deputies passed the "Temporary provision on traditional Natural Usage Areas of indigenous peoples of Primorsky region" (Vremennoye Polozhenie, pp. 220-224). This suggests the likelihood that the problem of logging in the Samarga River basin may arise again and the local people, despaired by poverty, may agree to any terms proposed by the regional administration.

Summary

This paper described the social and economic conditions of the Samarga Udegei people that have resulted from Soviet-era policies regarding indigenous people and from post-Soviet reforms. During the 1980s some authorities of the Primorey regional government adopted policies which reflected the interests of the federal government's forest and industrial departments, undermining the social, economic and cultural development of indigenous peoples in the Russian Far East. During the 1990s the disregard of Soviet-era legislation by regional authorities was linked with the weakening of the central government's power which followed the collapse of the USSR. The present regional authorities are deliberately resisting the assignment of traditional natural usage areas to indigenous peoples, in the hope of profiting from logging in the Samarga River basin for Russian or foreign timber-merchants.

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Social and Economic Status of Iman Udegeis as a Result of Past Soviet Policy on Indigenous People and Post-Soviet Reforms

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Abstract

In this paper the author describes the current situation and problems facing the Iman Udegei people who have lived on the Iman (Bolshaya Ussrka) River in the Primorsky Territory. The Iman Udegeis were dispersed after the 1950s by the local authorities due the planned construction of a hydroelectric power station and the cutting of the forest in the area. After the beginning of the 1990s the Iman Udegeis attempted to restore their traditional villages, but they have been hampered by the collapse of USSR and the ensuing Russian social and economic crises. Today they are forced to face very difficult conditions, which prevent them from restoring their village.

Introduction

After the Great October Revolution and Civil War in Russia early in the twentieth century four territorial Udegei groups existed in Primorye of the Russian Far East. Each group had its own territory as well as indigenous name, which testified to their ancient ethnic origins. The Primorye group *Namunka* inhabited the valleys of the rivers falling into the Sea of Japan, the Samarga group *Samarginka* inhabited the Samarga River valley. The Bikin group *Bikinka* lived in the middle Bikin River valley. The territory of the middle Iman River valley was occupied by the Iman group *imanka* (Lar'kin, *Udeheitsy*, p. 8-10).

At the beginning of the 1930s, during the period of collectivization and migration of indigenous peoples to Russian-type villages, the Primorye Udegei group was broken up and scattered. The most of them mixed with the Samarga and other groups. From the mid-1970s to the beginning of the 1980s the processes of social and economic reforms in the area where the Iman Udegei group lived caused disintegration of the group as they left their native village of Sanchikheza (the modern name is Ostrovnoe). There were only two old women and an old man were left in the village in November 1988. All the remaining villagers have moved to different parts of Krasnoarmeisky district. In 1998 they lived in 11 villages with 140 persons: Dal'niy Kut (36 persons), Roschino (31), Boguslavets (8), Mel'nichnoe (19), Novopokrovka (18), Timokhov Kliuch (10), Vostretsovo (3), Sanchikheza (3), Molodiezhnaya (1), Vostok (2), and Krutoy Yar (2). Besides the Udegeis there were no more than 12 Nanais and Evenks in Krasnoarmeisky district.

Disintegration of the Iman Udegeis

What are the reasons for the disintegration of the modern Udehe groups? According to the Krasnoarmeisky district authorities the disintegration happened through the Udegeis' fault. They claim erroneously that the Udegei people moved to other places in search of a better and easier life. However, as this paper will show, the fundamental and primary reason lay in faulty social, economic and cultural policies affecting indigenous peoples, enforced by the local parties and soviet bodies.

The seeds of disintegration of the Iman Udegei group were sown in the middle of the 1950s. In 1956 the authorities of Krasnoarmeisky district a decision was approved by the Primorsky Executive Committee to consolidate the Udehe *kolkhoz* "Krasny Udeheets" and the economically weak Russian *artel* (co-operative association) "Krasny Oktiabr" located in the old-believer village of Lailiu (now known as Dersu).

I. A. Bel'skiy, the state officer of the Primorsky Executive Committee responsible for supervising hunting, considered that decision to be ungrounded. He commented, "the Udegeis may

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leave for Pozharsky district or go away to settle in the camp of nomads along the rivers" (GAPK. F.1389.Op.1.D.12. p. 26). His statement was ignored both by the district and regional authorities, and subsequently the two *kolkhozes* were integrated. New unit was given the name "Kolkhoz by the name of the 22nd Congress of CPSU (Communist Party of the Soviet Union)".

At that same time 187 Udegeis of Sanchikheza village began to migrate to the Udegei villages of Pozharsky and Russian villages of Krasnoarmeisky district (GA KRPK.F.12.Op.1.D.118. p. 1).

In 1959 the Krasnoarmeisky Executive Committee took a decision to disintegrate the "Kolkhoz by the name of the 22nd Congress of CPSU", in response to an urgent request from I. A. Bel'skiy and a resolution of a general meeting which had been accepted by Sanchikheza villagers. The Udegeis established their own agricultural *artel* and named it after V. K. Arseniev. Forty-three Udegeis who had previously scattered to different parts of Primorsky region returned to Sanchikheza village; there were 78 people in this Udegei *kolkhoz* in January 1960 (GAPK. F.131.Op.20. D.36. p. 241). However, most of the Udegeis never returned to their native village. They settled in Pozharsky district and started to work as hunters in the Udehe *kolkhoz* "Okhotnik".

At the beginning of the 1960s the disintegration of Iman Udehe group started to intensify because of Resolutions of Krasnoarmeisky Executive Committee No. 172 adopted on 27 July 1964 and No. 198 adopted on the same date. By these Resolutions, Udegei *kolkhoz* after the name of V.K Arseniev and Russian *kolkhozes* "By the name of 22-nd Congress of CPSU" (Dersu village) and "Krasny Boets" (Dal'niy Kut village) were abolished and in their place the Dal'nekutsky branch of Sredne-Imansky (the modern Krasnoarmeisky) *Koopzveropromkhoz* was established (GA KRPK. F.12. Op. 1. D.129. p. 138). All arable lands (more than 100 hectares) and 233,250 hectares of forestland, which were located in the Armu River basin and had been assigned to Iman Udegeis in the 1930s, passed into the ownership of the new *Koopzveropromkhoz* (GAPK.F.1389.Op.1.D.29. p. 8). As a result, Udegei hunters were replaced by Russian hunters and workers by the end of 1960s. The Udegeis had no choice but to move elsewhere to seek work. From 1969 to 1974 more than 100 Udegeis left Sanchikheza village (Startsev, *Ischeznut*).

Since the 1960s the Russian Far East, especially Krasnoarmeisky district, started to be seen as a region rich as a source of raw materials and of forest and water resources. The Roschinsky *lespromkhoz* (a type of local logging enterprise; some remain state-owned, others have been privatized) started operations in the forest territory occupied by Udehe. It built stocks of wood to be used in Primorey and exported the remainder. At that time the government of the USSR proposed construction of a series of hydroelectric power stations (GES) on the Iman River for completion by the end of 2000. The plan included construction of the Vostretsovskaya GES dam 147 km from the mouth of the Iman River, the Dal'nerechenskaya GES dam 30 km further upstream, and the Nizhnekolumbiyskaya GES dam another 60 km upstream. After the completion of the first two dams, more than 400 square kilometers of the Krasnoarmeisky district area were to be submerged. The submerged area would inundate numerous villages, including Sanchikheza, Dersu, and Dal'niy Kut. Regional bodies at once abolished the Sanchikheza Village Soviet, and ceased financing for the village as well as house building and repairs. At the same time the Roschinsky *lespromkhoz* started cutting the forest in the neighboring village.

Although Sanchikheza villagers were given the option of migrating to Dal'niy Kut village or Krasny Yar village of the Pozharsky district, they did not want to leave the Iman River basin, their native land. Subsequently, the regional and district bodies started to create obstacles for local natives. All public functions had been moved from the village to the Russian village Dal'niy Kut, located at a distance of 10 km. Thereafter Sanchikheza villagers were forced to go on foot to work in Dal'niy Kut. In 1973 local authorities closed a school, and the next year a club and dispensary. Finally, they cut off the supply of electricity and other necessary utilities. Consequently villagers left Sanchikheza and migrated all over Krasnoarmeisky district (personal archives of the author, 1993, p. 192). By the end of the 1970s there were only 63 people left in Sanchikheza village, all of them elderly women and men. By the end of 1980s only three remained in the village, and all the rest had migrated to Roschino, Novopokrovka, Dal'niy Kut and other villages.

Revival of indigenous villages

The question of Sanchikheza village resettlement was initially raised by this author's article "Ischeznut s Litsa Zemli?" published in the *Tikhookeanskiy Komsomolets* newspaper on 7 January 1989. The article had a definite influence on the Udegeis. At the general meeting of indigenous peoples of Krasnoarmeisky district held in Boguslavets village on 10 August 1990, an official resolution was adopted to revive the indigenous village and to appeal to the Primorsky Executive Committee to provide the funds for village reconstruction."

On 13 August 1990 the Krasnoarmeisky Executive Committee made an appeal on the same point to the Primorsky Executive Committee. At first the Primorsky Executive Committee declined the request, explaining that the revival of the village was complicated because of the planned series of hydro-electric dams on the Iman River and AES to be constructed near Vostretsovo village.

At the first congress of Indigenous Peoples of the North held in March 1990, aboriginal peoples found that no public work which undermines traditional lifestyles should be funded without their agreement. On 7 September 1990 the general meeting of Dal'niy Kut villagers, including the Udegeis, was held, and the question of hydro-electric dam construction was on the agenda. Of the participants at the meeting, 132 of 148 voted against the construction (Personal archives of the author, 1995, p. 64). Non-indigenous Russians in attendance (16 in number) agreed to the construction. The reason of their support was very simple -- they did not want to bear difficult living conditions any longer, and hoped that the dam construction would bring them jobs, good salaries and a continuous supply of electricity. In contrast, the Udegeis realized that the cutting down of the forest and submergence of their territory would result in their assimilation into Russian society and the loss of their ethnic culture. Thus at the beginning of the 1990s the future of the Iman was Udegeis threatened by the government decision on hydro-electric dam construction on the Iman River.

A letter from the participants of the meeting addressed to the author stated that for the Udegeis to live in Russian villages meant to lose their traditions and contact with the older generation. "We can't reconcile ourselves to this situation," the letter stated, and "that's why our native village where our parents and grandfathers lived up to the 1980s should be revived." In the letter, with 80 Udegeis' signatures attached, they asked for help with their village revival (Personal archives of the author, 1995, p. 66).

In December 1990 the Primorsky Executive Committee sent a letter (No. 4857) to the Supreme Soviet of the USSR and to the Supreme Soviet of the RSFSR, proposing that aboriginal peoples of Primorey should be allowed to restore the indigenous Sanchikheza village. They also asked that social units of the village should be constructed at the expense of union or federal budgets.

By the beginning of 1991 the main problems on the restoration of Sanchikheza village had been solved by the regional and Supreme organs of State. For that reason, in May 1991, Nikulenko V. I., chairman of the Krasnoarmeisky Executive Committee, ordered a list of social units needed to restore the village and then delivered it to the Primorsky Executive Committee.

There were 23 items in the list. Total capital investments reached 65.29 million rubles. In order to realize the project there was a plan to obtain funds from regional and local budgets, as well as from the international tour organization "Sikhote-Alin", as one of its founders was a member of the District Executive Committee.

The problem of village restoration seemed on its way to be solved successfully. However, in August 1991 the unexpected coup d'état caused the disintegration of the USSR. The disintegration of the USSR in its turn triggered economic crises across the country which entailed industrial breakdown, the subsequent hyperinflation, and the pauperization of the various strata of society. Under hyperinflation the prices of goods and construction materials rose a hundred- to a thousand-fold. Approximately 65 million rubles were necessary to restore Sanchikheza village in 1991, but the cost turned into billions by the middle of the 1990s. Naturally, neither district nor region could supply such large funds. In the end, the success of village restoration was entrusted to local authorities and the Udegeis themselves.

Intention of the Udegeis

During field investigations by the author in June 1993 it was found that all Udegeis wanted to have their village restored but none of them wanted to participate in the process personally.

The Udegeis agreed to move to Sanchikheza village provided that they would have houses, shops, school and working industrial units built for them. None of them stated that they would leave their houses in Roschino or Novopokrovka and move to Sanchikheza to build a house or industrial unit themselves.

From the author's point of view, the revival of indigenous culture should be primarily the Udegeis' business. It is they who should be full of initiative and prepare to implement plans.

The author met the only Udegei person who considers the village restoration to be her life work. The head of peasant household by the name of "Udeheets", Liudmila Grigorievna (her father's name is Suliandziga) is a very energetic, persistent, purposeful woman who wants her household to be profitable in order to make money for the village restoration. Although the support of her people would have been desirable, her actions were being condemned by the Udegeis themselves.

Because the Russian Government has not provided funds to restore the village and Iman Udegeis themselves are not taking initiative, the administration of Krasnoarmeisky district has abandoned the idea of restoration as well. Meanwhile, this administration has started to improve the living conditions in other villages where the Udegeis and other minority peoples of the North live. For example, in 1992 they built houses in the villages of Dal'niy Kut and Boguslavets, repaired schools and village cultural centers in Boguslavets village, and built automatic telephone stations (ATS) in Roschino and Novopokrovka villages. During a three month period in 1992 (April, May, June) it spent more than 5 million rubles of funds from the "Sever" program being financed by Goskomsever.

However, it appears that some of the funds were spent for purposes other than indigenous peoples. For example, the construction of ATS in Novopokrovka village (1,500 telephone numbers) and ATS in Roschino-Dal'niy Kut villages (1,500 telephone numbers) cost 681,000 and 1.5 million rubles, respectively. However, although the district authority insisted that the construction of those units did not contradict the "Sever" program, the author holds the view that these funds should have come from the local budget, not "Sever", because there were only 40 aborigines out of a total of 8,600 people in those villages.

Establishment of traditional natural usage areas (TTP)

By the beginning of the 1990s progressive-minded journalists and scholars had aroused the self-respect and self-awareness of the indigenous people. Little by little these peoples of Primorye and Priamurye, negatively affected by the activities of *lespromkhoz*s and other organizations, concluded that traditional natural usage areas should be assigned to them (Startsev, *Rost Natsional'nogo*, p. 100).

Samarga and Bikin Udegeis were the first to raise the proposal about the assigning of traditional natural usage areas (TTP). Udegei hunters of the Krasnoarmeisky district also defined the boundaries of their desired TTP to include the Armu River basin from its mouth to its upper reaches, where the forest is still preserved. This is likely the most appropriate territory as the Iman Udegeis have always hunted there, and the territory includes sites of spiritual significance to them, known as "Kamen" (stone), although the sites have been damaged by road construction.

Roschinsky Lespromkhoz and Krasnoarmeisky Koopzveropromkhoz came out against the assigning of TTP to the Udegeis. The leaders of Roschinsky Lespromkhoz claimed that if logging ceased, more than 800 workers would lose employment, the district would lack a source of building materials, and the region will lose the profits derived from the export of the timber. Krasnoarmeisky Koopzveropromkhoz controls forests in the Armu River basin. In addition, at the mouth of the river *koopzveropromkhoz* the leaders of Krasnoarmeisky district built and privatized a base of tourism.

Responding to President Decree No. 397, dated 22 April 1992 entitled "On Urgent Measures for Protection of Indigenous Peoples of the North Residence and Activity", district and regional authorities registered all aborigines in the district as hunters. According to the registration list there were 17 hunters. They were allocated 26,000 hectares of forest in areas that had been logged by Roschinsky Lespromkhoz (Personal archives of the author, 1993, pp. 90-91). Compared with the

existing standard for cedar-broadleaf mixed forests (18,000 hectares per hunter; in another area 50,000 hectares per hunter) the area was small. The allocation of forests in this case appears to have been a mere formality in response to the hunters' requests.

Russian Crises

The events of 1993 were followed by great crises. Masses of Russian people lost their savings, and salaries fell behind the rising prices for daily necessities and foodstuffs. The majority of the population was pauperized, but the indigenous population suffered from the crises no less than others in society. Most of them are surviving by reliance on the widespread practice of growing individual gardens (Startsev, *Malochislennye*, p. 23).

The national collapse of the economy had negative effects on the material wellbeing of almost all sections of the aboriginal population, except those who took key positions in Supreme organs of State, joint-stock companies and local trading enterprises. However, the number of those people is small, and the great bulk of aborigines are below the poverty line. Teachers, workers on public budgets and workers of *leskhoz*es did not receive their salaries for 3 to 9 months. Unemployment rates in indigenous villages increased rapidly, and there were unemployed in almost every Iman Udegei family. Among 126 indigenous persons inhabiting 11 villages of Krasnoarmeisky district, only 12 had a job. Seven aborigines were registered at the employment center (Spravka, 1997). Pensioners also became victims of the crises, as their purchasing power fell to one-tenth of what it had been in the past (Startsev, *Korennyye Narody*, pp. 17-19).

In indigenous villages private trade forced out trade run by the state. Prices for foodstuffs and other goods were only 30 to 40 percent of the prices in cities of the region (Startsev, *Korennyye Narody*, p. 18), however private traders came only to the villages which had access roads and stable social conditions. Villages of Krasnoarmeisky district such as Timokhov Kliuch, Dal'niy Kut, and Sanchikheza (which did not officially exist) did not have access roads. From time to time private traders delivered some foodstuffs and goods from Dal'nerechensk, but during the autumn and spring seasons was impossible to reach those villages due to the lack of a bridge over the Iman River.

The economic crises also had a negative effect on education. At the time of this paper, 33 Udegei pupils studied at 7 schools located in Roschino, Dal'niy Kut, Boguslavets, Krutoy Yar, Novopokrovka, Timokhov Kliuch and Mel'nichnoe villages. Krutoy Yar village also has a boarding school for 23 Udegei children. The Krutoy Yar school and boarding school lack adequate funds to purchase bedclothes, dishes and clothes for Udegei children and the school building has not been repaired for 40 years. Such conditions threaten the health, lives and character of children (Spravka, 1997.). The other schools where Udegei children study are in no better condition. The Dal'niy Kut school is also in extremely bad condition, with its building having had no repairs for more than 30 years, and its heating system out of order.

House repair and construction, electric supply in the villages and access road construction are recent key problems. Ostrovnoe, Dal'niy Kut and Timokhov villages have been cut off from electric supply, as the local budgets have no funds for it, and villages do not have their own diesel electric generators.

The housing problem in the areas of indigenous peoples' residence of Primorey has not been solved for decades, despite some efforts by leaders of the Primorsky region. House construction was carried out only in prestigious villages and in the centers of *gospromkhoz*es (generic term for locally-based joint-stock corporations -- formerly state-run companies -- that process natural resources) and *koopzveropromkhoz*es. In 1996 and 1997, 56 families in Krasny Yar and 36 families in Agzu villages were in need of new houses. In Krasnoarmeisky district there was a need to build 22 new houses and to repair 3. At the general meeting of representatives of Iman Udegeis from all villages (the end of 1996) a resolution was approved to build houses for villagers of Timokhov Kliuch where there were 32 Russians and 10 Udegeis. In the opinion of the Udegeis from other villages, Timokhov Kliuch village did not meet the basic living requirements. It also lacked no electric supply, transport and communication access, and stores. (Spravka, 1997).

Poor conditions of life, malnutrition and unhealthy food have had a negative effect on the

health of the indigenous people. In Udegei villages the number of cases of tuberculosis and upper respiratory tract disease has increased, and intestinal and stomach diseases have become more common.

Medical services leave much to be desired. For example, in 1998 because the dispensary of Dal'niy Kut village did not function for several months due to a lack of medical personnel, patients had to travel to Roschino or Novopokrovka villages for medical treatment by catching rides with passing cars (Personal archives of the author). The situation has not improved. Low wages for medical personnel and locations far from district centers and cities are not attractive to either young people or experienced specialists, an important reason that the dispensary in Dal'niy Kut is still not open.

Summary

This paper has described the social and economic conditions of the Iman Udegei indigenous people of the Russian Far East which have resulted from past Soviet policies relating to indigenous people and post-Soviet economic reforms. Policies of the former Soviet government resulted in the vanishing of Sanchikheza village and the disintegration of Iman Udege as a group. Restoration of the Iman Udege group is impossible because of the lack of administrative will and funding, and unwillingness of district and regional authorities. The difficult living conditions facing the Iman Udege are closely connected with the breach of Federal and local legislation by local authorities as well as with the corruption of power accompanying the ending of state ownership and the onslaught of economic breakdown.

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RECENT CHANGES OF FOREST POLICY IN CHINA AND ITS INFLUENCES ON THE FOREST SECTOR

Lu Wenming¹

1 Overview of State of Natural Forest Protection Program

1.1 Background

The Government of China has introduced new management methods for natural forests nationwide, aiming to establish sound forest ecosystems and develop the forestry industry. These changes have been made in order to control and reverse the trend of increasing deterioration of ecosystems in China, give a full play to the dominant role of forests in the protection and improvement of ecosystems, and secure the sustainable development of the national economy and society. The priority of establishing a sound forest ecosystem is to adequately protect the existing natural forests.

At present, natural forests still comprise the greatest proportion of forests in China, with the area and stocking volume accounting for 63% and 82% of the total, respectively. Natural forests are playing a significant role in maintaining and improving the environment. However, past unscientific and inefficient management over a long period of time has led to serious damage to the structure and ecological functions of natural forests, and brought serious adverse impacts on China's ecosystems. Since the devastating floods in the Yangtze River in the south and Nenjiang and Songhua Rivers in the northeast in the summer of 1998, the importance of protecting forests and developing forestry has been clearly recognized by the whole country. Accordingly, the closing of mountain areas to allow reforestation and prevent the conversion of forests to agricultural land has been identified as urgent tasks for the restoration of areas that were flooded. The protection of natural forests has been regarded as an important component for the development of sustainable forestry in China.

In China, "natural forests" are considered the opposite of planted forests, so they include not only virgin forests and also secondary forests (which have regenerated naturally after a disturbance or being cleared). There is no official definition of "natural forests," but the accepted definition is "Natural forests are forests naturally grown but not planted, either virgin forests without any human disturbance or secondary forests with natural generation." It should be stated that in China, most natural forests are "natural" secondary forests as there are not many virgin forests which have not been disturbed by humans.

The Natural Forest Protection Program (NFPP) is a great and trans-century environmental protection program. It is also a complicated social program that aims to protect the natural forest resources in the origins, middle and upper reaches of big rivers and regions with vulnerable ecosystems. First, the implementation of the NFPP will increase the quantity and improve the quality of natural forest resources, and the ecological functions will be given full play. Second, a new source of economic growth will be established. New employment opportunities will be created and the mean per capita income for the people in the forest areas will be increased. A successful transition

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for forest industries will be eventually realized and the sustainable development for forest regions will be secured. Third, commercial forests shall be established on a large scale. The key forest regions will serve as forest bases in these activities and the timber supply problem will be solved. Fourth, the reforms in forest areas shall be further deepened so as to achieve radical transitions both from planned economy to market-oriented economy and from extensive management to intensive management, and to finally realize sustainable forest management and establish a scientific forestry management system.

The State Development Planning Commission (in particular its Department of Rural Development Planning) in cooperation with the State Forestry Administration (in particular its Department of Development Planning and Fund Management and its NFPP Management Centre) is designated to draft the overall planning design of the NFPP. The legal basis for the NFPP is mainly the new Forest Law 1998.

1.2 Targets and Goal

The governmental departments at various levels and the whole society have responsibilities and obligations in the implementation of the NFPP in all locations that have natural forests. According to the preliminary design, the key regions of the NFPP cover 18 provinces (or autonomous regions and municipalities), namely, Sichuan, Yunnan, Guizhou, Hunan, Hubei, Jiangxi, Shaanxi, Shanxi, Gansu, Qinghai, Henan, Jilin, Heilongjiang, Xinjiang, Inner Mongolia, Ningxia, Hainan and Chongqing.

The NFPP will be implemented in two phases. During the first phase (1998-2000), the main task is to classify 125.418 million ha of natural forests in the program area, among which 59.881 million ha are for logging ban, 36.996 million ha are for logging control, and 28.541 million ha are for commercial forests. By 2000, the harvest quota of natural forests will be reduced by 12.36 million m³ compared with the level of 1997. Meanwhile, 730,000 surplus labors and 270,000 laid-off employees in forest regions will be absorbed and re-employed by afforestation activities and other alternative projects. 440,000 retired employees will enter old-age social insurance systems at the provincial level. The existing natural forest resources will be initially conserved and rehabilitated and the deteriorating trend of the environment will be alleviated to a certain extent. During the second phase (2001-2010), the program will mainly focus on the establishment and protection of ecological and public welfare forests, the development of transitional projects, the cultivation of forest resources, the increase of wood supply capacity, and the economic development in forest regions. By 2010, the goal is to have the natural forest resources basically restored. Timber production will be shifted from logging of natural forests to the management and utilization of plantations. It is hoped that the conflicts among population, economy, resources and environment will be essentially alleviated. These efforts are intended to lead to the formation of sounder forest ecosystems and an efficient forestry industrial system, so that forestry plays an important role in the sustainable economic and social development of the country.

1.3 Main Contents

Classification or differentiation of natural forests and changes in the focus of forest management are designed to balance the economic and resource priorities with the needs for environmental improvement, as well as soil and water conservation. First, areas containing important ecosystems in the upper reaches of the Yangtze and Yellow Rivers will be classified as ecosystem

conservation areas, which will include logging ban and ecological rehabilitation areas. Strict ranging and management will be practiced in these areas and any logging activities will be strictly prohibited. Second, harvest quotas from natural forests in ecosystem rehabilitation areas will be reduced by a large margin, and harvesting methods will be improved. Management and restoration of natural forest resources will be further strengthened through the application of new technologies and approaches. Third, various measures will be adopted in productive forest regions to cultivate large diameter timber of high quality, and fast-growing and high-yielding commercial planted forests will be actively developed. Fourth, the integrated development of different resources in forest areas will be strengthened to adjust and optimize the structure of the economy in forest regions. Guided by the market economy, some new policies and measures will be adopted to create employment opportunities for laid-off employees and surplus laborers, so as to mitigate economic hardship of forestry workers. Fifth, scientific forest management will be strengthened and the capacity of sustainable development will be improved through the training of workers and managers. Scientific monitoring and evaluation systems will be established for the management and supervision of the program.

1.4 Project Planning

Due to the importance and urgency of the NFPP, its implementation was started based on a preliminary plan, before a complete plan was formulated, an unusual approach not only in China, but also around the world.

The first draft of "The Implementation Plan for Natural Forest Resources Protection Program in Key Areas" was completed in the first half of 1999. However, it was vetoed by the Prime Minister of the State Council for focusing too much on the northeastern areas where natural forests are the main sources of timber for the country. The veto was a major disappointment for the planners and forestry sectors. Today the re-formulation of "The Implementation Plan for Natural Forest Resources Protection Program in Key Areas" is still in-process. Although China does not yet have a complete implementation plan for the NFPP, the implementation of the NFPP is proceeding as the governments have allocated a considerable budget and all activities are still on a normal track. It is now clear that the focus of the NFPP will be in the areas around the source and the upper reaches of the Yangtze River and the middle and upper reaches of the Yellow Rivers. Areas in 18 other provinces are to be covered, but are not given as high a priority at present.

1.5 Implementation Status

NFPP Management Centre, under the State Forestry Administration, is the authorized managing institution in the implementation of the NFPP at the state level. Each province which the NFPP covers has a corresponding institution, normally affiliated with the provincial forestry department.

In 1998, the State Council worked out a policy of issuing additional financial bonds of 100 billion yuan to speed up infrastructure development in order to maintain economic growth and the stability of the Chinese currency. Of the total amount, 3.12 billion yuan were allocated to infrastructure development for the NFPP. The NFPP was first initiated in 12 provinces (or autonomous regions and municipalities), namely, Sichuan, Yunnan, Guizhou, Shaanxi, Gansu, Qinghai, Jilin, Heilongjiang, Hainan, Xinjiang, Inner Mongolia and Chongqing, followed by other six provinces and autonomous regions, namely, Hunan, Hubei, Jiangxi, Henan, Shanxi and Ningxia.

Since the start of implementation of the NFPP in the second half of 1998, local governments attached great importance to the NFPP, and most of them set up leading groups and NFPP management offices, chaired by key leaders. Target responsibility systems were channeled to local governments at different levels concerned under this operational mechanism. Rules, regulations and management guidelines were also developed. Thanks to the efforts of various parties, the targets of the NFPP for 1998 were accomplished in line with the preliminary plan. According to the statistics, 1.44 billion yuan were invested for the establishment of public welfare forests. Timber production was reduced by 2.933 million m³, 318,000 ha of public welfare forests were planted, 882,000 ha of forests were tended, and 2.433 million ha of mountainous areas were closed to allow for reforestation. Natural regeneration by enrichment planting of 139,000 ha was accomplished and 189,000 laid-off employees from forest harvesting areas were properly settled and re-established.

It should be stated that the government input to the forestry sector is not very big compared with many other sectors, although the annual input was on a net increase previously. However, since 1998 when the NFPP was launched, the government financial input has grown considerably. In 1998 alone, the government provided a total of 3.6 billion yuan from infrastructure development bonds to the forestry sector for the NFPP and 10 key environmental programs. This compares with the amount from 1950 to 1997, when the government spent a total of 58.8 billion yuan, with an annual figure of 1.547 billion yuan. Furthermore, the financial resource allocation to the NFPP alone was 3.12 billion yuan in 1998, accounting for 86.67% of the total 3.6 billion, compared with only 480 million yuan, or 13.33%, for totally 10 environmental programs. If considering that the NFPP was launched after July 1998, or only half a year implementation in 1998, the figure should be considered more.

1.6 Detailed Progress of the NFPP Implementation as of the End of 1998

(1) Financial resources and allocation

As stated above, a total of 3.12 billion yuan, raised through issuing state bonds, was allocated to the NFPP in 1998, accounting for 86.67% of the total state investment (3.6 billion yuan) to the forestry sector that year. This 3.12 billion yuan was divided into two parts: 1.62 billion yuan allocated to central financial resources, and 1.5 billion yuan to local financial resources.

The detailed financial allocation to four regions is indicated in Table 1. The difference of financial resource allocation in terms of the regions is due to differences in forest area, area covered by the NFPP, and types of forests as well as topographical conditions in the provinces. Furthermore, different regions contain different numbers of provinces. China has six official regions with a total of 31 provinces (excluding Hong Kong, Macao and Taiwan): North China (5 provinces), Northeast China (3 provinces), East China (7 provinces), Central South China (7 provinces), Southwest China (5 provinces), and Northwest China (5 provinces).

(2) Task allocation

The detailed task allocation in terms of four regions is shown in Table 2.

(3) Employment re-allocation achieved

The employment re-allocation achieved in 1998 in terms of four regions is shown in Table 3.

1.7 The Impact on Timber Demand and Supply

The impact of the NFPP on the demand and supply for timber is clear and simple. The demand for timber mainly depends on the development of society. It is clear that the demand for timber is increasing steadily in line with strong national economic growth and improving quality of peoples' living conditions, which lead to demand for house construction and also furniture and interior decoration. However, as a result of the implementation of the NFPP, the domestic timber supply will decrease to a large extent due to reductions in timber production. As a result, timber imports will increase considerably. The preliminary statistics for 1999 already showed that the logs imported in that year already exceeded 10 million m³, representing a sharp increase compared with 1998 and earlier years.

1.8 Problems

Despite achievements made by the NFPP, big difficulties remain. First, the complexity and wide range of the NFPP make management difficult. Second, the poor quality of management personnel and backward local economies have reduced the capacity of sustainable forestry development. Third, the lack of advanced techniques in the management and restoration of natural forests. Fourth, insufficient infrastructure and a shortage of techniques and methods in multi-function monitoring, lack of information collection and lack of scientific criteria and indicators for assessment of forest management. Fifth, the lack of sophistication and inadequacy of techniques and methods in the management of natural forests.

2 Case Study on Forest Sectors in Heilongjiang Province

2.1 Implementation of New Policy in Former State Forest Sectors

Since early 1990s, the state forest industry sector in Heilongjiang Province has faced two major difficulties. One is the crisis of declining forest resources available for logging as a result of over-exploitation in past decades. The other is difficult economic situation faced by enterprises and forestry bureaus due to depressed prices of timber and timber products nationwide. This economic situation led to social hardships (forestry bureaus are similar to local governments, with vast responsible in the forest areas). The state forest industry sector in Heilongjiang Province has been publicizing its difficulties and appealing to higher authorities, seeking special funding. However, the outcome was not very promising as the government also faced financial difficulties. There is no special policy by the government to fund the state forest industry sector in Heilongjiang Province and other provinces as well, except that it can get some preferential taxes and charge deductions such as reforestation fund, special agricultural products tax, etc.

Accordingly, the most important policy for the state forest industry sector in Heilongjiang Province is the implementation of the NFPP. Although the focus on the NFPP has been changed to the origins and upper reach of the Yangtze River and middle and upper reaches of the Yellow River, Heilongjiang is still listed as a main NFPP area. The government has invested and will still invest a considerable amount of money for the implementation of the NFPP in the state forest area in the province. According to the preliminary planning design (as stated above, the final one is under the revision), the program covers all 40 forestry bureaus under the administration of Heilongjiang Province Forest Industry General Administration (HPFIGA). In line with the national NFPP, the program in Heilongjiang Province is also divided into two phases.

The first phase is from 1998 to 2000, with targets of gradually decreasing timber production from 6.7 million m³ in 1997 to 4.19 million m³ in 2000 (6.7 million m³ for 1997, 6.179 million m³ for 1998, 5.402 million m³ for 1999 and 4.19 million m³ for 2000). 236,000 forestry workers will be reallocated, among which 19,611 are for forest protection, 26,600 are for development of ecological and public welfare forests, 84,500 are for development of commercial forests, and 105,260 are for other projects. Forest stock volume will be increased to 680 million m³, and the forest coverage will be increased to 75%. Under the second phase from 2000 to 2010, a good commercial forest base will be formed, and total forest stock volume will be increased to 840 million m³. Besides a gradual deduction of timber production, the main approach of the implementation of the NFPP is the adoption and application of differentiated forest management.

In Heilongjiang state forest area, forests are divided into two categories: commercial forests, and ecological and public welfare forests. Commercial forests will reach 2.243 million ha in 2000, which accounts for 25.0% of total land for forestry uses. Ecological and public welfare forests can be further divided into two parts. One is key ecological and public welfare forests in which no logging is allowed. The target area for this in 2000 is 3.308 million ha, which accounts for 36.9% of total land for forestry uses. The other one is ordinary ecological and public welfare forests, in which logging is allowed but with strict selective felling and tending felling methods in good forests, and no logging allowed in poor forests. The target area for this in 2000 is 3.419 million ha, which accounts for 38.1% of total land for forestry uses.

In line with the planning of the NFPP in the state forest industry sector in Heilongjiang Province, a series well planned supporting policies or measures have been developed and are to be formally

adopted soon. They are forest protection plan, development plan for public welfare forests (including strengthening afforestation in ecological forest protection area and speeding up the tending of middle and young forests as well as closing mountains for reforestation), development plan for commercial forests, development plan for diversified economic management and transformation projects, transformation plan of laid-off staff and settlement of retirees, etc. It is estimated that a total of 50.4 billion yuan is needed for the implementation of the NFPP in the state forest industry area in Heilongjiang Province, of which 18.6 billion yuan is to be invested by Central Government, 14.4 billion yuan is from loan, 9.8 billion yuan is supported by provincial and local governments, and 7.6 billion is collected by the forest industry sector itself.

In addition, in order to implement the NFPP, a number of related policies and measures have also been developed, such as "Organizational Management and Guaranteeing Measures for the Implementation of the NFPP," "Temporary Management Measures for the Protection of Natural Forest Resources," "Temporary Management Measures for the Management of Ecological and Public Welfare Forests," "Temporary Management Measures of the Silvicultural Projects for the NFPP," "Temporary Management Measures of the Development Projects for the NFPP in State Forest Area," and many related notices and technical standards, etc.

Furthermore, the forest industry sector also requested the Central Government to give some preferential and supporting policies to it so as to alleviate its difficult financial problems, which are big constraints for its development. These requests include 15 aspects, all seeking financial support.

According to over one year of practice and implementation of the NFPP, a good result has been achieved. As of the end of 1998, all plans had been fulfilled, which includes afforestation of 33,300 ha, regeneration by artificial promotion of 17,700 ha, forest tending of 234,100 ha, and closing the mountain for reforestation of 150,600 ha. However, some problems remain. The management measure for the NFPP seems good, but the management measures for other aspects, such as the loss or decrease for financial revenue in local governments, the underemployment and the difficult raw materials availability for local timber processing factories due to the decrease of logging amount, are in problems due to the implementation of the NFPP. These need to be dealt with from the institutional and economic reforms.

2.2 Implementation of New Policy in Provincial Forest Sector

The situation in Heilongjiang Province's forests is representative of other provinces in China. Besides national forestry policies, the provincial government, in recent years, adopted a number of new forestry policies in order to further develop the forestry sector.

From 1996 to 1998, a number of regulations and policies were developed and enforced. They are "Heilongjiang Province Forest Management Regulations," "Heilongjiang Province Wildlife Protection Regulations," "Heilongjiang Province Implementation Measures for Forest Plant Quarantine," "Heilongjiang Province Forest Seeds Management Regulations," "Heilongjiang Province Implementation Measures for Forest Pest and Diseases Control" and "Heilongjiang Province Certificate Management Measures for Marketing Wildlife and Their Products."

"Heilongjiang Province Forest Management Regulations" are important and integrated regulations governing all forestry matters in Heilongjiang Province. They include a series of regulations, measures and policies covering all aspects for the forestry sector, such as management of forests, trees and forest land tenure; forest protection; forest management; forest harvesting; and timber transportation, etc.

An important decision was made on 30 October 1998 by the provincial government concerning the active cultivation, strict protection and rational utilization of forest resources in order to vigorously develop forestry. In this decision, targets for the year 2000 and even 2010 were projected. Forest coverage is to increase from 41.9% in 1998 to 43.6% in 2000, and to 47.2% in 2010. Eight key programs were emphasized. Besides the NFPP, the “Three-Norths” shelterbelt development program, Jiejiang River shelterbelt development program, Songhua and Nenjiang Rivers shelterbelt development program, forest biodiversity and wetland resources protection program, desertification control program, urban and rural afforestation program, and “Three-Rivers” platform agricultural integrated development program – forestry ecological supporting development project. A number of affiliated policies were also adopted for the implementation of these targets and programs. They are: further afforestation by all masses, further perfecting supporting policies to speed up the afforestation in the land for forestry uses but without forests, shifting agriculture to forests for all land with slope of 25 degrees and above (with tax deduction and other preferential policies attached), strict banning of deforestation for agriculture and strengthening forest land management, and strengthening timber transport management (with certificate for transportation of timber), strengthening wild animal and plant protection.

It should be stated that policy, especially forestry policy, is a tool for the ongoing management of sectoral development. Many forestry policies in China were adopted as early as several decades ago, and are still under implementation. The key policy change in recent years in the forestry sector in Heilongjiang Province, and in China as a whole, is the adoption and implementation of the NFPP. Shifting from the clearing of forests for agricultural land to this new forestry policy in China is a new development in recent years. This is possible due to the surplus of food production in China in recent years, which is the precondition of this policy.

Table 1 . Fund allocation for the NFPP in 1998
(Units: million yuan)

Resources	Sub-total	Northeast	Southwest	Northwest	Hainan Province
Central financial resources	1,618.58	1,073.95	500.63	39.00	5.00
Local financial resources	1,500.00	516.00	720.00	210.00	54.00
Total	3,118.58	1,589.95	1,220.63	249.00	59.00

Sources: Overview of Financial Bond Projects in Forestry Sector, Forestry Economics and Development Research Centre, 1999

Table 2. Task allocation for the NFPP in 1998.

Tasks	Sub-total	Northeast	Southwest	Northwest	Hainan Province
Timber output reduction (m ³)	2,913,500	1,444,600	1,364,300	104,600	0
Plantation area for public welfare forests (ha)	512,884	13,633	306,122	50,959	21,170
Area for closing the mountain for reforestation (ha)	2,261,924	1,441,455	888,225	298,000	0
Area for forest tending (ha)	1,135,782	632,988	426,495	62,899	13,400
Area for natural regeneration with enrichment planting (ha)	307,600	90,800	207,800	9,000	0

Sources: Overview of Financial Bond Projects in Forestry Sector, Forestry Economics and Development Research Centre, 1999

Table 3. Employment re-allocation achieved by the NFPP in 1998.

Items	Sub-total	Northeast	Southwest	Northwest	Hainan Province
Total	206,735	135,495	54,199	13,563	3,478
For protecting forests	63,409	29,532	27,721	5,072	1,084
For developing public welfare forests	116,521	87,283	23,098	5,600	540
For developing commercial forests	580	180	0	0	400
For transitional projects	10,536	6,500	2,400	0	324
For other works	15,689	12,000	980	580	1,130

Sources: Overview of Financial Bond Projects in Forestry Sector, Forestry Economics and Development Research Centre, 1999

THE RECENT RUSSIA-CHINA TIMBER TRADE --- AN ANALYTICAL OVERVIEW

Masanobu YAMANE¹ and Wenming LU²

Abstract

The timber trade from Russia to China is steadily increasing and many scholars are convinced that this trend will continue. Normal Chinese statistics on timber flows are not clear and are limited to national trade figures. In this paper, the authors analyze recent trends in the Russia-China timber trade based on official data sources, aiming to clearly grasp recent timber flows from Russia to China at customs and gateways points. The authors conclude with seven key findings including the recent rapid increase in trade of hardwood logs, the existence of favorable trade regulations for raw log imports into China, the three major gateway routes and ten small but emerging border gateways in Heilongjiang Province for the timber trade.

1. INTRODUCTION

Wood product consumption of the People's Republic of China (China) in the near future should be a key concern not only for the Asia and Pacific regions but also for the entire world. China's total annual consumption of industrial wood in 1995 was estimated at 122.2 million m³, second in size after the United States (Araya, 2000). China's consumption has already exceeded Japan's industrial wood consumption by one million m³. Although China's timber consumption per capita in 1995 was relatively low at 0.1 m³, many scholars point out rapid increases of China's timber demand, especially for industrial sectors because of economic growth and the consequent improvement of living standards. A quantitative projection of wood consumption by Richardson (1986) indicated that volumes of China's annual timber consumption in 2040 would exceed 1,163 million m³ for the middle or high scenarios, ten times the level of 1990. Though this prediction might be an overestimation, it is clearly next to impossible that cover China's timber demands will be met only by its domestic timber supply. In addition, the further liberalization of the timber trade, which has been under negotiation at the World Trade Organization (WTO), prompts great concerns.

In contrast to the growing demand, the potential domestic wood supply has dropped significantly during the last 30 to 50 years due to the cumulative effects of clearing of mature forests, a greater proportion of pre-mature or young forests not ready for logging, and the increase of constraints on logging such as environmental conservation. These constraints will make it difficult to attain a balance between domestic timber

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production and consumption.

Russia is one of China's major timber suppliers, ranking among the first three in last two decades and ranking first in recent years. The import volume has been increasing significantly, especially in the last five years. About 90-95% of timber traded between China and Russia passes through land gateways and more than 20% of timber exported from the RFE in 1998 was transported via land gateways along the China-Russia border (Yamane and Sheingauz, 2000).

It is said that there are four main reasons for this significant increase. Firstly, the timber imported from Russia is mainly from natural forests with good quality and bigger diameter (mostly over 24 cm). Secondly, the price is moderate, even cheaper than domestic timber for similar species and specifications. Thirdly, sources in the northeast part of China of good quality hardwood for decoration, such as Manchurian ash and Mongolian oak, are nearly exhausted, and the Russian timber can be recognized as a very good alternative for this urgently needed decorative wood. Finally, favorable conditions for border trade, especially half tax (both import tariff and value added tax rate) policy for small amount import along boarder gateways, have emerged due to the introduction of a market economy and trade liberalization in both countries. China's new forestry policy, called the Natural Forest Protection Program, which has been implemented since 1998, has resulted in logging bans or regulation in the upper reaches of the Yangtze River, in the upper and middle reaches of the Yellow River and in the Northeast China including Heilongjiang Province. This new policy appears to have stimulated strong timber imports from Russia (Lu, 2000).

It is only conjecture that these factors have stimulated timber imports from Russia to China. The actual causes and effects of changes in timber flow into China are not well documented so far, but national trade statistics provide important clues.

In this paper, the authors analyze the recent Russia-China timber trade based on information collected from official data sources, aiming to clarify timber flows from Russia at border customs and gateway points. In addition, some key characteristics of the trade are also identified.

2. MATERIALS AND METHODS

2.1 Collection of Data and Information

2.1.1 China's Customs

China operates a total of 345 customs points, which are divided into 2 categories: first-class, and second-class customs offices. There are totally 41 first-class customs offices, mostly located at the provincial capitals, but some large customs points are also located at or near around major seaports and border gates. Most first-class customs points have or administer a number of second-class customs offices. All second-class customs offices report data to the first-class offices, and the first-class customs collect and compile data from second-class customs offices under their governance into their

reports, which are then reported to the General Customs Administration. Only the General Customs Administration in Beijing can retrieve the overall trade data.

There are two first-class customs offices in charge of direct Russia-China trade. One is the first-class Harbin Customs office in Heilongjiang Province, which administers 14 second-class offices, mostly along the border with Russia, including the Suifenhe Customs, which is one of a few major trade gates with Russia. The other one is the first-class Manzhouli Customs in Inner Mongolia Autonomous Region, which administers two second-class customs offices nearby.

2.1. Existing Russia - China Timber Import Routes

The main means of timber trade with Russia is by railway along the boarder with Russia in the northeastern China, mainly Heilongjiang Province and the Inner Mongolia Autonomous Region. In very few cases raw logs are transported by shipment. Suifenhe Customs in southeastern Heilongjiang Province and Manzhouli Customs of northeastern Inner Mongolia Autonomous Region rank as the biggest in terms of China's log imports from Russia in recent years.

Four provinces in China share an inland border with Russia: Heilongjiang Province, Inner Mongolia Autonomous Region, Jilin Province and Xinjiang Uighur Autonomous Region. However, only Heilongjiang has a long inland border. Xinjiang Uighur Autonomous Region shares a very short inland border with Russia, in the northwest corner of the province that is itself in the far northwest corner of China. Trade activities there are limited, partly due to the barrier posed by high mountains. Jilin Province also shares a very short inland border with Russia in the northeast corner of China's northeast province, and has only a small volume of trade with Russia. The second-class Hunchun Customs shares a border with Russia. Inner Mongolia Autonomous Region also shares a short inland border with Russia in the northeast corner of this northern province, but with a very important gateway in Manzhouli due to railway connection. Manzhouli Customs is one of China's first-class customs offices. Heilongjiang Province shares the longest inland border with Russia and has about 10 gateways or second-class customs offices.

Timber also enters China by shipment from Russia, through several coastal ports, but not in a big volume.

2.1.3 Data Collection of Timber Trade Statistics from Russia

Aiming at better interpretation of China's border timber import from Russia, this study listed all gateways for timber imports from Russia but emphasized four direct gateways and two indirect gateways for analytical overview. These four direct gateways are Manzhouli, Suifenhe, Heihe and Hunchun, the first three of which are the principle gateways of China's border trade with Russia for all goods, including timber imports.

The two indirect gateways³ are Erlianhot and Alashankou, which are two principle gateways of China's indirect trade with Russia for all goods.

All trade data shown in the tables in this study for gateways/customs offices are from official customs authorities, at the customs headquarters in Beijing and also at the first-class customs in Harbin, for all years from 1995 to 1999. Regarding China's timber imports from Russia through coastal customs offices by shipment, the authors collected information from the customs headquarters in Beijing.

Statistics of timber import from Russia at sixteen border customs offices/gateways and seven coastal customs were collected for this study (Table 1, Figure 1). The forest products which were the subject of data collection include unprocessed timber (raw logs) and sawnwood because these two forest products are more than 95 % of total import from Russia to China.

2.2 Analytical Framework

The authors adopted three-step approaches to grasp the characteristics of China's recent timber imports from Russia. The first was an overview of recent total national timber imports from Russia based on China Customs Yearbook (1995-1999). Trends of timber imports in volume and value were identified, as well as a breakdown of wood species. The second was an overview of timber imports in volume from Russia through target customs offices or gateways, in order to grasp the dynamics of recent timber flows to clarify the status of each gateway and the latest major routes for timber imports. Finally, statistics of individual customs offices or gateways were analyzed one-by-one using customs codes, aiming to identify details, especially tree species.

3. OVERVIEW OF CHINA'S RECENT TIMBER IMPORTS FROM RUSSIA

3.1 Volume and Value of Imports in 1995-1999

The main stream of timber imports from Russia has been log imports. The volume of log imports has been increasing sharply over the last five years (Table 2). The statistics in volume and value of China's timber imports from Russia from 1995 to 1999, with customs code, are shown in Appendix 1. The log imports from Russia increased rapidly over 5 years, from 357,788 m³ in 1995 to 4,304,946 m³ in 1999, a factor of eleven (Table 2). In 1999, the volume of log imports from Russia trebled over the previous year. China's total log imports have also been increasing in recent years. However, the increase of logs imported from Russia is faster than the increase of total log imports. Table 2 shows that the percentage of Russian imported logs in terms of total imported

³ Direct gateway means the gateway which shares the land boarder between China and Russia. Indirect gateway means the gateway at which China shares the land boarder with a third country (such as Mongolia and Kazakhstan), but timber is imported originally from Russia. Both direct gateway and indirect gateway means land gateways, not including coastal gateways.

logs increased from 13.9% in 1995 to 42.5% in 1999.

As for sawnwood imports from Russia, the volume and share have been low. In the period of 1995-1998, the volume was in the 10 thousand m³ and the share in volume for total imports was less than 1%. The sharp increase, a rise of 7.6 times, of sawnwood imports from Russia in 1999 is noteworthy.

3.2 Items and Tree Species of Imported Timber

Based on the international customs code system which China has also adopted, the species of China's timber imports from Russia for logs and sawnwood are listed in Table 3. Species not identified by the code system (Appendix 2) are recorded as "all other softwood" or "all other hardwood."

The main species of Russian timber exported to China are two kinds of softwood, Larix and Mongolian Scotch pine, along with some other pine species (Table 3). The softwood logs account for 93% of total log imports from Russia in 1999. Among hardwoods, oak and beech are the main species, as identified by the international custom code system. From 1995 to 1999, the shares of oak and beech in hardwood logs were rather high, ranging from 33% to 72% in 1998. The import volume of all kinds of hardwood logs increased rapidly after 1997 in the same way as softwood log imports.

As for sawnwood from Russia, softwood has been dominant during the five years. However, hard sawnwood have ranged from 8% to 53%. Most of the imported timber was classified into all other hardwoods. It is also worthy of note that the import volume of oak and beech has grown rapidly since 1997.

Calculating the averaged unit price (US\$/m³ = total value / total volume) of imported timber with total imported volume and value for each item, hardwood logs and sawnwood, which were imported in relatively small volume, had two times market price compared to softwood products (Appendix 1). For example, in 1999, all softwood logs, including chemically treated softwood logs⁴, were imported at unit prices of US\$ 135 and US\$ 58, respectively. The unit prices of oak, beech and others in 1999 were US\$ 95, 289 and 118, respectively. For sawnwood, a similar tendency is evident, with hard sawnwood imported at a two to five times higher unit price than soft sawnwood. The unit prices of beech logs and sawnwood are particular high among hardwood products.

3.3 Regulations on Timber Import to China from Russia

In terms of trading commodities, there are five major regulations related to import and export trade, which should be abided by Table 4. In addition, import tariffs (including preferential tariffs and ordinary tariffs), value added tax and consumption tax (for some commodities only) are charged. For all timber and timber products, the procedure and regulation for import and export trade is of no different with general

⁴ "Chemically treated softwood logs" means those treated with chemical method, as identified by the international customs code system with the code number of 4403.1000.

rules as mentioned above. However, regulations applied to the import of logs are not so severe (Table 4). Only import commodity inspection and other import certificates for specific tree species are requested.

In China, the import tariffs are divided into preferential and ordinary tariffs. Preferential tariffs are for goods imported from a country of origin which has a mutual preferential tariff agreement with China. Ordinary tariffs are for goods from a country which does not have a mutually preferential tariff agreement with China. China has mutually preferential tariff agreements with most countries and regions around the world.

In China, besides common import tariffs, a value added tax (VAT) should be paid when importing commodities, and for some commodities, consumption tax should also be paid. However, no consumption tax is charged for all imported forest products. The VAT rate is 17% in general, while 13% is charged for some of agricultural products.

For forest products, in general, the VAT rate is 17% for processed goods and 13% for raw materials such as logs. In order to simplify the tariff and VAT tax, an integrated tax is introduced as the calculated tax for imported tariff and VATs applying the following formula:

$$\begin{aligned} \text{VAT} &= (\text{FOB}^5 \text{ price} + \text{import tariff charge}) \times \text{VAT rate} && \text{-----} \\ (1) \quad \text{Integrated tax rate} &= \text{import tariff} + (1 + \text{import tariff}) \times \text{VAT rate} && \text{-----} \quad (2) \\ \text{All imported tax} &= \text{FOB price} \times \text{integrated tariff rate} && \text{-----} \\ (3) \end{aligned}$$

China is a key member of the Asia Pacific Economic Cooperation forum (APEC). In order to abide by the APEC trade liberalization timetable, in May 1998, the Government of China submitted to APEC the unilateral plan for 9-sector trade liberalization (zero⁶ import tariffs) ahead of schedule. These 9 sectors include forest products. Thus since January 1 of 1999, the Government of China has decreased preferential import tariffs for 49 items of forest products, including logs, sawnwood and wood pulp, from 1-3% to 0, and for 4 other forest products from about 20% to 10%. The import tariff, VAT rate and integrated tax rate for logs and sawnwood are listed in Table 5, with the integrated tax rate being calculated based on the preferential import tariff. We can see that for all species of logs and sawnwood, the preferential import tariff is 0, while for logs which is regarded as raw material, the VAT rate is 13%. For sawnwood which is regarded as processed product, the VAT rate is 17%. Accordingly, the integrated tax rates for logs and sawnwood are 13% and 17%, respectively. For ordinary import tariffs, 35% is levied for some precious log species while 8% is levied for all ordinary logs species, and 40% is levied for some precious sawnwood species while 14% is levied for all ordinary sawnwood species. It should be particularly stated that the

⁵ FOB = free on board

⁶ “zero import tariff” does not mean “actual zero import tariff”, but means very low import tariff, normally about 105%.

Government of China adopts half tax policy for small amount import along boarder gateways. This policy is for both import tariff and value added tax rate. As most of timber import of China from Russia is from boarder gateways and in small amount, either directly or indirectly, this policy is regarded as one of the major reasons why the timber import of China from Russia increases significantly in recent years. Although the import tariff of logs and sawnwood has been zero since 1999, the value added tax rate of logs as 13% and for sawnwood as 17% is still not a small amount, so the half charge for value added tax is still regarded as a very preferential encouraging policy for boarder timber import. According to the official statistics, among all soft logs import in China in 1999, 86.63% is for boarder trade, 12.58 is for general trade, while the remaining 0.79% is for other trade types. And among all boarder timber import, 95.03% is from Russia, 4.09% is from DPR Korea, and the others are from Burma, Kazakhstan and the country of Mongolia.

4. CHINA'S BORDER TIMBER TRADE WITH RUSSIA

4.1 Overview of Timber Trade from Russia

Table 6 indicates the changes of total imported volume of raw logs and sawnwood to China from Russia through land border gateways from 1995 to 1999. From the table we can grasp that raw log imports through the land gateway is a main stream of the timber trade between both countries. This feature has become noticeable since 1996; and the shares of log imports through land gateways were above 95%.

By listing the trade statistics of land gateways one by one, three largest gateways are easily identified: Manzhouli, Erlianhot and Suifenhe. The share of these three gateways for log import from Russia in 1996 was 90% and after that has exceeded 95%.

Manzhouli has been the largest gateway of log imports from Russia since 1995 and the volume has grown very rapidly, from 116,462 m³ in 1995 to 1,7883,570 m³ in 1999. The imported volume accounts for about 40% of the total log imports from Russia.

The log imports from Russia in the Suifenhe gateway increased significantly over the 5 years, from only 272,124 m³ in 1996 to 1,341,380 m³ in 1999, ranking the second following Manzhouli gateway. The import volume of Russian logs through this gateway accounted for 31.2% of the total log imports from Russia in 1999.

The imports of Russia logs through the Erlianhot gateway in Inner Mongolia Autonomous Region accounts for 21.7% of the total log imports from Russia in 1999. In this gateway the log imports from Russia increased remarkably over the 5 years, especially in 1999.

Heihe has the fourth rank of volume next to the top three gateways in 1999. In recent years, the log imports from Russia through this gateway also increased significantly, from only 1,923 m³ in 1996 to 98,675 m³ in 1999.

The remarkable growth of log imports is a common feature at these four gateways. In particular, the increase from 1998 to 1999 again is quite high, with an averaged growth rate of 279% ranging from 239% at Suifenhe to 2850% at Heihe.

Gateways at Urumchi in Xinjiang Uighur Autonomous Region and Hunchun in Jilin

Province still deal with a relatively small volume of logs and the volume accounted for less than 1% of total imports from Russia in 1999. However the imports increased notably from 1998 to 1999, with growth rates at Urumchi and Hunchun being 2210% and 784%, respectively.

The gateways in Heilongjiang other than Suifenhe and Hiefu have dealt with small volume of logs from Russia. It is worthy of note that some gateways such as Xunke and Jiayin started to import logs from Russia and the imported volume has increased significantly. On the other hand, other gateways such as Tongjiang, Hulin, Mishan and Dongning, which imported more than 4000 m³ in 1996, did not show remarkable increases in import volume after 1997.

As for sawnwood imports from Russia the volume has been very small compared with raw log imports but the high-volume gateways and their general import trends are very similar with those of raw log imports.

The results of recent timber flows indicated two main land border routes for timber product imports from Russia: the Inner-Mongolian route and the Heilongjiang route. The Heilongjiang route has many small gateways, and newcomers emerged over the five years.

4.2 Timber Flows at Land Border Gateways

4.2.1 Manzhouli

The Manzhouli gateway in the northeast of Inner Mongolia Autonomous Region is one of a few major trade gateways between China and Russia. There are only two railway connections between China and Russia. One is via this gateway, which has a direct passenger train between the two capitals, Beijing and Moscow. Another is a gateway at Suifenhe in Heilongjiang Province. Due to the importance of this location, Manzhouli is a first-class customs office, and governs two second-class customs offices in Hailar City and Eerguna Banner (similar as county level) nearby. Administratively, Hailar City (prefecture level) governs Manzhouli City (county level). However, Hailar Customs is a small inland customs office, under the administration of Manzhouli Custom. Eerguna Customs office is just a small gateway customs office on the border of the two countries.

For the timber trade, Manzhouli is the principle direct gateway, followed by Suifenhe and Heihe etc. The timber imported from Russia through Manzhouli Customs is indicated in Appendix 3-1. The raw log imports from Russia through this customs office increased significantly from only 116,462 m³ in 1995 to 1,782,626 m³ in 1999. According to a telephone consultation with a Manzhouli Customs officer, over 95% of timber trade statistics listed in the table are for the gateway of Manzhouli itself. Only about 5% of these figures are for the Eerguna gateway. Hailar Customs normally has no reporting of timber imports from Russia since it has no land border with Russia.

4.2.2 Suifenhe

Suifenhe gateway is in the southeast of Heilongjiang Province. As mentioned, this is the second of only two railway connections between the two countries. This railway is the key line from China to the Far East of Russia with its rich forest resources. Today there are also passenger trains from Harbin in China's Heilongjiang Province (Harbin is the capital of Heilongjiang Province) through Suifenhe gateway to the cities of Vladivostok and Khabarovsk in the Russian Far East.

In Suifenhe there have been two second-class customs offices since 1998, one being Suifenhe Railway Customs, which is a main gateway and the other is called Suifenhe Highway Customs. Although these two customs are located very close together, due to the importance of border trade with Russia, the customs authority divided this gateway into two offices so as to better identify the actual amounts transported via railway and highway.

4.2.3 Heihe

Heihe is also an important gateway between China and Russia. It is around the middle of Heilongjiang's border with Russia. Although there is no railway connection between two countries in this location, the border trade here is also very active. In 1999, a Sino-Russia Timber Trade Market was established and operated in Heihe that can facilitate the increasing timber import trade activities. Covering an area of 17 ha, it is regarded as the largest timber trade market along 4,000 km long border between China and Russia. In recent years, the log imports from Russia through this gateway also increased significantly, from only 1,923 m³ in 1996 to 98,675 m³ in 1999. Although still not large in absolute volume, this gateway is likely to grow considerably.

4.2.4 Hunchun

Hunchun is located in the east of Jilin Province and shares a border with Russia. The Russian side is the most southern corner of the Far East, and trade is not active here for timber and other products, partly because of corner location and partly because of poor transportation (no railway connection). Hunchun Customs is a second-class customs office on the border in Jilin Province. It is under the administration of the first-class Changchun Customs office (Changchun is the capital of Jilin Province). Accordingly, the data shown for Changchun Customs include the data of the Hunchun gateway in terms of Russian imported logs. The timber imported from Russia through Hunchun Customs, as reported to the customs headquarters in Beijing through the Changchun Customs office, is shown in Appendix 3-4.

4.2.5 Erlianhot

Erlianhot is a principle gateway and the only one between China and the country of Mongolia. It is located near the center of China's Inner Mongolian border with the

country of Mongolia. This is also the only railway connection between China and Mongolia. The passenger train from Beijing to Moscow passes through this gateway and Mongolia. Erlianhot is also the important gateway of China's trade with Russia through Mongolia. As such, this gateway is the third largest (although indirect) gateway of China's timber imports from Russia. Under international practice, import statistics list the country of origin, so even though timber passes through Mongolia, statistics still identify Russia as the source. Erlianhot Customs is a second-class customs office under the administration of the Huhehot Customs (Huhehot is the capital of Inner Mongolia Autonomous Region). Huhehot Customs governs two second-class customs, one being Erlianhot and the other being Baotou Custom, a small inland customs office.

It should be also stated that according to telephone consultation with Huhehot Customs officer, 100% of timber trade statistics listed in the appendix is for the gateway of Erlianhot, as it is the only border customs office with Mongolia (Appendix 3-5). The statistics show that Erlianhot gateway is the third largest gateway for timber imports from Russia, after Manzhouli and Suifenhe. The imports of Russian logs through this gateway accounted for 21.7% of total log imports from Russia in 1999. These three main gateways accounted for over 90% of the total log imports from Russia in 1999.

4.2.6 Alashankou

Alashankou is an important gateway between China and Kazakhstan, a former republic of the Soviet Union. It is located in the north of northwest China's Xinjiang Uighur Autonomous Region. There is a railway connection between these two countries, called the Europe-Asia Railway. Alashankou Customs is a second-class customs office under the administration of the first-class Urumchi Customs (Urumchi is the capital of Xinjiang Uighur Autonomous Region), which governs about 10 small second-class customs offices, mostly along China's border with Kazakhstan, Kyrgyzstan and Tadzhikistan. There are some trade activities of China with Russia through this gateway although indirectly through the third country of Kazakhstan.

The timber imported from Russia via Kazakhstan through the Alashankou Customs and gateway is shown in Appendix 3-6. According to telephone consultation with an Urumchi Customs officer, over 95% of timber trade statistics listed in the appendix are for the gateway of Alashankou, similar to the situation of Manzhouli Customs.

4.2.7 Other Small Border Gateways in Heilongjiang Province

Besides the four above-mentioned direct and two indirect gateways, there are 10 other small border gateways and second-class customs offices where timber imports arrive from Russia, all in Heilongjiang Province. Trade statistics from 1995 to 1999 are shown in Appendices 3-7 to 3-15.

According to the annual imported volumes and species composition in 1999, we can classify these second-class gateways into three groups. Group 1: one gateway (Fuyuan)

that imported a relatively large volume of softwood logs from Russia only in 1999. Group 2: gateways (Tongjiang, Dongning, Hulin and Fujin) that imported more than 1,000 m³ from Russia per year from 1995 to 1999. Here the shares of hardwood logs imported were high. Group 3: Five gateways (Luobei, Raohe, Mishan, Jiayin and Xunke) that imported a very small volume of timber, less than 1,000 m³, from Russia in 1999. These gateways, except for Mishan, started to import timber from Russia after 1998. Xunke and Jiayin, located in the northern part of Heilongjiang, imported mostly softwood. Other gateways in this group have a high share of hardwood in log imports.

4.3. Timber Flow through Coastal Gateways

Besides the land border customs/gateways mentioned above including two indirect ones, some other gateways, especially in China's coastal areas, are importing timber from Russia, mostly by shipment and in small volumes.

Based on the information collected from first-class coastal customs offices, eight seaports imported logs or sawnwood from Russia in the period 1995 - 1999. The total volume through these coastal gateways was less than 100,000 m³ per year, ranging from 40,661 m³ to 80,364 m³. The growth of imports has been small and the changes between 1998 and 1999 were not as great as through land gateways. The share of sawnwood imports is also small (Table 9).

Dalian, Shanghai and Tianjin are the main coastal gateways for timber from Russia. In 1999 these three gateways accounted for 77% for all imported timber among coastal gateways. Until 1998 Tianjin was the top gateway with a share of 50% in 1995, 54% in 1996, 47% in 1997 and 46% in 1998. In 1999 Tianjin's amount dropped sharply to 5%, and Dalian and Shanghai got the top two ranks with a combined 72% share.

5. FINDINGS

Analytical interpretation of the data collected in this study produced the following seven findings.

1) Significant increase of Chinese timber imports from Russia: Russia is one of China's largest sources of timber. The volume of logs imported from Russia almost doubled each year recently from 357,788 m³ in 1995 to 4,304,946 m³ in 1999. Russia's share of China's total log imports also increased, from 13.9% in 1995 to 42.5% in 1999.

2) Favorable trade regulations and half tax policy for timber import: For all timber and timber products, the procedures and regulations for import and export trade with Russia are no different for such imports from other countries. Regulations are not strict for the import of raw logs, with the exception of import commodity inspections and other import certificates required for specific tree species. However, the timber import from Russia can enjoy half tax (both for import tariff and value added tax rate) policy for small amount trade with inland boarder countries, as Russia is China's most important

inland boarder. As such, the integrated tax rate of China's import from Russia is 6.5% for raw logs and 8.5 for sawnwood.

3) Three largest gateways for timber import from Russia: Manzhouli in China's Inner Mongolia Autonomous Region and Suifenhe in Heilongjiang Province are the two largest direct border gateways for China's timber imports from Russia. Erlianhot, also in Inner Mongolia Autonomous Region, is the third largest gateway, although timber flows indirectly from Russia by railway through the country of Mongolia. In 1999 Manzhouli accounted for about 40% of total timber imports from Russia, Suifenhe for about 30%, and Erlianhot for about 20%. All other customs offices or gateways, including the ten second-class customs offices/gateways in Heilongjiang Province, first-class coastal customs as well as all other customs offices, account for the remaining less than 10%.

4) The border gateway linked to Primorskiy in Russia has recently become a main route for hardwood raw log imports.

5) Ten small border gateways are in Heilongjiang Province: In Heilongjiang Province, besides Suifenhe and Heihe gateways, which are either large border gateways for Russian timber import or expected to grow, there are ten other small customs gateways all along the border: Xunke, Jiayin, Luobei, Fujin, Tongjiang, Fuyuan, Raohe, Hulin, Mishan and Dongning. The timber trade and probably all other trade activities in these small gateways are not very large due to the lack of railway connections.

6) Three other key border gateways to be monitored in the future: Heihe gateway in Heilongjiang Province will be one of the largest Russian timber import gateways in the future. A special Sino-Russia Timber Trade Market has been established there. Although imports here are not yet large, an increase is expected in the future. Hunchun is the only border gateway with Russia in Jilin Province. Alashankou in Xinjiang Province is a very important gateway of China with Kazakhstan and also for Russia and Europe since the Europe-Asia Railway passes this place. There are many indirect trade activities between China and Russia via the third country of Kazakhstan. However, Chinese timber imports from Russia through this indirect gateway are still not great in volume, partly due to not rich forest resources in the south of middle Russia.

7) Several coastal gateways exist for small timber trade: Along China's coastal areas, several first-class customs are reported to have timber imports from Russia by shipment. They are Dalian, Tianjin, Qingdao, Shanghai, Shantou, Shenzhen, Huangpu and Guangzhou. The volume of imports via these gateways is not yet large.

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Table 1. Customs/gateways for data collection

Border/Coast	Province	Class	Custom/Gateway
Inland Border	Inner Mongolia Autonomous Region	first	Manzhouli
	Xinjiang Uighur Autonomous Region	first	Huhehot Urumchi
	Heilongjiang	first second	Harbin Suifenhe, Xunkie, Jiayin, Luobei, Fujin, Tongjiang, Fuyuan, Raohe, Hulin, Mishan, Dongning
Coast	Jilin	second	Hunchun
	Liaoning	first	Dalian
	Tianjin	first	Tianjin
	Shandong	first	Qingdao
	Shanghai	first	Shanghai
	Fujian	first	Fuzhou
	Guandong	first	Huangpu, Guangzhou

Table 2. Changes of log imports from Russia to China, 1995-1999

Item	1995	1996	1997	1998	1999
Raw logs imported from Russia (m ³)	357,788	529,374	949,324	1,591,272	4,304,946
Total log imports (m ³)	2,582,601	3,185,483	4,470,666	4,823,042	10,135,683
% of Russian logs	13.9	16.6	21.2	33.0	42.5
Sawnwood imported from Russia (m ³)	17,635	10,613	11,341	12,518	95,253
Total sawnwood import (m ³)	2,908,400	2,629,300	3,721,700	3,268,800	
% of Russian sawnwood	0.6	0.9	0.3	0.4	

Table 3. Volume of timber imports from Russia in terms of species identified (Unit: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	357,788	529,374	949,324	1,591,272	4,304,946
Softwood *1	170,180	199,606	531,502	1,072,696	3,945,527
Oak			5,288	36,800	65,114
Beech			21	875	3,026
Camphorwood	132	200		719	
<i>Lauan</i>				2,853	
All other softwood				131	4,822
All other hardwood	187,476	329,568	412,513	477,198	286,457
Sawnwood	17,635	10,613	11,341	12,518	95,253
Soft sawnwood *1	16,336	5,024	6,763	9,588	75,749
Teak		10			
Oak			160	1,409	3,002
Beech				30	356
<i>Phoebe zhennan</i> , Camphorwood and rose Wood		68			
All other soft sawnwood			95		
All other hard sawnwood	1,299	5,511	4,323	1,491	16,146

*1: Mainly Larix and Mongolian Scotch pine

Table 4. Regulations for trade in China

Regulation related to trade	Note for timber trade
• Import / export license	Export license is required only to export logs and some of sawnwood with tariff item of 4406.9000. No import license is required to import any timber product.
• Import quota	No import quota is set to import any timber products
• Import registration or bid	Special import registration for ordinary goods is required only to import some of plywood with tariff items of 4412.1300, 4412.1400 and 4412.1900.
• Import and/or export commodity inspection	Import commodity inspection is required only when importing logs except for paulownia, sawnwood excluding teak, oak, beech and paulownia, veneer and plywood. Export commodity inspection is required only to export common plywood excluding other plywood.
• Other import certificates	Notification of passing for animal and plant quarantine is required when importing timber products except for wood charcoal and other sleepers.

**Table 5. Import tariffs, VAT rate and integrated tax rate for raw logs and sawnwood
(Unit: %)**

Category	Items	Preferential tariff	Ordinary tariff	VAT rate	Integrated tax rate
Logs	Processed coniferous	0	8	13	13
	Coniferous	0	8	13	13
	Oak	0	8	13	13
	Beech	0	8	13	13
	<i>Phoebe zhennan</i>	0	35	13	13
	Camphorwood	0	35	13	13
	Others	0	8	13	13
Sawnwood	Coniferous	0	14	17	17
	Oak	0	14	17	17
	Beech	0	14	17	17
	Others	0	14	17	17

Sources: Import and Export Trade Management Measures of the People's Republic of China, Ministry of Foreign Trade and Economic Cooperation and General Administration of Custom, 1999.

Note: "Others" means all species other than those identified previously in the same code category of 4 digits. China now is using the international customs commodity code system.

Table 6. Changes of total imported volume of raw logs and sawnwood from Russia through land and coastal gateways from 1995 to 1999 (Unit: m³)

Land / Coast	Products	1995	1996	1997	1998	1999
Land gateway	Logs	119,234	480,025	909,618	1,512,494	4,235,631
	(%)	(65)	(89)	(95)	(95)	(96)
	Sawnwood	13,194	7,577	10,065	12,464	95,645
	(%)	(7)	(1)	(1)	(1)	(2)
Coastal gateway	Logs	52,320	51177	39706	65905	77532
	(%)	(28)	(9)	(4)	(4)	(2)
	Sawnwood	117	3036	955	301	2832
	(%)	(0.1)	(0.6)	(0.1)	(0.0)	(0.1)
Total		184,865	541,815	960,344	1,591,164	4,411,640
	(%)	(100)	(100)	(100)	(100)	(100)

**Table 7. Changes of total imported volume of raw logs
from Russia through individual gateways from 1995 to 1999 (Unit: m³)**

Raw Logs						
Province	Customs/Gatewa	1995	1996	1997	1998	1999
Inner Mongolia Autonomous Region	Manzhouli	116,462	146,838	381,663	665,141	1,783,570
	Erlianhot	2,717	11,778	118,903	260,480	933,569
Xinjiang Uighur Autonomous Region	Urumchi	0	0	0	192	4,245
Jilin	Hunchun	55	610	0	1,404	11,012
Heilongjiang	Suifenhe	---	272,324	381,328	560,959	1,341,380
	Heihe	---	1,923	0	3,459	98,675
	Xunke				599	735
	Jiayin					341
	Luobei					705
	Fujin				1,610	2,373
	Tongjiang		17,050	13,567	10,293	25,713
	Fuyuan					6,568
	Raohe			630		152
	Hulin		17,209	4,747	2,017	1,632
	Mishan		4,135	267		216
	Dongning		8,158	8,513	5,798	16,485
Total		119,234	480,025	909,618	1,512,49	4,235,631

4

The figure in the parentheses is the imported amount through highway.

**Table 8. Changes of total imported volume of sawnwood
from Russia through individual gateways from 1995 to 1999 (Unit: m³)**

Sawnwood						
Province	Customs/Gate way	1995	1996	1997	1998	1999
Inner Mongolia Autonomous Region	Manzhouli	10,892	2,908	5,877	6,825	40,780
	Erlianhot	105	0	75	1,190	22,378
Xinjiang Uighur Autonomous Region	Urumchi	0	0	0	77	3,918
Jilin	Hunchun	2,197	16	0	0	10
Heilongjiang	Suifenhe	---	3,743	3,699	2,298	13,704
					136	3,178
	Heihe	---	668	208	530	7,639
	Tongjiang			174	230	79
	Raohe				700	
	Hulin			142		1,164
	Mishan				32	157
	Dongning		100		378	2,638
Total		13,194	7,577	10,065	12,464	95,645

Table 9. China's timber imports from Russia through coastal customs (by ship)(Units: m³)

Item/Customs	1995	1996	1997	1998	1999
Raw Logs					
Dalian	10,134	4,786	11,298	10,682	27,820
Tianjin	26,015	27,596	18,526	30,063	3,698
Qingdao	3,679				6,645
Shanghai	8,126	10,417	6,297	24,115	27,996
Fuzhou		4,930			
Shantou					5,321
Huangpu (Guangzhou)	4,366	2,583	40		6,052
Guangzhou		865	3,545	1,045	
Sawnwood					
Dalian			120	175	2,304
Tianjin		3,036	835	84	330
Qingdao	117				
Shanghai				30	141
Shenzhen					25
Huangpu (Guangzhou)					32
Guangzhou				12	

Note: (1) Huangpu Customs is located at Huangpu Port in Guangzhou, and it is one of the key coastal gateways of China's trade with the outside. A special first-class customs office has been established in this gateway. Guangzhou Customs is also first-class, and governs all other small second-class customs offices or gateways (ports) around the Guangzhou area.

(2) The table above lists only the general total volume of trade data, and does not specify tree species, as the total import volume is not large.

Appendix 1. China's timber imports from Russia after 1995

(Units: volume in m³ and value in US\$)

Code	Item (species)	1995		1996		1997		1998		1999	
		Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
4403	Logs	357,788	32,862,767	529,374	49,669,802	949,324	91,401,377	1,591,272	131,343,337	4,304,946	270,480,477
4403.1000	Chemically treated							131	9,152	4,822	651,513
4403.2000	Treated coniferous	170,180	13,605,859	199,606	13,079,524	531,502	35,491,320	1,072,696	64,708,837	3,945,527	228,993,615
4403.4100	<i>Lauan</i>							2,853	313,863		
4403.4990	Other tropical logs			5,071	279,655						
4403.9100	Oak					5,288	550,343	36,800	3,459,167	65,114	6,185,939
4403.9200	Beech					21	8,813	875	332,682	3,026	874,763
4403.9920	Camphorwood	132	9,284	200	12,017			719	22,798		
4403.9990	Others	187,476	19,247,624	324,497	36,298,606	412,513	55,350,901	477,198	62,496,838	286,457	33,774,647
4406, 4407 and 4409	Sawnwood	17,635	1,839,988	10,613	1,554,466	11,341	1,327,644	12,518	1,383,139	95,253	10,407,554
4407	Normal	17,230	1,799,536	10,613	1,554,466	11,187	1,304,664	12,054	1,337,455	82,285	9,185,508

	sawnwood										
4407.100 0	Coniferous	16,336	1,648,614	5,024	610,363	6,763	614,762	9,588	936,893	75,749	7,758,522
4407.291 0	Teak			10	957						
4407.910 0	Oak					160	29,104	1,409	217,384	3,002	588,697
4407.920 0	Beech							30	15,030	356	191,822
4407.991 0	<i>Phoebe zhenan</i> , camphorwood and rose wood			68	10,335						
4407.999 0	Others	894	150,922	5,511	932,811	4,264	660,798	1,027	168,148	3,178	646,467
4406	Sleepers	405	40,452			59	8,500	464	45,684	12,968	1,222,046
4406.100 0	Unsoaked	405	40,452					464	45,684	12,968	1,222,046
4406.900 0	Others					59	8,500				
4409	Partly processed					95	14,480				
4409.100 0	Coniferous					95	14,480				

Appendix 2. Timber species classification according to international customs code system

Logs		Sawnwood	
Coniferous	Broadleaf	Coniferous	Broadleaf
Softwood *1	<i>Lauan</i>	Soft sawnwood *1	South American hardwood
All other softwood	Teak Oak Beech <i>Phoebe zhennan</i> Camphorwood Rose wood Paulownia All other hardwood	All other soft sawnwood	<i>Lauan</i> Teak Oak Beech <i>Phoebe zhennan</i> , Camphorwood and rose wood Paulownia All other hard sawnwood

*1: Mainly Larix and Mongolian Scotch pine

Appendix 3. Statistics on China's border timber import from Russia

3-1. Manzhouli Customs (95% is for Manzhouli gateway) (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	116,462	146,838	381,663	665,141	1,783,570
Softwood *1	115,264	146,772	381,624	665,075	1,782,626
Beech					109
Camphorwood	132				
All other hardwood	1,066	66	39	66	835
Sawnwood	10,892	2,908	5,877	6,825	40,780
Soft sawnwood *1	10,496	2,908	5,818	6,591	31,958
Beech					91
All other hard sawnwood	396		59	234	8,731

*1: Mainly Larix and Mongolian Scotch pine

3-2. Suifenhe Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	272,324	381,328	560,959	1,341,380
				(542)	(8,260)
Softwood *1		4,947	3,338	114,260	1,014,726
				(542)	(7,591)
Oak			5,288	35,120	60,301
					(246)
Beech					2,292
All other hardwood		267,377	372,702	411,579	264,061
					(423)
Sawnwood	---	3,743	3,699	2,298	13,704
				(136)	(3,178)
Soft sawnwood *1		1,322	351	179	7,874
				(113)	(1,205)
Oak			160	1,202	2,264
					(1,672)
All other hard sawnwood		2,421	3,188	917	3,566
				(23)	(301)

*1: Mainly Larix and Mongolian Scotch pine

Note 1: The data for 1995 is damaged due to computer hardware problems in the headquarters of the first-class Harbin Custom which administers this second-class

custom/gateway.

Note 2: The figures in parentheses in Appendix 3-2 are the import volumes by highway.

3-3. Heihe Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	1,923	0	3,459	98,675
Softwood *1		1,923		3,459	97,930
All other hardwood					745
Sawnwood	---	668	208	530	7,639
Soft sawnwood *1		600	208	300	5,182
Beech					18
<i>Phoebe zhennan</i> , Camphorwood and rose Wood		68			
All other hard sawnwood				230	2,439

*1: Mainly Larix and Mongolian Scotch pine

Note: The data for 1995 is damaged due to computer hardware problems in the headquarters of the first-class Harbin Custom that administers this second-class custom/gateway.

3-4. Hunchun Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	55	610	0	1,404	11,012
Softwood *1					11,012
All other hardwood	55	610			
Sawnwood	2,197	16	0	0	10
Soft sawnwood *1	2,197				
All other hard sawnwood		16			10

*1: Mainly Larix and Mongolian Scotch pine

3-5. Erlianhot Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	2,717	11,778	118,903	260,480	933,569
Softwood *1	2,717	11,778	118,903	260,480	933,569
Sawnwood	105	0	75	1,190	22,378
Soft sawnwood *1	105		75	1,059	22,219
All other hard sawnwood				131	156

*1: Mainly Larix and Mongolian Scotch pine

3-6. Urumchi Customs (95% is for Alashankou gateway) (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	0	0	0	192	4,245
Softwood *1				192	3,360
All other hardwood					885
Sawnwood	0	0	0	77	3,918
Soft sawnwood *1				77	3,853
All other hard sawnwood					65

*1: Mainly Larix and Mongolian Scotch pine

3-7. Xunke Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	0	599	735
Softwood *1					735
Camphorwood				599	
Sawnwood	---	0	0	0	0

*1: Mainly Larix and Mongolian Scotch pine

3-8. Jiayin Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	0	0	341
Softwood *1					341
Sawnwood	---	0	0	0	0

*1: Mainly Larix and Mongolian Scotch pine

3-9. Luobei Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	0	0	705
Softwood *1					475
All other hardwood					230
Sawnwood	---	0	0	0	0

*1: Mainly Larix and Mongolian Scotch pine

3-10. Fujin Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	0	1,610	2,373
Softwood *1					2,373
All other hardwood				1,610	
Sawnwood	---	0	0	0	0

*1: Mainly Larix and Mongolian Scotch pine

3-11. Tongjiang Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	17,050	13,567	10,293	25,713
Softwood *1		17,050	13,302	3,924	22,982
All other hardwood			265	6,369	2,731
Sawnwood	---	0	174	230	79
Soft sawnwood *1				230	40
All other hard sawnwood			174		39

*1: Mainly Larix and Mongolian Scotch pine

3-12. Fuyuan Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	0	0	6,568
Softwood *1					6,568
Sawnwood	---	0	0	0	0

*1: Mainly Larix and Mongolian Scotch pine

3-13. Raohe Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	0	630	0	152
All other hardwood			630		152
Sawnwood	---	0	0	700	0
Soft sawnwood *1				700	

*1: Mainly Larix and Mongolian Scotch pine

3-14. Hulin Customs/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	17,209	4,747	2,017	1,632
Softwood *1					42
Oak					80
All other hardwood		17,209	4,747	2,017	1,510
Sawnwood	---	142	0	100	1,164
Soft sawnwood *1				74	593
Oak					142
All other hard sawnwood		142		26	429

*1: Mainly Larix and Mongolian Scotch pine

3-15. Mishan Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	4,135	267	0	216
Softwood *1					125
All other hardwood		4,135	267		91
Sawnwood	---	0	32	0	157
Soft sawnwood *1					138
All other hard sawnwood			32		19

*1: Mainly Larix and Mongolian Scotch pine

3-16. Dongning Custom s/gateway (Units: m³)

Item (species)	1995	1996	1997	1998	1999
Raw Logs	---	8,158	8,513	5,798	16,485
Softwood *1				1,448	11,438
Oak					803
All other hardwood		8,158	8,513	4,350	4,244
Sawnwood	---	100	0	378	2,638
Soft sawnwood *1		75		378	2,532
Teak		10			
Oak					17
All other hard sawnwood		15			89

*1: Mainly Larix and Mongolian Scotch pine

Lao Cypress Forests: Causes of Degradation and the Present State of Conservation in Lao P.D.R.

Masanobu Yamane^{*a} and Khampha Chanthirath^b

This article studies the main causes of degradation of Lao cypress forests and the present state of conservation efforts in Lao P.D.R., aiming to formulate effective conservation measures. This study is based on existing literature, reports, published statistics and supplementary interviews. The results are classified according to an analytical framework consisting of two explanatory models: a relative classification of immediate and underlying causes, and a subdivision of the primary causes into those domestic or foreign in origin. The strong impact of commercial logging and export to Japan and Taiwan has emerged as the main cause of degradation of Lao cypress forests.

Keywords: Lao cypress, Forest destruction, Underlying causes, Timber trade, and Conservation strategy.

1. Introduction

Japan today has approximately 25.15 million ha of forestland, which covers around 67% of the country. Roughly 41% of these forests are man-made. Most of the man-made forests consist of coniferous forests less than 45 years old; forests older than 80 years account for only 0.01% of the total forestland. Although forest resources in Japan are rather abundant nowadays, natural coniferous forests have been almost completely depleted because of the strong demand for and dependence on old growth products that is rooted in Japan's cultural background (Totman 1989). As a result, Japan has taken advantage of its economic power and has been continuously importing logs from virgin forests all over the world. Japan's timber trade has spurred international criticism that such importation seriously impacts precious forests in various corners of the world and has accelerated the deforestation or degradation of primary forests (Kuroda 1997). Japan's importation of Lao cypress is a typical target of such criticism, as is its import of Taiwanese cypress and of Tibetan cypress from Canada.

In Lao P.D.R., approximately 47% of the land is covered by forest. The share of timber products exported from Lao P.D.R. greatly exceeds that of electricity and coffee, thus making timber Laos' most important commodity in the international market (Tsuburaya 1995). Therefore, to ensure the sustainable development of its economy, Lao P.D.R. must ensure the sustainable use and export of its timber resources. Today, Lao cypress is the leading timber species exported to Japan from Lao P.D.R.. It is observed that the fluctuations in the Japanese timber market have a crucial influence over the resource management of Lao cypress forests (Kuroda 1997). An estimated 98% of

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primary forests in Lao P.D.R. have already been exploited, and the remaining forests are classified as “on the edge” of extinction and will soon be extinct if measures are not taken (Bryant et al. 1997). A conservation strategy for primary forests is urgently needed.

It is against this backdrop that we will examine the present state of Lao cypress forests and the causes of their degradation. We will focus on the linkages with the resource use in order to discuss possible conservation strategies.

2. Analytical framework

Many scholars have attempted to explain forest destruction¹ (e.g., Hirsch 1987; Brown and Pearce 1994; Bryant et al. 1997; FAO 1997; Kaimowitz and Angelsen 1998; Verolme and Moussa 1999). Some studies have focused on the direct causes of forest destruction from a structural viewpoint, and others have tried to identify the mutual relationships underlying these ultimate causes (e.g., Bryant et al. 1997; Verolme and Moussa 1999). Other studies have given attention to actors who played crucial roles in forest destruction.

Based on past relevant studies, this study employed two explanatory models in order to understand the structure of proximate causes, underlying causes and leading actors.

The first explanatory model is the relative classification of causes into categories of proximate/immediate and underlying/ultimate causes. The following approach was adopted to sort the various causes of forest destruction. Immediate, or direct, methods of clearing forests such as burning or cutting, or depleting of specific tree species, were classified as proximate causes (Hirsch 1999). We focused on commercial export logging as a major proximate cause of forest destruction. In addition we examined the contribution of slash-and-burn agriculture² by upland inhabitants to forest destruction. A structural approach was adopted to identify underlying/ultimate causes of forest destruction (Hirsch 1999). This approach focuses more on contextual background factors and requires an understanding of the societal, economic, political and ecological contexts in which deforestation occurs (Hirsch 1999).

The second model seeks to explain forest destruction by classifying causes as domestic or foreign in origin. Various actors have direct links to the destruction of forests, such as the slash and burn cultivator, the landless farmer, the logging company, the government agency and the plantation owner (e.g., Hirsch 1987; Brown and Pearce 1994; Bryant et al. 1997; Verolme and Moussa 1999). In many cases, timber extraction has been directed at promoting foreign exchanges of tropical forest products. Thus, classifying causes by origin can aid in determining the influence of a resource's use in consumer countries on the resource's status in its production country. Thus, we subdivided causes into two categories: those that were influenced by domestic agents/perpetrators (domestic causes) and those that were influenced by foreign agents/perpetrators (foreign causes). As materials for this study

1 In the article “forest destruction” and “the destruction of forests” include deforestation as well as degradation of the forests.

2 Inoue (2000) distinguishes “slash-and-burn agriculture” from “swidden agriculture” in shifting cultivation. Swidden agriculture can be regarded as one of the most important local land-use system in the tropics. We defined the slash-and-burn agriculture as a nontraditional and unsustainable shifting cultivation method practiced by newcomers.

we mainly used secondary data such as literature, reports and published statistics, supplemented with relevant personal interviews.

3. Present state of Lao cypress forests

3.1. May Long Leng or Lao cypress

May Long Leng is a generic term for some conifer species that occur specifically in the high mountains of the northeastern part of Lao P.D.R. Lao cypress is not an actual plant name but, rather, a brand name given for May Long Leng by a Japanese timber importer (Tsuburaya 1996). Tsuburaya (1996) had believed that the Lao cypress was closely related to the species *Folienia hodginsii* or *Fokienia kwaii*. But some experts have classified the Lao cypress species under the sub-species of *Chamaecyparis obtusa*.

Table 1. List of the tree species in Lao cypress forest (Source: NOFIP 1992).

No.	Local name	Scientific name	English name	Remark
1	May Long Leng	<i>Chamaecyparis obtusa</i>	False cypress	Occurs in clusters
2	May Ko	<i>Quercus spp., Pasania spp., Castanopsis spp.</i>	Oak	Distributed throughout the whole area.
3	May Hing Hom	<i>Cunninghamia lanceolata</i>	Pine species	Occurs in clusters
4	May Sachouang	<i>Cinamomum iners</i>	NA	
5	May Mouath	<i>Aporosa microcalyx</i>	NA	
6	May My	<i>Schima wallichii</i>	NA	
7	May Lang Dam	<i>Diospiros spp.</i>	NA	
8	May Khom Phath	<i>Biscofia trifolia</i>	NA	
9	May San Dong	<i>Dillinia spp.</i>	NA	
10	May Phao	<i>Engelhardtia clisolepsis</i>	NA	
11	May Xai	<i>Mangletia spp.</i>	NA	
12	May Leuat Nok	<i>Knema oblongifolia</i>	NA	
13	May Hing	<i>Keteleeria davidiana</i>	NA	
14	May Pek Khon Kay	<i>Podocarpus imbricatus</i>	Pine species	
15	May Tao Khaen	<i>Podocarpus spp.</i>	Pine species	
16	Other		Pine species	

Lao cypress usually grows in clusters of 10 to 50 trees. In general, a Lao cypress forest is not homogeneous. The natural Lao cypress forest is classified as the “upper evergreen mixed forest”, which is dispersed with many other species of both broadleaf and coniferous trees (Table 1). Around one hundred of the species, however, have not yet been botanically classified. Although there is no stand-age research available for the Lao cypress forests, it is known that most of the trees are very old, with an average diameter of more than 90 cm and average canopy density of 70%.

3.2. Locations and the profile

There are fourteen habitats for Lao cypress in the *Houa Phanh* Province, the *Xiang Khoiang* Province, the *Xay Som Boun* Special Zone, the *Bolikhaxay* Province and the *Khammouane* Province (Figure 1). The exact number of the forests, however, is not known yet due to insufficient information from the provincial forestry offices. Most of them are located at elevations ranging from 1,000 to 2,000 m above sea level. Each habitat is separate, and the clusters of Lao cypress forests occur within a limited range. The forests are mainly located on dry sites such as upland areas and steep slopes, and grow together with broadleaf trees (Tsuburaya 1996).

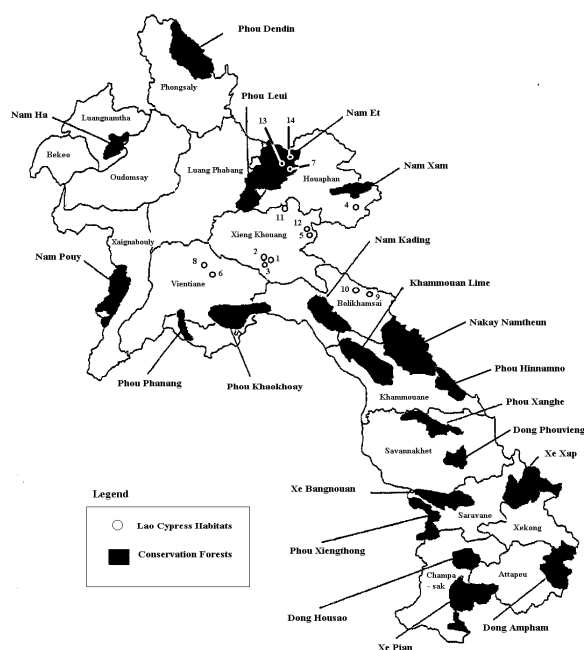


Figure 1. Identified Lao cypress forest habitats and location of conservation forests in Lao P.D.R. (Note: The number of Lao cypress habitats is consistent with Table 2).

The Lao cypress is not abundant. The size of the habitats varies from 2,300 ha to 37,900 ha, and the total area is merely 1.3% of the forestland in Lao P.D.R. The volume of stock per habitat varies from 1,200 m³ to 163,000 m³ (Table 2). The unit volume per habitat also varies from 0.1 m³/ha to 16.7 m³/ha, suggesting that the growth of Lao cypress is scattered within these ranges. The most abundant habitat with the largest area and the highest stock volume is located near the *Pou Bias* (Mt. Bias), the highest mountain in Lao P.D.R. (2,819 m above sea level). *Nam Thong* and *Phou Sam Soum* in the Xiang Khoiang Province are next most abundant. Habitats with high units stocks of more than 10 m³ are Phou Sam Soum and Hou Len Le. Many of these habitats, however, have been or are now being logged, and the stock volumes have dwindled to less than 5 m³.

Table 2. Location of Lao cypress forests in Lao P.D.R.

(Note: H.P.=Houa Phan Province; X.K.=Xieng Khoiang Province; X.S.B.=Xay Som Boun Special zone; B.L.K.X.=Bolikhamsay Province and K.M.=Khammouane Province.)

No.	Location	Area (ha)	Volume (m ³)	Volume / Area	Survey years	Remarks
1	Phou Sam Soum (X.K.)	6,700	92,700	13.8	1991-1992	Exploited
2	Phou Long Math (X.K.)	2,800	12,900	4.6	1992-1993	Not yet exploited
3	Phou Len Le (X.L.)	2,300	38,500	16.7	1992-1993	Not yet exploited
4	Phou Xang Kom (H.P.)	5,000	8,700	1.7	1993-1994	Exploited
5	Nam Thong (X.K.)	30,100	80,000	2.7	1992-1993	Exploited
6	Phou Bia (X.S.B.)	37,900	163,000	4.3	1991-1992	Under exploitation
7	Phou Leuy (H.P.)		4,255		1990-1991	Exploited
8	Phou Pha Deang (X.S.B.)		1,200		1992-1993	Not yet exploited
9	Nam Xoth (B.L.K.X.-K.M.)		8,000		1992-1993	Somewhat exploited
10	Phou Ong Hon (B.L.K.X.)	2,500	3,145	1.3	1991-1992	Exploited
11	Gnoth Gneuang (H.P. & X.K.)	10,000	20,000	2.0	1998-1999	Surveyed
12	Bouam Vay (X.K.)	4,000	10,000	2.5	1998-1999	Surveyed
13	Phou Liou (H.P.)	6,000	13,000	2.2	1998-1999	Surveyed
14	Phou Louang (H.P.)	10,000	1,000	0.1	1998-1999	Surveyed

4. Degradation of Lao cypress forests

4.1. Commercial logging

Local people have been utilizing this species as material for coffins, roofs and walls of traditional houses, and for water containers. It was not harvested as export logs until the 1980s. In the 1970s, the name of *May Long Leng*, or Lao cypress, was not on the list of tree species for export, while the list contained various other species such as *May Puay* (*Lagestroemia spp.*), *May Dou* (*Pterocarpus macrocarpus*), *May Bak* (*Anisoptera cochinchinensis*) and *May Hao* (*Tarrietia cochinchinensis*) (USAID 1970). The average unit price for round logs of these species was between 20 to 70 U.S.\$, which is significantly lower than that of Lao cypress in general.

In 1991, a timber trader began to log commercially and export Lao cypress to Japan after the logging of Taiwanese cypress was banned due to its depletion. Until then, the Taiwanese cypress had been meeting the strong demand in Japan for a substitute of the “old” and “precious” natural Japanese cypress. Although precise statistics are not available for the annual production of Lao cypress, approximately 7,500 m³ were exploited in 1992; 7,500 m³ in 1993 and 3,700 m³ in 1994 (Tsuburaya 1996; Chanthirath 1999).

An official notice in 1994 determined that the *Bolisat Phanthana Khet Phoudoi* (BPKP), the mountainous regional development public corporation, was to handle the logging concessions of Lao cypress forests. BPKP is one of the three public regional development corporations that exclusively possessed logging concessions in Lao P.D.R. and the privilege to control logging in the middle part of the country. By the time the official notice was enforced, however, four Taiwanese companies and one Chinese company had already obtained concessions and exploited the Lao cypress forests in various places (Table 3). Today, the Koang Keomany Company has discontinued its operations due to financial and marketing problems. Five other companies are still continuing their activities.

No.	Joint venture company name	Year established	Location	Remark
1	BIG-LAO (Lao-Taiwan)	1992	Phou Sam Soum	Xieng Khouang Province
2	Chang Linh Lumber (Taiwan)	1993	Nam Thong	Xieng Khouang Province
3	Ching Chang Lumber (Taiwan)	1993	Phou Bia	Special Zone
4	Yu Nan (China)	1993	Phou Xang Kom	Houa Phanh Province
5	B.P.K.P. (State company)	-	Phou Ong Hon, Nam Xoth	Bolikhamxay Province
6	Kouang Keomany (Lao-Taiwan)	1992	Phou Leuy	Houa Phanh Province

Table 3. List of Lao cypress logging companies in Lao P.D.R. (based on the hearing survey at the Department of Forestry, Ministry of Agriculture and Forestry).

The government of Lao P.D.R. is trying to ensure the proper trade between a concessionaire and a buyer of Lao cypress by means of checks and investigation by the Overseas Investment Governmental Committee. The Ministry of Agriculture and Forestry also oversees the provincial administration to ensure that logging is practiced in a legal manner (Tsuburaya 1996). Lao cypress extraction is solely for export purposes, and most of the Lao cypress sales are rendered directly to the national revenue. However, because the Lao cypress forests occur in remote, mountainous areas, logging is considerably difficult to monitor constantly and to control adequately. Thus the Lao cypress is subject to unregulated cutting or destructive actions by local people or illegal loggers. Every year, Lao cypress is extracted as materials for housing and construction (such as for roofing and panels), for coffins, etc. The depletion of Lao cypress growing on the southern slope is considered to originate from such

activities conducted by local inhabitants for over the past 200 years. However, the impact of these local practices seems rather small compared to more recent illegal extraction for commercial export. Illegally extracted Lao cypress is exported either directly or through the hands of middlemen. Unfortunately, detailed and reliable data on the volume and the routes of such trade is not available.

Regulations allow the cutting down of trees with DBH (diameter at breast height) of more than 95 cm, and selective logging is applied in the felling of Lao cypress. As mentioned earlier, Lao cypress forests are mixed stands with a low percentage of Lao cypress. In theory, commercial logging should not cause deforestation. However, unsustainable methods of extraction are also used to log Lao cypress. According to an interview with a Japanese importer, small Lao cypress with a DBH of less than 60 cm are usually not harvested, in consideration of forest regeneration. However, it was said that Taiwanese companies for the most part tend to extract all cypress in a logging site regardless of size. Skyline yarding is the main method of extraction, but helicopter yarding is employed on occasion. Further, however, semi-ground yarding is also common, because of the heavy weight of the logs and the cost performance of the logging operation. Practice of this illegal method causes serious damage to the forest floor's vegetation.

After logging, the rehabilitation of the logged areas or the transportation path is not adequately enforced. Regeneration efforts such as tree planting are not carried out intensively. There seem to be three main reasons: high costs of afforestation, limited budgets, and lack of forestry technicians able to train others about the cultivation of seedlings. As mentioned earlier, the Lao cypress usually grows mixed with natural broadleaf tree species. For such a species, natural regeneration is difficult because the seedlings often do not receive sufficient sunlight to grow. The only effective way to reestablish the cypress forest is through the artificial cultivation and planting of seedlings. However, only a few attempts have been made so far to develop techniques for the silviculture and nursery of Lao cypress. Even if the seedlings or the young plants were available, the cypress forest usually grows at a high altitude, on a rocky mountain or a steep slope. Under such geographical conditions, artificial tree planting is quite difficult and costly.

4.2. Export of the logs

In Japan, timber from Lao cypress and Taiwanese cypress is highly appreciated as a substitute for native Japanese cypress timber because it is dense and of good quality. Lao cypress and Taiwanese cypress wood is used as building materials for traditional architectural structures such as Shinto shrines, Buddhist temples and others. The average unit price of a round log is approximately 2,500 to 5,000 U.S./m³, and that of processed wood is roughly 5,000 to 10,000 U.S./m³. The demand for Lao cypress has increased especially since the logging of Taiwanese cypress was banned in 1990. In Lao P.D.R., the price of logs varies greatly depending on the quality and the size/diameter of the logs. The unit price of Lao cypress, however, is extremely high when compared with other tree species. Lao cypress was once traded at more than 2,000 U.S./m³, although recent unit prices are usually between 900 and 1,500 U.S./m³ with an average of 1,000 U.S./m³ (Tsuburaya 1996). Royalties are imposed across the board on exported Lao cypress. The required royalty is 960 U.S./m³ for round logs and 350 U.S./m³ for processed wood (Tsuburaya 1996)

Table 4. Trade statistics of round logs from Lao P.D.R. to Japan. The volume (left)
 in m³ and value (right) in U.S.\$.

Year	Coniferous						Not coniferous					
	Pine		Cypress		Other		Teak		Padock		Other	
	vol. (m ³)	value (U.S.\$)	vol. (m ³)	value (U.S.\$)	vol. (m ³)	value (U.S.\$)	vol. (m ³)	value (U.S.\$)	vol. (m ³)	value (U.S.\$)	vol. (m ³)	value (U.S.\$)
1989	12961	543205			224	6387					1524	454467
1990	7516	396060									2517	162260
1991	4973	221126	37	9065							485	4217
1992	4294	194033	608	182758	2830	660136					223	7539
1993	9571	365458	558	108096							359	12941
1994	32967	863037	2886	629476	10681	336135					1343	23164
1995	25611	700949	1923	432264	7952	201513					805	17778
1996	14164	392122	3349	589357			9	1130	46	5283	291	9825
1997	4055	123627	1091	163129	720	20200	16	5413	211	20619	379	12736
1998	346	22567	2396	734119	5976	176360			283	37434	325	0

Prior to 1992, almost all of the logged Lao cypress was consumed locally and was not exported to foreign countries. However, since 1992, almost all of the logged Lao cypress has been exported to either Japan or Taiwan. An estimated 90 to 95% of the exported Lao cypress is eventually consumed in Japan (Tsuburaya 1996). High quality round logs are sent directly to Japan (Tsuburaya 1996). The rest are first exported to Taiwan for processing and then re-exported to Japan. There are two routes for international shipping. The logs from the Houa Phan, Xieng Khouang and Bolikhamxay provinces are transported to and shipped from either Port Vinh or Port Haiphong in Vietnam. The logs from Phou Bia (Mt. Bia) near Thailand are transported by land to Bangkok through Vientiane, and shipped from there. According to the 1988 to 1989 statistics on the round log trade between Lao P.D.R. and Japan (JMOF 1989), the export of cypress logs from Lao P.D.R. to Japan started in 1991 immediately after the logging ban on Taiwanese cypress was enacted (Table 4). Japan's import of Taiwanese cypress has been decreasing since 1989, with the total import of Taiwanese cypress in 1998 only one-seventh of what it was in 1989. Although the Japan's import of Lao cypress logs was merely 37 m³ in 1991, it has drastically increased since 1994, when Japan's import of Lao cypress first exceeded that of Taiwanese cypress. The fluctuation in the total amount of imported Lao cypress logs from 1994 to 1998 was between 1,091 and 3,349 m³, its average being 2,431 m³ (Table 4). From 1994 to 1998, the average annual export of Lao cypress logs to Japan was approximately 40% of the average total volume production of cypress in Laotian forests between 1992 and 1994. Imports of Lao cypress logs from 1994 to 1998 were estimated at approximately 14% of the total round log imports from Lao P.D.R. to Japan during the same period. In terms of sales, the same imports were equivalent to 684 million JPY, and the share in value from total imports was more than 70%. This means that the unit price of a Lao cypress round log is considerably higher than logs coming from other types of trees (227,000 JPY/m³ = approximately 1,900 U.S.\$/m³ on average).

Table 5. Trade statistics of round logs exported from Lao P.D.R. to Taiwan.The volume (left) in m³ and value (right) in N.T.1000 \$.

Year	Chamaecypris spp.		Pinus spp.		Other coniferous species		Other non-coniferous species	
	vol. (m ³)	value (N.T. 1000 \$)	vol. (m ³)	value (N.T. 1000 \$)	vol. (m ³)	value (N.T. 1000 \$)	vol. (m ³)	value (N.T. 1000 \$)
1994					3795	27839		
1995	3113	131081	27	260	2053	59865	6607	12963
1996	1772	103836	850	2766			4157	75370
1997	3042	140763			404	12956	4819	88627
1998	1374	38325			2790	69141	1269	39541

Based on trade statistics from Taiwan for 1994 to 1998, the annual import of round logs of *Chamaecypris* spp. from Lao P.D.R. to Taiwan was between 1,374 m³ (in 1998) and 3,113 m³ (in 1995), with the average being 2,325 m³ (Table 5). The share is less than 30% of the annual total round log imports from Lao P.D.R. The average value for annual round log imports from Lao P.D.R. was equivalent to 410 million JPY, varying from 150 million JPY in 1998 to 560 million JPY in 1995. The average monetary share for Lao cypress was 51%, ranging from 26% to 64%. As for the Lao cypress round log exports to Japan, the unit price of a log is between 112,000 JPY/m³ (in 1998) and 230,000 JPY/m³ (in 1996), with the average being 174,000 JPY/m³.

4.3. *Slash-and-burn agriculture*

It is often stated that the two main causes of deforestation in Lao P.D.R. are slash-and-burn agriculture and forest fires. Experts have estimated that these two factors are responsible for more than 80% of the total deforestation (Suzuki 1993). A remote sensing survey in 1988 has shown a low percentage of forest coverage in the northern part of the country, and this fact is considered proof that slash-and-burn agriculture is a key factor in the deforestation of Lao P.D.R. (Inoue 1994). This inference may be applicable to this analysis of destruction of the Lao cypress forests.

Although exact details have not been confirmed, more than 91,000 households (around 503,000 people) practice shifting cultivation within the Lao cypress habitats (NOFIP 1992). Generally speaking, the upper altitude limit for slash-and-burn agriculture is between 800 and 1000 m due to the limitation of natural conditions. As mentioned earlier, the habitats of Lao cypress forests are located at rather high altitudes, ranging from 1000 to 2000 m in elevation. Consequently, the activities of slash-and-burn agriculture are limited mostly to the lower part of the habitats.

Nearly half of the area is believed to be degraded due to the slash-and-burn agricultural practices of the upland people, particularly the *Hmong* ethnic group (*Lao sung*), who live in or around the Lao cypress forests (NOFIP 1992). The *Hmong* dwell on land of rather high altitude, where the soil is generally less fertile and the slopes are very steep. There is no arable land available for permanent agriculture. As a result, they rely on shifting cultivation to make a living. The most common crops are maize and poppy. Upland rice is cultivated at lower altitudes where temperatures are higher. Maize and poppy are cultivated together as inter-crops, requiring significant amounts of minerals from the soil. Pulses are planted to improve the soil fertility. However, the *Hmong* emphasize high-yield, short-term agricultural production and do not pay much attention to the sustainability of vegetation and the stability of land. The steep slopes are often cleared so much that there are almost no trees left. Fires are not

carefully tended and frequently get out of control. Usually, slash-and-burn cultivation is practiced with no intention for reuse after the fallow period; that is, cultivation continues until the land is totally depleted of nutrients. Then the area is abandoned. Because the Lao cypress forests are located at rather high altitudes with steep slopes, and because the forestland is vulnerable to erosion, the abandoned land is subject to soil erosion in the rainy season, and turns into barren land or savanna with some species of grass dominating the area. Once the land is deteriorated, natural rehabilitation and soil regeneration is difficult, or impossible.

The details of the relationship between commercial logging and slash-and-burn agriculture by local inhabitants are uncertain because of the lack of available studies. According to an interview with a Japanese timber exporter, slash-and-burn agriculture is not generally conducted just after commercial logging of Lao cypress because broadleaf trees still remain at the logging site and the site is not suitable for agriculture. However, commercial logging might be used to provide people access to new land and, in turn, trigger new slash-and-burn activities, as is the mechanism of deforestation in many tropical forests, especially in lowlands or accessible locations.

The Lao government places a high priority on the reduction/stabilization of shifting cultivation in the country in order to protect its natural resources and environment. Shifting cultivation with swidden agriculture has long been practiced as a sustainable system of agriculture in upland areas of the country. However, the government regards this method as no longer sustainable as the increasing population exerts greater pressure on the land and its resources, continuously expanding areas required for slash-and-burn agriculture, and shortening the fallow period. Therefore, the government has started a national program that includes the "reduction of shifting cultivation". They have introduced several countermeasures such as (i) allocation of land to local peoples, (ii) classification of agricultural and forest land, (iii) local peoples' participatory forest management and (iv) improvement of the productivity of upland agricultural land. As a result of such new policies, by 1996 to 1997 19,300 households have given up shifting cultivation. This outcome, however, is not yet sufficient, and the government has to realize that it must provide more extensive services and financial support to the land users in order to implement fully these programs.

5. Current state of Lao cypress conservation

To date, the government of Lao P.D.R. has established and declared 20 National Biodiversity Conservation Areas (NBCA), covering nearly 30,000 km² or 12.5% of the total land area of the country (Table 6). In addition, large areas are designated as Protection or Conservation Forest at provincial and district levels. In total, these classes of forest cover 8 million ha or 76% of the perceived forest estate. It is a large commitment by any standard.

Table 6. Locations of National Biodiversity Conservation Areas.

No.	Name of NBCA	Area (ha)	Province/location	Remarks
1	Phou Deandeen	222,000	Phongsaly	
2	Phou Leui	150,000	Houaphanh	Including Lao cypress locations
3	Nam Et	170,000	Houaphanh	Including Lao cypress locations
4	Nam Sam	70,000	Houaphanh	Including Lao cypress locations
5	Nam Ha	69,000	Luangnamtha	
6	Nam Pui	191,200	Xayabury	
7	Phou Khao Khuay	200,000	Vientiane-Borikhamxay	
8	Phou Phanang	70	Vientiane municipality	
9	Nam Kading	169,000	Borikhamxay	
10	Nakai-Nam Theun	353,200	Khammouane	Including Lao cypress locations
11	Phou Hinponn	150,000	Khammouane	
12	Hin Namno	82,000	Khammouane	
13	Phou Sanghe	109,900	Savannakhet	
14	Se Bang Nouane	150	Savannakhet-Saravane	
15	Phou Xieng Thong	120,000	Saravane	
16	Dong Houa Sao	1120,000	Champasack	
17	Sepiane	240,000	Champasack-Attopeu	
18	Dong Ampham	200,000	Attopeu	
19	Se Sap	133,500	Saravane	
20	Dong Phouvieng	53,000	Savannakhet	
Total		3,012,800		

In 1996 the National Assembly passed the Forestry Law, which provides a comprehensive policy framework for all aspects of forestry. It includes a basis for zoning NBCAs into “Strictly Protected” areas and “Controlled Use” zones. Regulations are currently being drafted to provide necessary directives for the management of wildlife, habitats and protected areas.

At the international level, the government has ratified the Convention on Biological Diversity and signed the World Heritage Convention, although it is not yet a party to the Convention on International Trade in Endangered Species. At a national level, in order to expedite the implementation of the “Environmental Action Plan” through cross-sectoral co-ordination (STENO 1994), a new authority—the Science, Technology and Environment Organization (STENO)—was established in 1993 under the Prime Minister’s Office (STENO 1993). Moreover, several donor-funded projects are trying to promote an integrated conservation and development of the protected areas as well as the watershed areas (Kingsada 1998).

The establishment of the protection area, along with the above-mentioned ministerial ordinance on commercial logging in 1994, is the sole framework for the conservation of Lao cypress forests so far. Officially, NBCA oversees more than 25% of the total area of Lao cypress forests (Figure 1). In theory, all cypress forests within the jurisdiction of the NBCA will be protected. In reality, due to an insufficient budget and the lack of a solid management planning, NBCA cannot effectively carry out its mission of protection. A plan for the sustainable management of Lao cypress in non-protected areas has not been drafted yet. In 1996, the Lao government made a request to the Japanese government through the embassy of Japan in Lao P.D.R. to establish a development study focused on Lao cypress forests that would enlist experts from Japan. The proposed aim of the project was to clarify some basic facts required for the scientific management of the Lao cypress, such as the preferred location, the abundance/conditions of the Lao cypress resources and the process of regeneration (Tsuburaya 1996). As of 1999, however, the project has not yet materialized.

As mentioned earlier, the Lao cypress forests are located in the mountainous area of northern Lao P.D.R., and the total area of its identified habitats accounts for only 1.3% of the total forestland in the country. Most of the Lao

cypress forests are not designated as Protection or Conservation Forests. Further, protection is not very effective even in the protected areas. The exploitation of the Lao cypress has undoubtedly been aggravated in recent years, and several Lao cypress habitats are on the verge of complete depletion. If Lao cypress logging is conducted at the same pace as it was from 1992 to 1994, approximately 1,340 ha or 1.14% of the known Lao cypress forests will be degraded or deforested per year. If no efforts are made to check this forest destruction, the Lao cypress is likely to be extinct in less than 100 years. Urgent efforts to develop feasible and effective strategies are required to ensure a sustainable use of the Lao cypress.

6. Discussion of causes

The proximate causes studied in this article can be categorized into either the “domestic proximate causes” or the “foreign proximate causes”.

Commercial logging. Proximate causes such as “commercial logging” and “export of the logs” are categorized as “foreign proximate causes”. This is because at the root of these activities lies an underlying cause of foreign origin: the high evaluation and strong demand for the Lao cypress in Japan and Taiwan. On average, 75% of the total Lao cypress extracted from 1992 to 1994 was exported to Japan and Taiwan. Some experts believe that almost all of the exported timber from Lao P.D.R. is being consumed in Japan (Tsuburaya 1996). These facts imply that Japan and Taiwan are responsible for the destruction of Lao cypress forests in Lao P.D.R. The monetary shares of round log Lao cypress exports to Japan and Taiwan account for more than 50% of total exports from Lao P.D.R., despite their small share of timber export volume. This indicates the strong demand for and high appreciation of Lao cypress in the importing countries. In turn, the high profit and steady demand in the importing countries enhance the economic incentives in Lao P.D.R. to extract and export the Lao cypress, increasing the pressures of development and raising the domestic market prices. As a result, Lao cypress will be extracted even in the upper reaches of Lao P.D.R. because the high domestic market prices will compensate for the high harvesting costs. This vicious cycle could continue until the Lao cypress resources are totally exhausted. With respect to other natural resources, this cycle, with its many international links, has been compared to a chain around the environment. In some cases the concerned material is imported across the board by many different countries. In other cases the demand itself is the product of a particular culture, such as Japan’s demand for Lao cypress, which arises from its unique cultural roots and its deep-seated demand for special wooden buildings. When consumers in an importer country view a material as indispensable and no domestic substitute is available, countermeasures such as trade regulations and tariff barriers may not function effectively, for these consumers will purchase the material however high the cost. An export ban in an exporter country may only shift the site of exploitation to another country, just as the logging ban on Taiwanese cypress generated the Japanese demand for Lao cypress. When no substitutes are available anywhere, a ban on exports will only trigger the sudden increase of illegal exploitation and trade. Introduction of certification systems and eco-labeling to ensure a sustainable use of resources would be more feasible than these measures. In any case, efforts by the importer country to reduce consumption through efficient and/or repetitive use are essential. As a basis for such actions, consumers in importer countries must be informed about the conservation status of Lao cypress forests. Thus, elements of environmental education aimed at public awareness should be included in this effort. The importing countries

would also have their own benefits to reap from conservation efforts, because the extinction of the Lao cypress would be an inconvenient result for its consumers.

Unregulated logging. The underlying cause of “unregulated logging” appears to be foreign because exportation to countries where demand is strong and profits are high is the most likely motivation for illegal logging. However, it is necessary to conduct further investigation in this area.

Unsustainable methods of tree cutting. Methods of cutting Lao cypress are categorized as “domestic”, because the relevant actors are governmental or private companies in Lao P.D.R. In theory, the Forestry Law has several clauses to check overcutting, such as Article 8 regarding “Obligations in the Protection and Conservation of Forest and Forest Land”, Article 25 on the “Harvesting of Timber and Other Forest Products” and Article 35 on “Promoting the Rehabilitation of Reed Forests”. However, these clauses are not effectively implemented for a number of reasons. Neither reliable guidance for its implementation nor rules for sustainable harvesting have been developed so far, although these need to be provided urgently. For example, Tsuburaya (1996) highlights the necessity of scientific research for identifying the annual maximum amount of trees that can be logged without damaging forest sustainability and for developing sustainable harvesting systems and regeneration techniques, including reforestation. However, Lao P.D.R. does not have the domestic financial and human resources to conduct such research and develop such technologies; external assistance from donor countries may be necessary. Pursuit of international cooperation in the conservation of Lao cypress may be critical to overcoming these funding constraints. At the same time, the insufficient institutional infrastructure can also be regarded as an underlying cause of ineffective implementation of legal instruments. In this regard as well, support and assistance for the administrative organizations appear to be essential.

Slash-and-burn agriculture. The practice of “slash-and-burn agriculture” is categorized as a “domestic proximate cause”, for the actors concerned are mainly the local inhabitants. This cause certainly plays a certain role in the deforestation of the forests, particularly in the accessible or lower part of the Lao cypress forests. Since the 1950s, shifting cultivation in the mountainous areas has transformed from sustainable to unsustainable, brought about by various changes in social³, political⁴ and economic⁵ aspects originating from the government (Suzuki 1993; Inoue 1994; Namura and Inoue 1998). Thus countermeasures to check the expansion of unsustainable slash-and-burn agriculture should be discussed within these contexts. Of all the possible causes for the spread of this agricultural method, the land-use classification policy aimed at the reduction of shifting cultivation appears to be the most significant. Due to its unrealistic limitations on forest use by local inhabitants, it has created a great disparity between the land-use rights determined by the law and the reality of the destructive land-use practices by the local inhabitants (Namura and Inoue 1998). As a result, quite contrary to its original intention, this policy has exacerbated deforestation both in the commercial and the protection/conservation forests.

3 An example of such social changes are the strong demands for new cultivation areas by newcomers who migrated to the mountainous areas in 1960s and 1970s.

4 Examples of political changes include the new government policies after the revolution in 1975-1985, such as the implementation of land reform and the establishment of a new labor organization (Inoue 1994).

5 An example of economic changes is the new economic mechanism started in 1986.

The following two strategic approaches proposed by Namura and Inoue (1998) seem to be worth consideration as feasible solutions. One is the introduction of rational agro-forestry systems, including swidden agriculture, along with re-classification of the land during a transition period. Another is the introduction of a law or rule allowing land allocation to be carried out in such a way that the present practices and use of forest resources by the local people would be left intact. Some difficulties are expected for the first approach, because it requires a reexamination of the land-use classification policy itself. The second approach appears more pragmatic, and its introduction can be legally founded on Article 30 of the Forestry Law, which provides that the “Customary Use of Forest and Forest land” should be respected.

This analysis has demonstrated that the degradation of Lao cypress forests has various proximate and underlying causes of both domestic and foreign origin. However, causes of foreign origin seem to be more significant than causes of domestic origin. The strong demand and consumption of Lao cypress in Japan appear to act as the major ultimate causes of the degradation of Lao cypress forests. Thus, it can be said that the fate of the Lao cypress forests lies in the hands of Japanese consumers.

In conclusion, domestic actors should use three strategic approaches to address the domestic causes of forest degradation:

- (1) Development of a law or rule that allows the land-use allocation policy to be implemented without hindering the local inhabitants from their customary use of the forest resources.
- (2) Preparation of a guide for the implementation of related laws and/or introduction of a rule to ensure the sustainable management of the forest resources through scientific research and development of feasible management techniques.
- (3) Promotion of international cooperation to establish a project that enlists experts from the international community in the conservation of the Lao cypress.

Foreign actors (with Japan as the main consumer) should take three strategic approaches to avert the extinction of the Lao cypress:

- (1) Reduction of the total amount of consumption by limiting consumption through more effective use, and even re-use, of the materials, and environmental education of consumers and stakeholders aimed at creating a public awareness for the necessity of these efforts.
- (2) Introduction of non-tariff barriers such as “certification” and “eco-labeling”, which ensure that the logging is conducted only in sustainably managed forests.
- (3) Contribution to international efforts to protect the Lao cypress, such as the establishment of a project to study the Lao cypress. Such efforts will benefit the exporter countries in the long run.

As our studies showed, the degradation of Lao cypress forests has been driven by strong consumer demand in two consumer countries—Japan and Taiwan. At the same time, the forests have suffered from the lack of sufficient legal and administrative bases for forest management. Therefore, the well-balanced implementation of these strategic approaches through a bilateral project may be crucial for the effective conservation of Lao cypress forests.

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STRUCTURAL ANALYSIS
OF
DEFORESTATION IN CAMBODIA
(with a focus on Ratanakiri Province, Northeast Cambodia)

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For
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List of Abbreviations

ADB	Asian Development Bank
ARD	Associates in Rural Development (Consultancy)
CG	Consultative Group
DAI	Development Alternatives Inc (Consultants)
DF&W	Department of Forestry and Wildlife
EU	European Union
FAO	Food and Agriculture Organisation
ICCPR	International Covenant of Civil and Political Rights
IDRC	International Development Research Centre of Canada
ILO	International Labour Organisation
IMF	International Monetary Fund
INGO	International Non-Governmental Organisation
IO	International Organisation
MAFF	Ministry of Agriculture, Forestry and Fisheries
MoE	Ministry of Environment
NGO	Non-Governmental Organisation
NTFP	Non-Timber Forest Products
PRDC	Provincial Rural Development Committee
RCAF	Royal Cambodian Armed Forces
RGC	Royal Government of Cambodia
SNC	Supreme National Council
UNDP	United Nations Development Programme
UNHCHR	United Nations High Commission for Human Rights
UNTAC	United Nations Transitional Authority in Cambodia

Executive Summary

Cambodian forests have long provided village people with materials for construction, fuel, medicine, and food, and have served as a place of refuge in times of unrest. The forests provide important biodiversity and ecological functions. The Tonle Sap lake and the Mekong river, which are both central to the Cambodian economy and to the livelihoods of many Cambodians, are dependent upon the surrounding forest cover. Timber is also Cambodia's most valuable resource in economic terms and can provide government coffers with annual revenue. The forests are also the most easily exploitable natural resource. This fact is demonstrated by the dramatic decrease in forest cover in Cambodia over the last thirty years. It is estimated that forest cover has decreased from 73% in 1969 to 58% in 1997.¹ Some observers put this latter figure as low as 30-35%.² Much of this deforestation has occurred during the 1990s, with a sharp acceleration in loss after 1992 and Cambodia's entry into the global market. It is predicted that if the rate of deforestation continues, Cambodia's forests may be commercially logged out by 2003.³

Deforestation in Cambodia is a political issue. In recent years forest resources have been devastated by war, corruption, political rivalry, and military control, encouraged by the demand of neighbouring countries. Timber revenue funded both sides in the prolonged civil war between the Khmer Rouge and the Phnom Penh government. Cambodian political, military and business elites have privately benefited from the sale of these state resources. It is a major concern of international donors that only a small fraction of logging revenue reaches the legal economic system.

Jurisdiction over forests is assigned to the central state authorities who may delegate to provincial authorities. In the past the central authorities have shown little capacity for actually managing the forests in a sustainable and productive way, and particularly in a way that benefits the local people. The state has attempted to justify the need for the centralised state administration, expropriation and exploitation of the forest lands, resulting in the alternative, much more damaging exploitation witnessed in the forests in recent years. Weaknesses that hamper the state include the lack of consistent forest policy or workable forest law, and the inability to enforce the law.

Local people have no legal, or extremely circumscribed, rights to forests. However, the local communities who rely on the forests for their subsistence needs are usually the first to feel the devastating impacts of deforestation. Logging has brought few employment opportunities to local communities, but numerous human rights abuses. It has led to problems in supporting rural livelihoods and it has frequently led to the alienation of people from lands, highlighting the lack of land security held by local communities. Such impacts have been particularly evident in Ratanakiri Province in the Northeast of Cambodia. A densely forested province sharing borders with Vietnam and Laos, Ratanakiri is largely inhabited by minority ethnic groups who rely on the forests to meet their subsistence needs. These groups are particularly vulnerable to damage from logging not only because of their reliance on the forests, but also due to their marginalisation from the dominant society and the central decision-making bodies.

From 1995 the campaign to prevent illegal logging and uncontrolled deforestation in Cambodia has begun to unfold with increasing commitment from the Royal Government of Cambodia in partnership with the international community. Forestry reform has become a condition of aid, and reviews of the forestry sector have been carried out and recommendations made. Concrete measures to tackle the problems of deforestation are being undertaken by the government, international organisations and NGOs. However, as the case studies from Ratanakiri demonstrate, there is still a long way to go. The most important lesson that can be learnt from the Cambodian experience is that good state management cannot simply replace bad state management. Local communities can, and must, play an essential role in all aspects of forest management.

¹ ARD (May 1998) Forest Policy Transition Paper for Cambodia (Phnom Penh: ARD, Inc & Department of Forestry and Wildlife), p.1

² Global Witness (March 1995) Forests, Famine and War: The Key to Cambodia's Future (London: Global Witness), p.1

³ World Bank, quoted in Global Witness (April 1999) Made in Vietnam – Cut in Cambodia (London: Global Witness), p.3

SECTION ONE

THE CAUSES AND EFFECTS OF DEFORESTATION IN CAMBODIA

1.1 INTRODUCTION

Cambodia is a predominantly low-lying country that occupies the central plains of the lower Mekong valley, but is bordered on three sides by densely forested mountain ranges. Forests in Cambodia tend to be located around the periphery, in the highland areas as opposed to the lowland areas where paddy rice is the norm. Forests are among Cambodia's most important natural resources. In 1992 the Earth Summit report for Cambodia described the country's exceptional qualifications to develop as a 'green lung' of Southeast Asia.⁴ However, this optimistic viewpoint has been greatly challenged over the last decade. The rate of deforestation in Cambodia since 1992 has increased with alarming rapidity and at largely unsustainable levels with severe economic, social and ecological implications. Consultants have estimated that Cambodia's forest cover has fallen from 13.2 million ha (73%) in 1969 to 10.6 million ha (58%) in 1997,⁵ although some observers feel this latter figure to be an overestimation⁶. The World Bank has estimated that if the current rate of deforestation continues, the forests of Cambodia will be commercially logged out by 2003.⁷

1.1.1 Ratanakiri Province, Northeast Cambodia – an Overview⁸

- *Ratanakiri Province borders Laos and Vietnam making it of particular interest in terms of trans-boundary biodiversity conservation, but also making it particularly vulnerable to the exploitation of forest resources by these neighbouring countries*
- *The Province boasts relatively high forest cover, although this is rapidly diminishing in area and quality*
- *The province is an important watershed area. The Sesan and the Srepok rivers flow from Vietnam through Ratanakiri and, together with the Segong river from Laos, contribute 15% of the delta flow of the Mekong river. Fisheries biodiversity and productivity is high, with over 200 species occurring naturally in Ratanakiri, and the two rivers are important spawning grounds for species migrating from the delta and the Tonle Sap lake*
- *The Province has a low population density of approximately 90,000 people. Seventy-five per cent of the population of Ratanakiri is made up of eight indigenous ethnic minority groups. Ratanakiri and Mondulakiri are the only two provinces where indigenous minorities are a majority. These indigenous groups form 1% of the total Cambodian population⁹*
- *The indigenous highlanders are marginalised from the dominant decision making processes of Cambodia in terms of ethnicity, language, livelihood practices and geographic position. Literacy rates are less than 10% among highland men, and around 2-3% for women*

1.2 THE WEALTH OF FORESTS

- In ecological and environmental terms the Cambodian forests are invaluable. They protect the soils, stabilise the watersheds, and regulate water flows and local weather systems. Cambodia is particularly dependent on

⁴ Quoted in Talbott, (1998:151) Logging in Cambodia: Politics and Plunder in Brown, F.Z & Timberman, D.G. (eds) Cambodia and the International Community: The Quest for Peace, Development and Democracy (Singapore: ISEAS)

⁵ ARD, May1998:1

⁶ Global Witness consider the figure to be as low as 30-35% (Global Witness, 1995:1)

⁷ Global Witness, April 1999:3

⁸ Source: NTFP Project

⁹ The ethnic groups of Ratanakiri consist of the Kreung, the Tampuan, the Kachok, the Kavet, the Brao, the Jarai, the Lun and the Phnong. In this report they are referred to collectively as highlanders.

its forest systems due to the unique hydrological systems of the Mekong River and the Tonle Sap lake. Both play a critical role in the economy and ecology of the country. The water systems provide spawning grounds for the fish populations, and nutrients and irrigation for the rice fields. Forest tracts themselves are often high in biodiversity, harbouring many endangered species including elephant, tiger, clouded leopard and Cambodia's national animal, the kouprey.¹⁰

- Forests are central to Cambodia's reconstruction after years of civil war. They may be considered as one of the country's most valuable economic assets and can provide an important source of revenue for the government. In purely economic terms, the Forest Policy Reform project estimates that the maximum annual sustainable yield of Cambodian timber is 500,000m³, probably less. Based on the newly imposed royalty rate of US\$54 per m³, this could generate up to US\$27,000,000 per year, to which export and other taxes can be added.¹¹ Cambodian forests also have the potential to attract international tourists, particularly in the Siem Reap area and in the Northeastern provinces of Stung Treng, Monduliri and Ratanakiri
- Forests in Cambodia have long offered rural Cambodians essential livelihood benefits, supplementing agricultural or fishing activities by providing construction materials, medicines, foods, and market goods. The harvesting of wood and non-wood products for these traditional purposes is widespread, and forests are part of the common property resources to which Cambodians have always had access
- Forests are also important in terms of the historical and cultural associations they hold for the Cambodian people. Cambodian Buddhism places great value on the forest as part of the natural order of existence. Among the highland people of the Northeast, local forests are central to their belief systems

1.2.1 Case Study – Forests and Local Livelihood Systems, Ratanakiri Province¹²

Traditional resource management in Ratanakiri Province has been based on subsistence agriculture reliant on a relatively low population density and high availability of natural resources particularly forests. In general the highlanders are 95% self-sufficient from what they grow and collect from nature. Economic indicators that concentrate only on the 5% of the indigenous economy that reaches the cash economy will fail to give an accurate representation. Economic indicators must be based on the 95% subsistence production.

The livelihood system of the Ratanakiri highlanders may be divided into three components:

- *Land (swidden cultivation, also known by the derogatory term 'slash and burn')*
- *Forest (collection of non-timber forest products and building materials)*
- *Natural fisheries and water resources*

Most of the highlanders practice a system of swidden agriculture supplemented by hunting, fishing and the gathering of forest products such as bamboo, rattan, wild fruits, and forest vegetables. Swidden cultivation takes place in areas of secondary forest surrounding village sites. This is a form of agricultural rotation which uses fallows of regenerating natural forest to restore soil fertility. Plots of land (chamkars) are cleared from the forest and farmed for several years. They are then abandoned as fallow to regain their fertility before being farmed again. On the red soils of the central plateau each family may have 3-5 plots on which they rotate. Fallow periods of 10-15 years are observed, after which the forest regrowth is cleared and burned. While this practice appears visually destructive, it is a stable and sustainable form of food production in uncertain or difficult conditions and at low population levels.

Secondary in importance to the swidden fields are the 'collection forests' or areas of old growth forests from which non-timber forest products are obtained for use as construction materials, dietary supplements or medicines. The forest is considered to be a common resource and several villages may share the same collection forest. Such swidden and forest collection systems often represent a highly efficient adaptation to variable, difficult and uncertain conditions. Equally important is the belief that resident spirits inhabit some forests, and taboos generally exist as regards the use of products from those forests.

¹⁰ Global Witness, April 1999:4

¹¹ Global Witness, (February 1999) Crackdown or Pause: A Chance for Forestry Reform in Cambodia, (London: Global Witness) p.3

¹² Source: NTFP Project

With this livelihood system the destruction of old forest is minimised because:

- *Boundaries set in the past by village elders are recognised between adjacent communities. Members of a village may cultivate anywhere within their own village boundaries, but will not cross into the territory of a neighbouring village for fear of retribution from the spirits*
- *Membership in the community is the primary pre-requisite for rights to cultivate land within the communal boundary*
- *Forests believed to be inhabited by spirits, or which are sites of burial grounds are protected by communities*
- *Large areas of old growth forest are maintained for the collection of forest products outside the village cultivation boundaries*

A 1996 study of Poey Commune¹³ in Ratanakiri Province by Dr. Jefferson Fox of the East West Centre found that, regardless of the size of a village, the ratio of population to area (within traditional boundaries) was more or less uniform at around 30 people per km². This indicates a level of equitability in the way the traditional system shares land between communities. Within the village boundary around 8% of the land may be under cultivation at any one time. The rest will be under fallow, appearing as a mosaic of secondary forest at different stages of regeneration. An analysis of satellite images for Poey Commune indicate that under this system old growth forest remains at 50% cover, secondary forest is 40%, current cultivation is 5%, and the remaining 5% consists of roads, residential areas, streams, lakes and so forth. The sustainability of this system depends on maintaining a low population density and the traditional communal tenure system. In order to accommodate increasing populations, the traditional tenure system may be used as the basis for land-use planning for agricultural development (see Appendix 1).

The traditional agriculture system of swidden demonstrates a high level of complexity combined with a reliance on the forest resources.

- *The traditional agriculture system is very high in biodiversity. Forty-eight upland rice varieties have been documented for Kavet communities alone. In addition, 148 varieties of other crops were found integrated with the upland rice. These traditional varieties represent a tremendous potential resource for the scientific community and crop improvement schemes*
- *No external inputs (apart from human labour) are used during cultivation. Thus the watershed is kept free from contamination by pesticides and chemical fertilizers*
- *Compared with modern agriculture, productivity per unit area appears low at first glance. However, when compared with the destruction of resources in order to maintain the high productivity required by modern agriculture, the sustainability of the swidden system is favourable. It relies on the forest to replenish soil fertility in situ*
- *The highly diversified and complex agriculture system ensures that the scarce labour resources in the family are evenly distributed throughout 10 months of the year. It also minimises the risks from crop failure due to drought and pest attack*
- *Traditional cultivation requires zero or minimum tillage, which helps to protect the soil from erosion*
- *The small plots cleared for cultivation are surrounded by dense secondary forest which arrests runoff and soil erosion during rainstorms*
- *Forest rapidly regenerates when the field is fallowed, as the seed sources from the surrounding forest are close by*

Agriculture development programmes which aim to increase productivity and food security of highland groups would need to take into account the complexity of the existing swidden system in meeting the diverse needs of the local community.

¹³ Poey commune in O'Chum district, Ratanakiri Province is an NTFP Project area

1.3 THE ROOT CAUSES OF DEFORESTATION

Deforestation is often associated with rural poverty and population growth, which force rural people to encroach into forest areas in search of new arable land and products from the forest to supplement low incomes.¹⁴ In 1998 ARD stated that with the current population growth rate being in excess of 3%, the population of Cambodia would double within the next twenty-five years, resulting in greater pressure on forest lands. The production of fuelwood and charcoal to supply urban populations is also conducive to over logging in the forested supply areas close to roads and rivers.¹⁵ However, although rural poverty and the clearance of forest for agricultural purposes has traditionally been pinpointed as the main cause of deforestation in Cambodia, it is not the root cause behind the onslaught being experienced by Cambodia's forests today.

The prolonged state ownership of forest resources in Cambodia has contributed greatly to the problem of deforestation¹⁶ through the inability, or desire, of the state to manage this resource in a way that benefits the Cambodian population as a whole. The decisions about the forest are shaped by the priorities of the state, with who the rural Cambodians now have to compete for the right to access and use this resource. Today, the mandate for forest management rests formally with the Department of Forestry and Wildlife (DF&W) within the Ministry of Agriculture, Forestry and Fisheries (MAFF). The Ministry of Environment (MoE) has responsibility for forest land within protected areas. However, a clear, systematic and transparent process for making and coordinating land-use allocations does not exist at the national level, and responsibilities for the enforcement of decisions are not clearly defined.

Over the last thirty years the inability of the state to manage the forest resources for the greater good has been largely due to continuing war, political rivalries, corruption. Strong regional demand from Thailand and Vietnam, and a lack of funds, institutional capacity and willpower on the part of the central and local-level authorities has fuelled this situation. As a result Cambodia has witnessed extensive logging and severe deforestation through the predominance of illegal harvesting, processing and export operations under the protection of powerful people and the military. Log production in 1997 reached the highest levels ever in Cambodian history with 4.3 million cubic metres being cut over 7 million hectares. Illegal timber felling accounted for at least 92% of total production.¹⁷

- **Civil War** – Cambodian forests were exploited to fund both sides in the prolonged civil war between government forces and the Khmer Rouge. Global Witness¹⁸ estimated that the trade between the Khmer Rouge and the Thai timber companies generated between US\$10 million - US\$20 million per month. In June 1994 the Royal Government of Cambodia (RGC) also decided to give a monopoly on timber exports to the Ministry of National Defence as part of a strategy to use timber revenues to finance the civil war.¹⁹ The Economist²⁰ reported that the 'fighting is serving as a cover for profiteers on both sides, whose weapons are chainsaws and whose victims are trees.' The fighting also has another long-lasting implication, particularly regarding the ability of local people to use the forest. A review by the Cambodian Mine Action Centre in 1996 broadly estimated that 35-40% of forest land could be dangerous due to the presence of land mines, fighting, or uncontrolled, armed gangs.²¹

¹⁴ ARD, May 1998:8

¹⁵ Woodfuel Flow Study Team (December 1998) Woodfuel Flow Study of Phnom Penh, Cambodia (Bangkok: FAO), p.1

¹⁶ State ownership of forest dates back to the French colonial period when processes of internal and external territoriality marked out state boundaries and legitimised state appropriation of land and forest within those boundaries.

¹⁷ ARD, May1998:2

¹⁸ Global Witness (June 1997) Just Deserts for Cambodia? (London: Global Witness) p.24

¹⁹ Global Witness, March 1995:6

²⁰ The Economist, (June 17th1995) Cambodia's Wood Fired War pp.73-74

²¹ World Bank/UNDP/FAO (1996) Forest Policy Assessment: Cambodia (Phnom Penh) p.9

- **Political Rivalries** – Resource control has long been an important source of political patronage and the tenacity of this patronage system in the form of ‘crony capitalism’²² has had a destructive effect on Cambodian forests as they are traded for loyalty. The elections in 1993 and 1998 refuelled the need for political alliances, and the election campaigns were largely funded through logging. Timber has also been used to finance the building of political and military power-bases.
- **Corruption** – To some extent corruption practices have emerged out of economic necessity. Low government salaries, frequently in arrears, have resulted in absenteeism, moonlighting and the use of corrupt methods to make ends meet. Corrupt individuals at every level of society can stand to earn vast amounts of money from the timber trade.
- **Military Control** - As a result of the civil war and political rivalries, the Cambodian armed forces (RCAF), split along party lines, have since been left in control of much of the forest in Cambodia to the extent that they are self-supporting units, frequently acting autonomously of the RGC. The revenues from military logging operations tend to bypass the national budget, and rather than being used for the ‘greater good’ are used to build personal fortunes. This situation has meant that there has been a prevalence of guns in the forest, and attempts at forestry supervision by the appropriate officials has often met with intimidation, and, in some cases, murder.²³
- **Investment** – As a result of the above factors, genuine business investment in Cambodia has been discouraged. The most lucrative deals are those which provide rapid returns but are not necessarily in the best long-term interests of the country.²⁴
- **Regional Dynamics** – Cambodia’s neighbours, Thailand and Vietnam have played a large part in the deforestation process. Having both suffered high rates of deforestation themselves (Thailand during the 1970s and 1980s²⁵, and Vietnam largely due to the ravages of the Vietnam war) both have turned to Cambodia to satisfy their demand for timber. Thailand was heavily involved in the timber trade with the Khmer Rouge in the early nineties, but in recent years Vietnam has largely usurped Thailand as the biggest importer of illegal Cambodian timber, largely through the Northeastern Province of Ratanakiri.

Over the last decade the RGC has pursued its goal of modernisation through trade, investment and industrialisation, much of which has relied on the exploitation of the country’s natural resources. Increasingly these resources are being taken over by commercial enterprises (with or without legal licences) without any protection of the rights of traditional users, and without effective regulatory systems to ensure sustainable use. Traditional community access to forest resources has been eroded rapidly in recent years through the privatisation of these resources to commercial interests.

- **Over-allocation of land** - The principal means of wresting the forests from the local communities is through the allocation of concessions. The RGC has allocated over 63% of forest lands as forest concessions to international investors²⁶ but there are few procedures ensuring that such allocation is being done in a rational manner, incorporating social, economic, environmental or cultural considerations, or with consultation with local villagers. Global Witness²⁷ has countered that the Forestry Department considered only 2.2 million hectares of forest suitable for sustainable commercial logging. Thus it would seem that much of the land now granted is unsuitable for commercial logging.
- **Limited Institutional Capacity** – the capacity and capability of the central institutions to plan, manage, monitor and enforce the laws in the forestry sector are severely handicapped by interventions of powerful people and the predominance of the military in illegal harvesting, transportation, processing and exporting of

²² Bryant & Parnwell, (1996) Environmental Change in Southeast Asia: People, Politics and Sustainable Development (London: Routledge) p.9

²³ Global Witness, June 1997:5

²⁴ Curtis, G. (1998) Cambodia Reborn: The Transition to Democracy and Development (Washington: Brookings Institute) p.109

²⁵ With the imposition of a logging ban in 1989, Thailand increasingly turned to importing timber from neighbouring countries, particularly Cambodia.

²⁶ ARD, May 1998:8

²⁷ Global Witness, June 1997:6

forest products. The legal, policy and regulatory frameworks are complex, and the institutional structures are bureaucratic and top-down. Low numbers of trained personnel and scarce funds and other resources are all a serious constraint to forest and land management.²⁸ The management plans drawn up for the controlling of forest operations are largely flawed and ineffective.

- **Inadequate Development and Administration Funds** – The RGC has inadequate budgetary funds for rural development, to maintain military security, or to pay salaries at sufficient levels.

1.3.1 Case Study - Deforestation in Ratanakiri Province²⁹

An increase in deforestation in Ratanakiri Province may be traced to the early 1980s:

- *During the period 1980 – 1993, the socialist government of the People's Republic of Kampuchea exploited the forest in order to finance reconstruction and basic infrastructure development. The area and the quality of forest in Ratanakiri began to diminish, although at relatively low rates*
- *After the 1993 elections, economic liberalisation policies led to a dramatic increase in anarchic and illegal timber exploitation as there was little capacity on the part of the Government to control markets and illegal timber operators. An exponential increase in deforestation countrywide resulted. With each wave of logging in Ratanakiri during the 1990s, the size of logs being transported out of the Province became smaller and smaller, indicating that the quality of the forest and timber reserves were becoming dangerously depleted*

The swidden cultivators in Ratanakiri Province take the brunt of the blame for the problems of deforestation in the Province, and the state solution is for such 'primitive' methods of agriculture to be abandoned in favour of 'development' schemes including forestry concessions, agricultural plantations and hydroelectric projects. As a high-ranking official explained to Colm,³⁰ 'Sixty to seventy per cent of forest destruction is due to swidden cultivation. All ethnic minorities are doing this destructive swidden. If we don't receive investment companies in Ratanakiri, in ten years there will be no good forests left.'

However, there is overwhelming evidence to suggest that the cultivation practices of the highlanders are not the main cause of deforestation in the Province.

- *The highlanders of Ratanakiri have been practising a form of swidden cultivation for generations, yet Ratanakiri remains one of the most heavily forested areas in Cambodia. Forest cover was maintained at around 92% up until 1979 when the country was opened up to outside markets. This suggests that deforestation has less to do with upland cultivation practices as with outside economic factors*
- *Researchers believe that the swidden system has been largely sustainable due to the relatively low population density, abundant lands and forests, and richness of the volcanic soils³¹*
- *Highlanders lack the equipment to cut large trees on a vast scale. Their swidden fields are normally cleared out of areas of secondary forest rather than old growth forest*
- *During periods of rapid deforestation, the stream of logging trucks at the Vietnam border indicates that it is not the indigenous minority people who are the main perpetrators*

It is undeniable that swidden cultivators can contribute to deforestation, but the evidence indicates that their impact is small compared with the impact of outside economic forces. In fact swidden can actually contribute to watershed management and biodiversity conservation. However, the 'balance' of village swidden systems and forests is beginning to change rapidly due to current political and economic conditions. Swidden becomes a less sustainable system when forest resources become scarce or when people are relocated

²⁸ ARD, 1998:8

²⁹ Source: NTFP Project

³⁰ Colm, (1997) *Land Rights: The Challenge for Ratanakiri's indigenous Communities in Watershed*, Vol. 3, No.1, p35

³¹ See also, Brown, D & Schreckenber, K. (1998) *Shifting Cultivators as Agents of Deforestation: Assessing the Evidence* (London: Overseas Development Institute)

from their customary lands.³² For instance, in Yeak Laom Commune near the provincial centre of Banlung, land pressure is intense and there is virtually no old growth forest left. The swidden farming system in this area is breaking down due to weed invasion and decreasing soil fertility. Similarly, in Kok Lak Commune in the north of the province, forest areas in the buffer zone of Virachey National Park are being converted to unproductive imperata grasslands by a combination of slash and burn farming and uncontrolled burning. This unsustainable situation can be traced to the relocation of these farmers from their traditional lands in the core zone of the national park to much less fertile lands where they had no established tenure system.

In short, the main factors which are observed to undermine the sustainability of the swidden system are:

- Relocation from traditional lands where tenure and management systems have already been established to new lands where there is no clear tenure or viable management system. Management systems take several generations of trial and error to develop, by which time much damage to the environment can occur
- In communities located close to the market centres of Banlung and Bokeo, the advent of the cash economy has brought with it an increasing desire for individual profit. This, combined with intense pressure from immigrants and business people to buy up land, has led to the loss of much of the productive land of the communities, escalating internal conflicts and the breakdown of the social structure and decision making capacity of the communities
- Diminishing land and forest as a result of in-migration by lowland Khmers and informal land sales, the encroachment and granting of land concessions on indigenous lands, and natural population growth within the communities results in unsustainably short fallow periods, increasing weed invasion and decreasing crop yields. Under these conditions communities will be tempted to clear areas of old forest to supplement their yields

In the last decade economic development in the form of timber and agricultural concessions, in-migration, and land-speculation have been occurring in a rapid and haphazard way, with no reference to customary highland land use. The total area of Ratanakiri granted as concession land for forestry, agribusiness and National Parks, is 115%, demonstrating the haphazard and uncoordinated nature of land use planning by the Central authorities. None of the planning has taken into account the livelihood needs of the indigenous highlanders. Management of the forest concessions has been virtually non-existent, allowing for a vast amount of destructive, illegal logging. A fundamental issue that must be considered is whether it is ethical to grant any kind of concessions on indigenous people's customary land in the first place.

- In 1995 the then two Prime Ministers, Hun Sen and Ranariddh, granted a 50 year concession for 1.4 million hectares to an Indonesian logging company, Macro-Panin. However, the Macro-Panin concession failed to begin operations due to continued insecurity in Cambodia, leaving open swathes of forest for those wishing to take advantage of it
- The majority of logging operations in the Province have reportedly been controlled by the local police and military. During the period 1997-8 over 200,000m³ of logs were illegally exported from Ratanakiri to Vietnam³³
- There have been eyewitness accounts of incursions by illegal loggers and rattan collectors into Virachey National Park, many encroaching directly from Vietnam³⁴
- In 1998 a 60,000 hectare concession in Ratanakiri Province was awarded to HERO Taiwan company and in April 1998 Pheapimex-Fuchan was awarded a 350,000 hectare concession directly bordering Virachey National Park. Both companies have a less than spotless reputation with regard to concession management

³² The actual extent of destruction of old forest by indigenous people is an issue which is subject to ongoing research

³³ Global Witness, (March 1998) Going Places: Cambodia's Future on the Move (London: Global Witness), p.13

³⁴ Global Witness, April 1999:5

- *In addition to the logging concessions, forest land has also been give over to oil palm estates³⁵, coffee plantations, and small-scale speculators (see appendix for case studies). This not only reduces the amount of forest land, but it encroaches on the customary lands of the highland peoples, and has forced many to venture into new forest to cut their swidden fields*
- *The Sesan and the Srepok rivers are proposed for hydropower feasibility studies funded by ADB. The most viable of the proposed projects (the lower Sesan II and the lower Srepok II) would flood approximately 6% of the province area, losing paddy land and forcing the relocation of approximately 10,000 people.³⁶ Deforestation in Virachey National Park may result as the displaced people try to find alternative land to farm*
- *The land law outlines possession rights for agricultural land but not for forest land. Extension of cash cropping with a strong emphasis on individual land title may also be contributing to deforestation within the province. People are clearing forest on which to grow crops permanently to signify possession of land. The increase in the production of crops such as cashew nuts suggest that the province will experience long-term productivity problems as such crops are notorious for draining nutrients from the soil*

1.4 THE IMPACTS OF DEFORESTATION

In general terms the effects of logging and deforestation in Cambodia are wide ranging.

- **Environmental impacts** – Cambodia still possesses some of the largest tracts of lowland evergreen forest in mainland Southeast Asia and areas of high biodiversity containing many endangered species. Logging destroys habitat and can devastate forest areas. Logging also encourages other environmentally destructive activities such as colonisation, commercial hunting, and clearance for agriculture. In Virachey National park hunters kill tigers using home-made landmines in order to obtain bone for the traditional medicine trade³⁷
- **Economic impacts** - In 1997 over \$185 million worth of timber was illegally felled, equivalent to almost half of Cambodia's \$419 million total annual budget. Only 12 million reached the treasury. In 1998 this sum declined to only \$5million, despite a sharp escalation in illegal logging leading up to the July elections.³⁸ The continuation of deforestation at the present rates will result in the loss of a valuable economic asset for the RGC
- **Livelihood impacts** - Cambodia's staple foods of rice and fish are threatened by the effects of deforestation. The hydrological systems of the Mekong river and the Tonle Sap lake may be severely affected through siltation, causing a decrease in fish populations. Soil erosion reduces the amount of productive arable land. An increase in the occurrence of floods and droughts will also affect livelihood security. Other impacts include shortages of fuelwood and forest products to provide subsistence
- **Land Conflicts** - Rural communities have always had access to common property resources, but as these are some of the areas that the state is granting as concessions to private companies for their exclusive right to exploit, the rights of these communities to access forest areas and collect forest products becomes increasingly unclear.³⁹ Conflicts over forest use are escalating between rural people, commercial timber operators, agricultural concessionaires, and protected area managers
- **Land Alienation** - As local people become alienated from their lands, there may be increasing apathy and a limited sense of responsibility towards natural forest-areas. State appropriation of land and forest leaves little incentive for local communities to manage these resources in a sustainable manner. Land alienation also leads to increased poverty and often forces people to degrade land they do have access to, or to harvest forest products illegally in the areas to which access is denied

³⁵ See Colm, S. (May 1996) Effects of Oil Palm Plantation Development on Indigenous Communities, Ratanakiri Province Banlung: NTFP Project

³⁶ Ironically, many of the people who would be displaced by the reservoirs would be indigenous highlanders who were forcibly relocated from the mountainous areas during the 1960s due to the policy of reducing swidden and encouraging paddy rice cultivation

³⁷ Global Witness, April 1999:4

³⁸ Global Witness, April 1999:3

³⁹ Butterfield, R. (March 1998) Community Livelihoods and Common Property Resources in Cambodia (Phnom Penh: ARD, Inc & Department of Forestry and Wildlife), p.2

- **Human Rights** - Both legal and illegal timber operations in Cambodia operate without regard to the rights of the rural population. The population are not consulted when concessions are awarded, they are denied access to forest land preventing them from obtaining timber for construction and fuel, and are sometimes forced from their land at gun point. Civilians, journalists and forestry officials have also been threatened and even murdered by illegal loggers.⁴⁰ (see Appendix 2)

1.4.1 Case Study – The Impacts of Deforestation and Logging in Ratanakiri Province⁴¹

Deforestation and logging, as experienced in Ratanakiri Province is not only unsustainable, degrading and destructive, but it is happening in an unplanned fashion without reference to land zoning or customary land use, and has brought few development or employment opportunities for the local inhabitants.

Much of the logging in Ratanakiri Province has occurred in the old growth forests used for the collection of non-timber products or in those believed to be inhabited by spirits. The destruction of the collection forests through logging has had immediate and noticeable effects on the daily livelihoods of people. Villagers complain that logging activities have limited the availability of certain forest products. In some areas close to logging sites wildlife has become scarce. Villagers attribute this to disturbance caused by the sound of the chainsaws, and the destruction of habitat. Women observe that forest fruits and vegetables are becoming harder to find as the trees disappear. Ponds have dried up making fishing more difficult, and the loss of trees with which to make coffins⁴² or those from which to extract resin⁴³ are common complaints of villagers living in close proximity to logging areas. Hurried logging has tended to leave behind devastated forests, with felled but rejected or uncollected timber remaining, or blocking roads and pathways. Bamboo and rattan are destroyed in the clearance of logging roads.

The forests have long served as a refuge during periods of conflict, and are an integral part of the swidden system. Furthermore, many villages have historical and cultural attachments to the lands and forests they inhabit. Villages tend to be situated on land that is significant through identification with ancestors. Tales of ancestors often closely relate to the local geography, and burial grounds are usually located in forested areas. Logging can completely alter or obliterate this landscape in addition to destroying areas or species of local significance.

Practices related to land use and resource access are often regulated by social taboos which ensure a certain order and reduce the possibilities of conflict. If, for example, villagers want to farm within the boundaries of a neighbouring village, the elders have to meet to negotiate, and a sacrifice will be held. In addition, numerous rituals are held before any encroachment of the environment, to appease the spirits who may otherwise become angered. Spirits are invoked through a 'sen' over a rice wine jar, a small animal is sacrificed, and family and neighbours feast and drink together. Large trees are often considered to be the homes of spirits. If these spirits are disturbed or irritated, the effects will be felt by villagers by way of sickness or death. Logging teams tend to be unaware of such taboos, and hold little regard for spirit forests. Villagers describe their fear of reprisals from the spirits, when spirit forests are logged, or when fishing or hunting takes place in areas where these activities are traditionally forbidden.

Stories have begun to emerge linking the breakdown of bulldozers and the deaths of loggers, crushed by felled trees or overturned trucks, to angry spirits. More disturbingly for the villagers, it is believed that when the loggers leave the area the spirits take revenge on the villagers. There have been reports of villagers suddenly falling ill or dying after witnessing logging in nearby areas. In order to appease the spirits, some

⁴⁰ Global Witness, April 1999:4

⁴¹ Source: NTFP research, August 1998

⁴² Coffins are traditionally made by hollowing out the trunk of a single mature tree, normally the *Hopea* tree

⁴³ Resins are commonly used for fuel in household lamps and for caulking boats.

villages have offered frequent sacrifices, a practice that is taking an increasing financial toll on village reserves.

Logging has done much to undermine traditional village solidarity, fuelling individualism, competitiveness, conflict and power struggles. The arrival of logging companies offering money has resulted in many instances of collusion between individuals and loggers, with villagers working for individual profit rather than for the benefit of their community. Such behaviour has often been encouraged by logging teams visiting individual farmers in their fields to ask for their assistance in return for money or timber. More long-term co-operation has also occurred, particularly when villagers have previously worked outside of the villages, for example as soldiers, and have then become involved in logging activities. These people perhaps have less sense of allegiance to the village, and also have a good knowledge of the forest areas, thus making them a valuable resource to the logging teams. In addition to undermining village solidarity, logging has also encouraged conflicts between villages as disputes have arisen over the rights of loggers to access tracts of forests, or to build roads.

SECTION TWO

AN ANALYSIS OF CURRENT POLICIES AND SOLUTIONS

2.1 INTRODUCTION

A legal logging industry would create additional forest revenue for the government, improve prospects for long-term political stability, improve investor confidence and protect the environment. The prevalent forestry regime of the 1990s, with its relationship to civil war, corruption, patronage, environmental degradation, and human rights abuses, has been pin-pointed as a key impediment to the process of reconstruction and sustainable development in Cambodia. In particular, the fact that only a small fraction of logging revenues has reached the legal economic system has been a situation of great concern to the international community, and the major donor countries. However, the last five years have seen the beginnings of positive developments as regard forest policy reform in Cambodia, developments that still have a long way to go, but which have brought together a variety of stakeholders to work together towards improved forestry management in Cambodia.

2.2 AID CONDITIONALITY

The logging and deforestation problem became an issue for the international donor community for financial as well as ecological reasons. After the 1993 elections the international community made sizeable commitments of financial and technical assistance to Cambodia. However, the awareness of the magnitude of logging revenues being diverted from the national budget began to cause extreme concern among donor countries. The International Monetary Fund (IMF) was the first international organisation to respond to the RGC diversion of logging revenues from the Ministry of Finance to the Ministry of Defence. In November 1995 the IMF postponed the making of a US\$20 million loan to Cambodia, citing as the reason inadequate forest management and protection, and the failure of the government to channel official logging fees to the central budget. A lack of inaction on the part of the RGC led to a freezing and finally a withdrawal of the IMF funds from Cambodia in mid-1997.⁴⁴ It is clear that donor-government relations and various forms of 'green conditionality' can influence the particular agendas of the Cambodian government. However, the freezing of aid has been criticised by other international observers due to the fact it may encourage the government to turn to alternative sources of income, perhaps through logging practices and the legitimisation of unsustainable investment.

Aid conditionality is still linked to logging reform in Cambodia, but as stability has returned to the country, the RGC has shown greater determination to comply with international requirements.

Reports by the British Environmental Watchdog, Global Witness, have done a great deal towards raising awareness within the international community of the logging abuses happening in Cambodia, and the organisation has played a leading role in promoting action. Its regular reports have exposed the extent of corruption surrounding the logging business in Cambodia, and provided up to the minute facts and figures.

2.3 LOG EXPORT BANS

An initial measure introduced by the government in the attempt to curb deforestation and illegal logging was to place a ban on log exports. In September 1992, the Supreme National Council (the interim government) in conjunction with UNTAC, imposed a moratorium on log exports which would, from the 1st January 1993 allow only processed wood to be exported from Cambodia. This stop-gap measure, it was hoped, would provide time to establish sustainable forest management practices and to make forest inventories. Unfortunately, the ban led to an intensification of logging before the moratorium became effective, and once in place it proved difficult to enforce.

⁴⁴ Talbott, K., 1998:157

Similar provisions have met with similar responses. In January 1995 the RGC imposed a complete ban on the export of logs and sawn timber. The ban was consistently breached because of the claim that stockpiles of 'old felled' logs remained in Cambodia and had to be removed to prevent wastage. Once a permit was granted the loggers would export the existing stockpile and simultaneously cut more trees.

On 26th December 1996 the RGC wrote to the governments of neighbouring countries asking for help in the enforcement of the log export ban which was re-imposed on December 31st 1996. This again has been circumvented on numerous occasions.

Log export bans have failed to be effective due to the pull-effect of a high regional demand and the push-effect of a very low state budget limiting greatly the incentives for the central and peripheral actors to implement forestry reform.

2.4 CONCESSIONS MANAGEMENT

Nearly all the remaining forests in Cambodia have been allocated by the RGC to international logging companies as private concessions. The Department of Forestry auctions concessions of forest land as 5-25 year leases and establishes maximum allowable harvest rates. It has been estimated that nearly 70% of Cambodia's total land area has officially been allocated for concessions: timber concessions (7 million ha, 39%), protected areas (3.3 million ha, 18%), and agriculture, military and fishing concessions (0.7-0.8 million ha each, 12% total).⁴⁵ The purported logic of the state in awarding large concessions to foreign companies appears to have been to enable them to better police those areas of forests and prevent illegal logging. However, in reality, the concessions have proved ineffective in ensuring sustainable management of forest areas⁴⁶. Legal contracts favouring the concessionaire over the government, low timber royalties, and no method of ensuring good forest management typifies these deals, in addition to them being signed with little or no consultation with local peoples. In practice, concessions have been allocated on maps with little or no site verification or identification of local communities, cultural sites, watersheds, or sensitive ecological areas. The concessionaires largely ignore the Cambodian Forestry Code of Practice, drawn up by FORTECH in 1998. Most concession companies have been known to use the system of 'collection permits' issued by the Council of Ministers and MAFF. Collection permits are ostensibly issued for recovering 'old felled logs', but in reality are widely used to legitimise illegal log production and trade, and to avoid paying royalties and taxes on timber.⁴⁷ Military units have also been directly involved in logging operations, either as guards or in organising illegal deals and exports. In short, the concession system has been successful in bringing a forest-based industry to Cambodia, but has done little in terms of long-term sustainable management. The concession system not only reinforces the fact that the local people have no control over their resources, but it also takes away the value of the forest for the local users, thus diminishing their interest in protecting the forest.

2.4.1 Case Study – Concessions in Ratanakiri Province

Following the cancellation of the Macro-Panin concession in December 1997, the government began to divide up the concession area among various other companies including Pheapimex-Fuchan and HERO Taiwan. Concessions in Ratanakiri cover 40% of the surface of the Province. They were all decided without consultation of the provincial authorities, the local populations, the IO/NGOs, or without social and environmental impact assessments. The Director of the United Nations High Commission for Human Rights wrote to the Minister of Agriculture under whose responsibility the Forestry Department lies, expressing her concern over the granting of further concessions in Ratanakiri Province. In reply, the Minister of Agriculture wrote that it was necessary to redistribute the concession land in order to 'fight

⁴⁵ ARD, 1998:11

⁴⁶ See Global Witness (February 1996) Corruption, War and Forest Policy (London: Global Witness), section 5

⁴⁷ Henderson, D. (April 1999) Report to JICA: The Forest Sector in Cambodia (Phnom Penh), p.8

*anarchic logging, to address the needs of infrastructure, and to improve the very difficult living conditions of the people living in the former forest concession of Macro Company.*⁴⁸

*A 60,000 hectare concession, located to the north of the provincial town of Banlung, was awarded to HERO Taiwan company in 1998 with direct approval from the then Prime Ministers, Ung Huot and Hun Sen. The concession area overlaps land that is inhabited by almost 10,000 highland people living in thirty-five villages, but the concession was granted without their consultation. Logging commenced in May 1999. There have since been reports emerging expressing concern with the concession operations.*⁴⁹

- *HERO was cooperating with Military Region One personnel in January 1999 and its sawmill continued to operate throughout 1998, although it did not receive an exploitation permit until February 1999*
- *On 11th May 1999 HERO, with military support 'persuaded' village chiefs to sign away their lands for logging*
- *In May 1999 HERO was cutting outside its concession area. The company has sub-contracted its logging activities to two sub-contractors and on an ad hoc basis to local people*
- *Reports by villagers have told of 'clear cutting' by HERO, with 3-5 trucks leaving each night, and of the cutting of trees within the culturally significant spirit forests, despite the fact that the Concession Management Plan states that areas of village importance must be excluded from cutting*
- *The concession area is to be cut rotationally over a 25 year period, but the coupe areas have been estimated at 1/25th of the total concession area rather than of the forest area, demonstrating that the concession is far from sustainable. Sub-contractors of HERO have admitted that the 25 year concession will be logged out in 3 years due to the company over-cutting and illegal military logging*
- *Operations have continued during the rainy season against the recommendations of the Cambodian Forestry Code of Practice*
- *Roads and snig tracks constructed in the HERO concession have been seriously below the standards outlined in the Cambodian Forestry Code of Practice*
- *Huge timber wastage appears to have occurred*
- *There have been reports of luxury class timber having been cut contrary to the concession agreement*
- *HERO has failed to adhere to the RGC's demand that each concession provide 20% of its processed production for local use*

In April 1998 Pheapimex-Fuchan was awarded a concession of 350,000 hectares, directly bordering Virachey National Park. This company also has a reputation for illegally logging in other companies concessions, logging outside its own areas, and for the intimidation of officials. The concession was granted without the knowledge of the Governors of Ratanakiri and Stung Treng who had already endorsed an alternative proposal for the area to be preserved as an extension of Virachey National Park. The proposed buffer zone of the park overlaps the Pheapimex concession by 180,000 hectares, and is home to approximately 11,000 indigenous people who rely on the supply of natural resources from the buffer zone. This concession not only threatens the security of the National Park, but it may also cause the local communities to move into the heart of the park. The local communities or concerned NGOs have not been included in development of the management plan.

Forest concessions on indigenous land continue to seriously oppress indigenous people. People have their land allocated without their consent nor their approval. They are threatened and intimidated. They are removed from the decision-making process. Their livelihoods and religious beliefs are under attack.

⁴⁸ See letters McCreery, 1998 and Tao, 1998

⁴⁹ Global Witness (December 1999) The Untouchables: Forest Crimes and the Concessionaires London: Global Witness

Forest concessions remain a fundamentally inappropriate form of forest management on indigenous lands.

2.5 FOREST POLICY REFORM RECOMMENDATIONS⁵⁰

- In 1995 the RGC requested the World Bank, UNDP, and the FAO to conduct a selective review of important issues in the forest sector and to initiate dialogue on sectoral development and policies. This resulted in the Forest Policy Assessment report. A draft was discussed with Government officials in February 1996 and presented at the International donors meeting in Tokyo that same year. The report criticised the basis of awarding concessions in Cambodia, highlighted the problem of illegal logging, and drew up benchmark figures for sustainable timber yield and potential revenues
- In July 1996 the Government formed a National Steering Committee to manage forest policy within the Department of Forestry, and with technical assistance from international consultants, commissioned four projects to steer the forest reform process:
 - Forest Policy Reform (Associated in Rural Development Inc., USA)
 - Forest Concession Management (FORTECH, Australia)
 - Log Monitoring and Enforcement (Development Alternatives Inc., USA)
 - Legal Counsel (White and Case, USA)
- Between November 1997 and February 1998 the projects were carried out. A report was produced on May 22nd 1998. The key recommendations of the forestry consultants were:
 - To carry out a national forest resource assessment at a macro-level within one or two years to allow for forest resource planning, management and monitoring (using remote sensing and GIS technology)
 - To create a new, simple, objective forestry law that would include penalties stiff enough to deter illegal logging
 - To encourage more co-ordination between ministries and between central and provincial RGC units with regards to land allocation decisions
 - To develop flexible approaches and definitions to community participation in forestry and options for community resource management. These need to be incorporated into the legal framework to allow transfer of land use rights to communities with the capacity and capability to use forests responsibly and sustainably as Community Forestry Concessions
 - To transform the existing concession system from harvesting rights to forest management rights on a sustainable basis and to make the concessionaire accountable for all operations within their concession
 - To focus on small holder reforestation until such time as it is feasible to invest in large-scale industrial forest plantation development
 - To cease the 'collection permit' system, cease approval of new log processing investment licences, and to maintain the log export ban until the forestry and forest industries sectors are back under control
 - To establish formal tax rates and a structure that could reduce the extent of tax evasion and reflects the different values of separate parcels of forest
 - To establish law enforcement measures in addition to log tracking and revenue collection systems in forest concessions. The DAI consultants proposed the establishment of a Cambodian Forest Action Centre that would enforce the forestry law through a force of 700 armed rangers⁵¹
 - To reorganise the Department of Forestry, to build staff capacity, and to provide adequate funding

The Forest Policy Reform Project produced a substantial amount of valuable information and the recommendations provide an effective template for forest policy reform. The beginnings of a positive move towards forest reform is now evident as the RGC pushes ahead with some of the recommendations outlined by the Forest Policy Reform Project.

⁵⁰ Source: ARD, May:1998

⁵¹ This point raised concern among NGOs that such a unit would be introducing yet more guns/military into the forests putting the local communities at risk. See: NGO Forum on Cambodia (1999) NGO Statement to the 1999 Consultative Group (Phnom Penh), p.17

2.6 FORESTRY LAW

The World Bank supported Legal Review was responsible for an analysis of the current Cambodian forest law (dated June 25th 1988), and for reviewing proposed draft forest laws that have been drawn up in recent years. It was decided that none of the laws were sufficiently comprehensive to protect the Cambodian forests. The analysis pointed out that the current forest laws provide 'no objective standards for forest protection' nor 'integrated guidelines or standards for forest management'. The existing forest law was considered to be 'inaccessible, complex, inconsistent and unenforceable, more suited to a centrally planned economy, no reflecting current market oriented economy.'⁵²

In May 1998 the RGC decided to withdraw the proposed draft forest law from the National Assembly and to redraft new forest legislation. The objective is to establish a legal basis for administration, allocation and management of forest resources, which reflects the new RGC forest policy. The final result of the project will be the approval of the new Forestry Law by the Council of Ministers and, eventually, by both houses of the Parliament.⁵³ In addition a Sub-decree on Forest Concession Planning, Management and Control, and a Sub-decree on Community Forestry have been drafted.

A problem with forest law enforcement in Cambodia in the past has largely been a result of the lack of transparency and accountability surrounding forest policy. This problem is beginning to be addressed by the RGC by allowing for formal consultation processes on all the draft legislation. The Environment Working Group of the NGO Forum on Cambodia was able to review the draft sub-decree on Forest Concession Planning, and to submit their comments. With the new Forestry Law it was also proposed that a consultation period would be allowed before the law was sent to the Council of Ministers.

The sub-decrees on Forest Concessions and Community Forestry are both important in that they also have the potential to improve transparency and community involvement in forest management.

Unfortunately, IMF conditions required that the sub-decrees went before the Council of Ministers by 15 October 1999, resulting in the formulation of the sub-decrees preceding the law to which they are subject. It was also felt that there was insufficient consultation time allotted to the consideration of the sub-decrees.

Other draft legislation that will concern forestry includes the Land Law and the Environmental Impact Assessment Sub-Decree. A version of the Land Law has been prepared by the Council of Ministers and the NGO Working Group on the Land Law has prepared extensive comments on the law.

The draft legislation outlined here has been written by different government departments and different International Organisations, all of which work to different agendas. As such there is little coherent policy linking them. However, some observers feel that the legislation shares some common ground, namely a lack of commitment to sustainable resource management, to the rights of forest-based communities to use and access these resources, and to the recognition of the importance of forests as ecosystems.⁵⁴ If the legislation continues to fail to address these issues, it is unlikely that they will serve to protect Cambodia's forests as a varied resource, or that communities who have traditionally used the forests will abide by them.

2.7 CONCESSION REVIEW

The RGC has shown definite signs of a commitment towards better concession management. In 1999 logging royalties were raised from US\$20-25 per m³ to \$54 per m³ together with a 10% export tax. In addition, prior to the third World Bank convened Consultative Group Meeting in Tokyo on February 25 1999, the Ministry of

⁵² ARD, May 1998:10-11

⁵³ Fraser Thomas et al (August 1999) Kingdom of Cambodia: Sustainable Forest Management Project – Inception Report (Phnom Penh), Annex 4

⁵⁴ Huq, A. (1999) Bitter Harvests: Forestry Concessions in Cambodia (Phnom Penh), p.10-11

Agriculture announced the withdrawal of 2 million hectares of forestry concession belonging to nine companies. Although Global Witness contends that this move was largely a publicity stunt as the majority of these areas were already logged out or were not operational, it demonstrated that the RGC is quite capable of taking a firm line in the termination of concession contracts. This move leaves a remaining 4.7 million hectares under concession.

The Asian Development Bank has recently funded a performance-based review of all timber concessions. The review was carried out over a period of two months by a consortium of companies led by Fraser Thomas. The official Concession Review is just one component of a US\$900,000 ADB Sustainable Forest Management Project, which includes the drafting of a forestry law and the preparation of community forestry guidelines. The ADB/Fraser Thomas Concession Review Team released an interim report in late 1999 and a final report was released on 4th April 2000. During the review process concerns were raised by outside observers about the evaluation criteria, the shortness of time given to site inspections, and the review of concessionaire documentation, much of which was in Khmer.⁵⁵ The review process also involved staff from the Department of Forestry. This suggests that the evaluation was fundamentally flawed given that the concessionaires often pay the staff salaries of the Provincial Forestry Department staff, and that the Forestry Department in Phnom Penh has a reputation for shielding the majority of concessionaires from criticism of their activities. During the December 1999 inspection of the HERO concession in Ratanakiri Province, the inspectors were guided away from areas of illegal cutting by the sub-contractors, but were shown new swidden fields being cut within the concession area. Reports shown of the inspection on National TV suggested that village resistance was instigated by NGOs.

The Concession Review Final Report does acknowledge severe problems in the concession system, referring to it as 'a total system of failure.'⁵⁶ It recommends the termination of several concessions where forest resources are depleted, and recommends that the RGC declares a moratorium on some or all logging operations until new management plans meeting international standards are prepared. The Review team believe that at least seven concessionaires will not be able to meet these proposed requirements because of the already depleted state of the forest in their concessions. A workshop is to be held in Phnom Penh on the 20-21st April to discuss the findings and recommendations of the review.

Despite the fact that the Review has effectively outlined in detail the unsustainable nature of the current concession system in Cambodia, and pin pointed the major culprits, the following concerns have been raised:

- The Final Report fails to recommend the cancellation of concessions on the basis of concessionaire performance and legal conduct, although it does assert the opinion that the RGC has good legal grounds with which to cancel concessions
- The review did not utilise information about current or past illegal logging in connection with the concessionaires. It could be argued that the review thus fails to provide the RGC with all the information it will need to reach any decisions or conclusions
- The review fails to adequately address or comment on the issue of the appropriateness of a concession system in Cambodia. It can be argued that a forest concession system does not deliver equitable, long-term sustainable economic growth based on sustainable forest management, and that alternatives to concession forestry should be sought
- The review gave inadequate consideration and weight to social and environmental concerns and issues. The rating of the concessions was done with only forty points out of a total of 200 related to environmental concerns, and only thirty points out of 200 related to social and community concerns. In particular, no allowances appear to have been made within the review's criteria for the consideration of minority people, such as those in Ratanakiri, when faced with forest concessions. Both HERO and Pheapimex were

⁵⁵ Global Witness (March 2000) ADB Concession Review – Still Falling Short London: Global Witness

⁵⁶ Fraser Thomas Associates/ADB (April 2000) Cambodian Forest Concession Review Draft Report (Phnom Penh)

described by the review as 'Very poor performance. Unacceptable in all aspects', with HERO getting the lowest performance score of all concessions inspected.⁵⁷

- The process to review the Final Report involves a meeting on the 20-21st April. This allows just over two weeks for the consideration of the report, and it also includes the major holiday period of Khmer New Year which does not bode well for the participation and commitment the meeting will require
- The concession review team have recommended a moratorium on all concessions until the recommendations proposed by the review have been considered and implemented by the RGC. A worrying aspect of this proposal is that existing concessionaires may intensify their logging activities before the moratorium becomes effective.

2.8 THE LOGGING CRACKDOWN

On January 6th 1999 Prime Minister Hun Sen announced a sweeping crackdown on illegal logging consisting of the closing down of sawmills and the confiscation of timber and equipment. Again the crackdown illustrated how the RGC is able to extend its control countrywide and to crackdown on illegal activities. The MoE and MAFF established Forest Crime Monitoring Units in April 1999, and Global Witness has been appointed by the RGC as an independent monitor with the mandate to report forest violations directly to the Council of Ministers and donors. Generally the logging crackdown appears to have been effective. The quantity of logs felled and exported has dramatically declined since 1998 and there is widespread confirmation that illegal activities have been much reduced. However, some criticism has arisen:

- The majority of small and medium-scale sawmill operations were closed down, but the majority of large-scale concessionaires and military operations acting illegally remained largely untouched by the crackdown
- The prevention of small-scale sawmill activities was a blanket operation which resulted in timber prices rising beyond the means of most villagers
- By April 1999 it was reported that there were some leaks in the crackdown in the form of exports to Laos and Vietnam, sometimes carried out by Military Region 1 and legal concession companies

The logging crackdown caused the country's domestic timber industry to suffer and for local timber prices to rise approximately \$200-250 per m³, beyond the reach of most local users. In an effort to address this problem, the RGC has required the legal concessionaires to supply 20% of their production for local use. However, as the concessionaires have to pay the RGC US\$54 per m³, this cost, plus extraction and transport costs, will also place the price too high. Cambodia requires approximately 170,000m³ of timber per year for domestic consumption. A reform of the domestic timber industry could ensure timber at sustainable prices for local use, while at the same time generating valuable tax revenue for the Ministry of Finance. A possible solution to this problem would be for the RGC to authorise, for example, two sawmills per province to provide timber for local use at set costs to be returned to the Ministry of Finance.

The next few years will be crucial to Cambodia's forestry sector. Major steps have already been undertaken – the Forest Policy Reform Project is underway, every timber concession is being reviewed, the Forestry law is being re-written, and the RGC has shown a definite commitment to clamping down on forest violations. However, what these processes have largely overlooked is the involvement of local communities. By providing access and user rights to the local communities who have traditionally used the forests, the RGC would be moving towards the desired goal of greater equity in resource distribution, to a devolution in central power, and thus to the increased sustainability of the Cambodian forests.

⁵⁷ Fraser Thomas Associates, April 2000:44

SECTION THREE

TOWARDS COMMUNITY-BASED SOLUTIONS TO FOREST MANAGEMENT

3.1 INTRODUCTION

Despite the positive steps towards forest policy reform as outlined in the previous section, there has been little attempt by the RGC to address community approaches to forest management, approaches that could contribute towards the solving of the problems of deforestation and illegal logging. Measures such as the crackdown, which raised local timber prices, have in fact had adverse effects on local people. Because timber royalties go to the RGC, there are no direct benefits to the local communities who may try to negotiate 'compensation' independently. Forest concessions remain a fundamentally inappropriate form of forest management on indigenous lands. Imposed by central authorities they fail to acknowledge the rights of indigenous peoples to access the forests they have traditionally used.

Many NGOs feel that to successfully address deforestation, the co-operation and participation of local communities is a vital element. Local communities, depending for their survival on forest resources, are in close enough proximity to actually police the resources effectively and often have the knowledge and incentives to undertake sustainable use. Security of tenure or land use is one of the most critical factors in obtaining the initial participation and enduring support of local people in forest protection activities. There has been a strong NGO move towards promoting initiatives for community resource management in Cambodia. More recently there has been a move towards promoting community involvement in concession management.

3.2 COMMUNITY INVOLVEMENT IN CONCESSION MANAGEMENT

The recommendations of the Forest Policy Reform stated that in terms of concession management local communities and authorities should be brought into the forest concession allocation process.⁵⁸ FORTECH, in its review of forest concession management stated that local needs and traditional rights of communities must be recognised in the allocation, management planning and forest operations. Communities should have the right to participate in the decision as to whether to award a concession, and lands of traditional social, economic and cultural significance should be delineated and excluded from the concession. In Ratanakiri, however, attempts to promote community involvement in the HERO concession have proved less than conclusive.

3.2.1 Case Study – Community Involvement in Concession Management, Ratanakiri Province

The HERO Forest Concession overlaps indigenous customary land. The concession is inhabited by almost 10,000 people living in thirty-five villages. Most are members of the Kreung indigenous group who have lived in Ratanakiri for hundreds of years. The Kreung are deeply linked to the forest for spiritual and ancestral reasons, and because the forests contain the bulk of resources for their subsistence livelihood. The concession was approved in 1998 without consultation with the forest-dwelling communities. The villagers within the concession area only learned of it when road-building equipment appeared near a village in March 1999. When the villagers requested the right to establish a Community Forest they were told by a forestry official that it was too late.

The concession operations have damaged agricultural land and village paths by using them as logging roads. The blocking of waterways has also led to a reduction in water quality for some villages. Of great concern to the local communities has been the fact that HERO have been cutting trees within the culturally significant spirit forests.

⁵⁸ ARD, May 1998:23

In July 1999 the Governor of Ratanakiri called a workshop concerning the HERO concession, involving district and provincial officials, forestry department officials, NGOs and villagers. It was agreed that areas deemed culturally and ecologically important by the villagers should be excluded from the concession area. It was recommended that as a condition for further logging by the HERO Taiwan Company, a full participatory process and a detailed mapping of the reserved areas must be conducted. Local villagers would be trained to participate in concession monitoring

- *A cultural resources study took place in August 1999 with a specific focus on researching and mapping spirit forests in six villages in the O'Chum district of the concession area*
- *The Minister of Agriculture, in a letter to Prime Minister Hun Sen on the 2^d September 1999⁵⁹ endorsed the positive co-operation between the NGOs, the local communities, the local authorities and the Forestry department in the HERO concession*

However, violations by the concession company continued:

- *The company continued to log in sacred forests clearly marked as exclusion areas*
- *Company foreman continued to offer covert payments to community members to get access to parts of the forest, creating divisions within the communities*
- *Individual villagers involved in monitoring were sometimes subject to intimidation, and members of a study team were advised not to enter one forest area by HERO workers, despite the fact they had official approval from the provincial governor*
- *Company workers have been reported to have set up base within villages while marking and logging, creating an atmosphere of fear and tension which impedes transparent monitoring*
- *The company continued to cut illegally in areas outside of the authorised coupe, and continued logging and roading in contravention of the Cambodian Forestry Code of Practice*

3.3 COMMUNITY FORESTRY

Community forestry is a major forest management alternative to industrial forest concessions, in which significant forest management authority is conveyed to local communities. The justification for the transfer of use rights and management responsibilities of forest areas from the state to communities includes the following points:

- The state is unable to effectively manage the large areas of land under its jurisdiction
- Local communities are usually the primary users of the resource and thus, if given long term security over the benefits of sustainable management, will have an incentive to wisely use the resources
- The state owns the land in the name of the country's citizens, so properly managed use by citizens, supervised by the state, is justified.⁶⁰
- By undertaking community forestry the conflict over forest land is reduced and sustainability can be increased. In turn this can lead to forest certification⁶¹ and higher returns from the forest resources

Under community forestry, the rights to use, manage and benefit from a forest resource are held by the community or user groups as an entity. Since the benefits to each individual member depend on the overall success of the project, there is an incentive to manage the resource carefully. Community forestry promotes local knowledge, utilises local incentives to undertake sustainable management, and encourages devolution of authority.

Commonly, community forestry has been encouraged on areas of degraded land with the aim of reforestation. National forest departments have fewer reservations for giving local communities the rights to manage resources where these resources are degraded. But community forestry may also be applied to areas of old growth forest with the aim of conservation and protection.

⁵⁹ Chea Song (2 September 1999) *Letter to Prime Minister Hun Sen re Report on HERO Forest Concession, Number 3555 Kor Sor Kor*

⁶⁰ Butterfield, ARD, March 1998:11

⁶¹ See Global Witness, April 1999, for information on timber certification

The experience of other countries has shown that community-based resource management systems are successful in protecting forests from uncontrolled logging and agricultural conversion by giving local communities ownership, access, management, use and benefit rights. Through such rights, local forest-dependent peoples can protect their livelihoods, manage the pace of their own development, and redress the current inequality of resource distribution. In particular, natural resource rights are vital for the survival of the indigenous highlanders who rely on the forests for a large proportion of their livelihoods, and who are marginalised from the dominant society in terms of geography, language, and culture. These forest dependent communities often have a good knowledge of the forest and strong incentives to manage it sustainably. Villagers could apply for long-term renewable concession rights to forest land. These can be usufruct rights, whereby the community or the individual gains the right to use and enjoy the benefits of the forest areas for a specific length of time as long as it is not damaged or altered. Alternatively, association title could be given, whereby members of a village register as an association with the government and apply as a group for title for communal forest land.

Community forestry has already been introduced in several small-scale initiatives in Cambodia, with the goal of ensuring the long-term security and stability of the livelihood of rural and forest dwellers, while protecting, conserving or rehabilitating the environment by increasing the area of forest cover. It is gaining recognition as an effective strategy for achieving both sustainable forest management and socio-economic development objectives. Most of the initiatives emphasise developing pilot projects and have been instrumental in promoting and demonstrating community forestry. Both the MoE and MAFF/DFW have recognised responsibilities for community forestry, and each has established a national-level community forestry unit. Although national policies for community forestry are not yet clear, support for community forestry by the two Ministries and some of the provincial authorities has been encouraging. However, more formal recognition by the RGC for community forestry has yet to be given, particularly in areas where community forest areas conflict with other forest uses, in particular with logging and forest concessions.

3.3.1 Case Study – Ya Poey Community Forest, O'Chum District, Ratanakiri

In July 1996 the NTFP Project, in cooperation with IDRC and the East West Centre of Hawaii began a study of customary use of land and forest in Poey Commune, O'Chum District. This was the beginning of a pilot community forestry project targeting old growth forest and indigenous highland communities. One forest was chosen for the pilot project. Comprising a total area of about 4,500 hectares, the forest, known as Ya Poey, is used collectively by six villages of Kreung ethnicity. The forest is divided into four sections, named in the Kreung language: Stieng, O'Taberr, Nyao, and Phnom Tapieng. Village elders outlined the traditional rules that forbade the cutting of forest for swidden, the burning of the forest, or the cutting of large trees.

In the spring of 1997 the six villages formed a Community Forestry Association and agreed on forest protection regulations, and the functions and responsibilities of the Association. Ya Poey Community Forest allows members to collect bamboo, rattan and vines for domestic consumption; to cut timber for domestic purposes with permission from the relevant authorities; to gather other NTFPs for commercial purposes within the rule of law and without destroying the forest; and to hunt small animals and fish using traditional fishing and hunting gear. The regulations prohibit burning, all kinds of timber exploitation for sale, clearing land for swiddens and home gardens, mineral exploitation, fishing and hunting using modern technology and/or for commercial purposes, and hunting large mammals or endangered species. Twelve regulations were agreed upon and presented to the Provincial Rural Development Committee (PRDC) for consideration. The villagers submitted a request to the PRDC to approve a ninety-nine year concession for forest protection for the Ya Poey Community Forest Association. This concession would automatically be renewable with a three-year trial period at the beginning. In return for forest management, members in Ya Poey Community Forest Association can collect forest products for domestic use as well as many NTFPs for commercial purposes.

In early July the Community Forest agreement for Ya Poey was endorsed by the heads of the Provincial and District departments of Forestry, Agriculture, Environment and Land Titles. According to the Governor, this process represented a de facto recognition at the provincial and local government level for Ya Poey Community Forest. However, the Governor also requested that the Community Forest Association submit an official request to the RGC to recognise their community forest. On the 4th July 1997 copies of the request were taken to the Ministries of Interior, Agriculture, the Inter-Ministerial Committee and the Forestry Department in Phnom Penh. The villagers are still awaiting approval.

3.4 JOINT FOREST MANAGEMENT

Joint Forest Management is another option that may allow for the better management of Cambodia's forests by recognising the need for strategies of interaction between forest-reliant people and the Cambodian government. Joint Forest Management builds on the precedent set by community forestry in that it promotes community involvement in the protection and management of forest resources, but it takes this a step further by advocating systems whereby the resources are managed by communities in partnership with the government and the private sector, thus contributing more directly to the national economy.

Joint Forest Management schemes require the development of methods for increasing the productivity of existing natural resource systems, to satisfy both local and national demand. This requires current natural resource systems to be carefully and critically examined, identifying new opportunities for potential resource utilisation in a sustainable manner, and thus increasing productivity within a set area. Under such a scheme, rules and regulations for the utilisation of the resources would be drawn up by local communities in consultation with the government authorities, and these would be binding for all stakeholders.

Within the forests of Northeast Cambodia there are many opportunities for increased efficiency in resource utilisation under a Joint Forest Management system. For example, opportunities exist within old growth forests where timber or NTFP productivity could be enhanced; areas of forest fallow could be examined for the potential to produce trees of commercial value while allowing the soil to regain fertility; existing or future plantations can be considered for their potential to increase economic returns through product variety; and land previously cleared but returning to permanent forest may allow for the enhanced growth and value of commercial species through careful thinning. Such strategies may allow for increased productivity of forest areas while excluding areas used for environmental protection, for cultural or spiritual purposes, or for local community needs. The beginnings of a Joint Forest Management project are currently taking place with highland communities in Som Thom Commune in Ratanakiri Province.

3.4.1 Case Study - Som Thom Joint-Forest Management Project, Oyadao District, Ratankiri

In Som Thom Commune, Oyadao, local communities together with the provincial authorities and UNDP have developed a land use plan for the commune. The plan outlines areas of agricultural land, agricultural concession land, spirit forests, village extension land, wildlife protection areas, paddy fields and multiple-use forest, and details rules and regulations for the management of these land-use areas as drawn up by the community in consultation with government departments. The district and the provincial authorities have given their support to this project.

The Som Thom project demonstrates how local communities can take control of their land in addition to being willing for timber harvesting to occur providing it operates under the joint-management of the government, the concession companies and the communities themselves. The Ya Poey forest community have also shown a willingness to allow careful timber harvesting within their community forest. Such schemes have the benefit of being socially acceptable in that communities are involved rather than alienated, and they offer increased sustainability as the local-ownership increases the incentive of the local communities to ensure that the forest is harvested well. Unfortunately, the lack of legal framework at present precludes local ownership of forest land.

As these case studies show, there is still a long way towards the establishment of processes allowing for community participation in forestry management in Cambodia. However, the pilot projects outlined above are the important beginnings of such a process. Community involvement in forest management is essential if Cambodia is committed to moving towards increased sustainability and equity within the forestry sector. Community involvement has the potential to reduce conflict over resources, to protect livelihoods and preserve human rights, to maintain cultural values, and to acknowledge the importance of forests for reasons beyond the economic value of timber.

SECTION FOUR

RECOMMENDATIONS

The Cambodian forestry sector in 1999 has seen almost unprecedented activity and progress. However, Cambodia needs policies to improve how and where land-use allocations are made, and it needs policies to ensure the livelihood of its rural population. Forests have to be transformed from contested resources to resources that are used profitably for the whole nation. There is a need for a multi-disciplinary approach, whereby the solution to deforestation is achieved through community solutions in addition to forest engineering.

State management of forests has failed to produce adequate results. The devolution of powers to use and manage the forests from central government to local government, and from local government to local communities is a critical step in ensuring the sustainable management of Cambodia's forest resources. The following recommendations concentrate specifically on measures to increase local-level community involvement in the management of Cambodia's forests.

4.1 RGC RESPONSIBILITIES

The RGC must continue to show political will to regulate and monitor the forestry situation with strong measures, allowing the balance of state interests, business interests and local community interests with a master plan for appropriate, sustainable and equitable development.

- The RGC must allow for transparency and consultation with all decisions regarding the forestry sector, and provide for participatory processes that actively engage a wide-range of stakeholders
- The RGC must ensure that it takes into account all social, environmental and economic costs when considering the benefits of any land or forest development
- The RGC must ensure compatibility of land use allocation with the local communities who use or need access to the same land or resources on that land
- The RGC should call an immediate halt to operations within concessions on indigenous lands. This is particularly urgent given the mounting evidence of widespread illegal activities within the concessions and widespread disaffection of indigenous people
- The RGC must recognise the rights and ability of local communities to take on management responsibilities of land and forest and to work towards institutional and policy reform to cover and safe-guard these community rights
- The RGC must recognise that provinces need to be involved in land-use planning as mutual land-use planning cannot be done at national level alone. The RGC must play a regulatory but also a facilitative role, and should concentrate on the capacity building of local authorities who will be better able to facilitate community resource issues
- The RGC must continue to work towards the prevention of illegal and unsustainable logging activities through, for example, the maintenance of the log export ban, the drafting and enactment of the new forestry law, and the termination of concessions operating illegally or in contravention to their management plans. A closing down the parallel shadow economy under which illegal logging has thrived is a pre-requisite to creating a functioning judiciary and law enforcement agencies
- The RGC should require all timber to be certified by an international auditor as originating in sound environmental and social practice. The Forest Stewardship Council (FSC), established in 1993, constitutes an internationally recognised and independent certification process.

4.2 CONCESSIONS

The improved management of timber concessions alone will not solve deforestation. Centrally-imposed concessions should be abandoned in favour of a process favouring local-level consultation and participation. Local communities need input and access to concession areas, and local alternatives to concessions should be

considered. Progress should continue on community involvement in concession management. The following prerequisites should be met:

- The procedure for granting concessions must be transparent and preservative, with consultation of all affected parties, in particular the local communities and local authorities
- All concessionaires must be required to complete an environmental impact assessment (EIA) and a social impact assessment which would focus on the social impacts of the proposed logging
- Detailed studies of local community use and involvement with forest areas should be conducted before forest concessions are authorised by the government, in order to avoid serious impacts on local communities and ensuing conflict
- Lands of traditional social, economic and cultural significance should be delineated and excluded from the concession. These must be given to communities located within concessions through an equitable recognition of customary rights. Such areas must be carved out and excluded from concession contracts so that the ownership and use rights of forest communities are not compromised.
- Procedural⁶² and substantive⁶³ protections for communities located within proposed concession areas must be established. Such communities should have the right to participate in the decision as to whether to award a concession. Key to such participatory right is the use of representative mechanisms chosen by villagers themselves rather than by outside forces
- In existing concessions, areas of cultural, economic and social importance for local communities must be mapped out with the participation of the local communities
- Annual examinations by the provincial forest department of the coupe area and the concessionaires' sawmills should be permitted. The Forest Department should be under no obligation to inform the concessionaire of the time of the examinations. The results from these examinations must be made public
- Long term monitoring of logging operations as well as log transport and export is needed by the national government in close co-operation with the provincial authorities and the local communities. Village monitoring groups should be encouraged and training provided
- Security and freedom from intimidation of village and NGO monitors needs to be addressed and ensured by the Forestry department
- A mobile ombuds-system to which local people may anonymously complain about logging abuses could be devised
- Communication between communities living within or near concession areas should be facilitated to allow for exchange of ideas and concerns

4.3 COMMUNITY FORESTRY AND JOINT FOREST MANAGEMENT

The right of communities to manage land and forest should not be seen as a privilege to be granted by the state, but rather as an essential step to enable local people to provide a service for the present and future economic health of the nation. Both the Ministry of Agriculture and the Ministry of Environment have taken an interest in community forestry initiatives by creating their own community forestry units. It has been demonstrated that community forestry projects allow customary rights to be incorporated and recognised without major modifications of existing legal frameworks. However, such efforts will remain localised unless mainstreamed into the overall forestry policy framework. In order to achieve this the following prerequisites should be met:

- Legal mechanisms should be developed for recognising traditional land-use practices and systems of customary tenure in order to protect the rights of indigenous peoples
- Current land use must be documented and mapped. This is important evidence of possession rights of the rural poor which can be used to prevent further eviction or encroachment. In the case of indigenous people, mapping land use is quick, simple and cost effective
- The RGC should recognise, endorse and protect the customary rights of indigenous highland and rural communities to collect and use forest products

⁶² Procedural protection includes the right to information concerning the environment that affects you directly and the right to a fair hearing

⁶³ Substantive protection may range from co-management to usufruct rights to outright ownership

- The Community Forestry sub-decree should include the authorisation that individuals or associations may access and use forest lands by entering into contractual agreements with the government
- The community forestry sub-decree should expressly include community forestry as practised by the highland peoples, as a legitimate form of community management. Community forest status must be given to areas of old growth forest. Projects such as Ya Poey and Som Thom must be urgently recognised, supported and protected
- Community forestry working groups should be created at the provincial level, incorporating departments such as agriculture, environment, forestry and planning, to screen and make preliminary recommendations on proposed provincial community forestry associations
- There is a need to maintain sufficient flexibility at the national and provincial levels to allow local institutions and knowledge to frame locally unique solutions. Rather than a single community forestry policy, it is recommended that Cambodia develop a 'menu' of social forestry options that allows planners and communities to pick and choose the best solutions⁶⁴

4.4 INTERNATIONAL COMMUNITY RESPONSIBILITIES

The International Community must promote community involvement and participation in the management of forestry resources in Cambodia as a top priority.

- The International Community should place increased emphasis on the importance of community involvement and participation in approaches to forest conservation, natural resource management and land planning
- Pledges of loans or grants made by the international community should be carefully conditioned on the basis of respect for human rights and sustainable management of natural resources, in agreements that are informed and transparent to the public. Compliance to such written conditions should be closely monitored and the Cambodian government must be held accountable for its policies
- The International Community needs to call for an immediate halt to operations within concessions on indigenous land until Cambodia has the institutional resources and political will to prevent human rights abuses and ecological abuses
- The International Community should assist the RGC to develop community forestry or joint-forest management systems, thus encouraging local communities to continue to value forest resources through their increased involvement in their management
- The International community should continue to support initiatives providing accurate information on forestry and land use issues from the local level, particularly concerning human rights, indigenous rights and forest management within Cambodia
- Major importers of illegally cut Cambodian wood must take responsibility to exert severe control over the origin of wood products that are imported, and refuse transactions of wood of illegal and non-sustainable origin. Non-certified timber should not be imported from Cambodia.
- International donors should co-ordinate their strategies to ensure that they do not pressure the RGC into counter-productive actions

⁶⁴ source: Fox, J. (November 1997) Social Forestry as a Vehicle for Redefining Resource Management Institutions in Cambodia (Phnom Penh: ARD, Inc & Department of Forestry and Wildlife)

APPENDICES

APPENDIX ONE

AN ANALYSIS OF THE LAND SITUATION IN RATANAKIRI PROVINCE⁶⁵

Land markets consistently work on behalf of the rich at the expense of the poor⁶⁶. The experience worldwide in developing countries is that free land markets (often in combination with rural debt) lead to a situation where poor or subsistence farmers are forced, or tempted, to sell their land at minimal prices to speculators or developers.

This situation is already evident in Ratanakiri Province near the market centres. Individuals are now selling plots of land, traditionally considered communal assets by villages, without consultation with the community or the elders. The result is that the remaining land is no longer able to support the village population for food production.

Case Study: Oil Palm Concession, Oyadao District⁶⁷

One of the main government rationales for promoting industrial agriculture concessions is that it will provide employment for local people so that they can improve their living standard and reduce their swidden cultivation practices. In order to examine this assumption, in 1996 the NTFP Project was commissioned by the then Governor of Ratanakiri to make a case study of the 20,000 hectare oil palm concession in Oyadao District. The study found that the company planned to employ 400 people in their plantation and factory. However, 4,500 people would be displaced, mainly of the Jarai ethnic group, from their productive land. The monthly salary of US\$30-50 per month would not compensate a family (at market values) for the loss of their crops. If one salary provided for an average sized family of five, 2,500 people (over half of the population) would still be displaced. These people would be forced to clear new areas of forest in order to survive. In fact, the company has employed few local people, preferring instead to hire wage labourers from the lowland provinces.

Case Study: Land Swindle in Bokeo District⁶⁸

In Bokeo district three local villages (one Jarai and two Tampuan) were tricked into selling 1,200 hectares of prime land to a powerful military general. The General paid local district officials to issue 5-hectare land titles in the names of local villagers, a total of 247 titles in all. The villagers were told their signatures were for a government development project from which they would all benefit, however they later realised that they had signed land titles, all of which were now held by the General. When the villagers demanded their land back the General once again hired local officials to acquire 247 signatures on an agreement saying that the villagers had agreed to sell their titles to the general for a small bag of salt. Several villagers reported how they had been forced to falsify dozens of thumbprints. They were not told of the content of the agreement they were signing, but were threatened that if they did not sign they would lose all their land.

With the help of a legal aid organisation, the villagers lodged a complaint with the provincial court in May 1999. In January 2000, as the conflict had still not been resolved, the Ratanakiri Governor agreed to refer the case to the National Land Conflict Resolution Committee under the Ministry of Interior. The case is still pending.

This case demonstrates how easy it can be for those with power to claim land occupied by local indigenous inhabitants. It is typical of dozens of other cases of land grabbing involving areas from between 5 to 500 hectares each. Because local people have no legal documents proving their customary rights, it is difficult for

⁶⁵ Source: NTFP Project, Banlung, Ratanakiri Province

⁶⁶ Proceedings of IFAD Conference on Knowledge Networks on Land Tenure Rights (Rome: February 1998)

⁶⁷ For further information see Colm, S. (May 1996) Effects of Oil Palm Plantation Development on Indigenous Communities, Ratanakiri Province Banlung: NTFP Project

⁶⁸ Information from NGO reports, Ratanakiri Province

them to defend their claims. If displaced, they are faced with no option except to clear forest in other areas in order to maintain a viable food production system. It is feared by many observers in Ratanakiri Province that a combination of intimidation and bribery will be increasingly used to force the villagers to give up their land. For many reasons, this is a watershed case. If the outcome of the case proves favourable to the villagers and they are successful in keeping their land it will send a strong message to those involved in the current wave of land grabbing in Ratanakiri Province.

Towards Communal Tenure of Land in Ratanakiri Province

Research commissioned by the Council of Ministers in May 1999 on the type of land tenure favoured by indigenous communities showed a strong preference for a communal type of tenure. The main reasons given for this were that communal tenure would protect the food security potential of the village for present and future generations, as any land sales would necessarily need to be approved by at least a two-thirds majority of the adult village members. Proceeds from any sale would be used for communal purposes. Villagers agreed that such a system would help to protect the common good of the community from the temptation or greed of individuals.

Communal tenure can thus be seen to be one mechanism acceptable to indigenous communities that would buffer them against the excesses of the land markets.

Case Study: Land Use Planning Pilot Project in Krola Village, Poey Commune, Ratanakiri Province

In view of the difficulties being faced by other villagers due to loss of land, leaders from Krola village in Poey Commune decided to request assistance from the NTFP Project in late 1997. After considering a number of options for land tenure, including individual titles and a collective of individual titles, the villagers chose the option of mapping user-areas with participation from the local authorities in preference to legal title options. Their rationale was that recognition from the local authorities would provide them with greater security than legal title. The land use planning process would enable them to continue to use some areas communally, for example for swidden farming, and to allocate other areas for individual use, such as for paddy or fruit tree orchards. The Central Land Titles Department in Phnom Penh, in conjunction with the GTZ Land Management Project, provided technical expertise in producing a participatory land use map of the village user areas. Micro-zones were identified and mapped. These included:

- Old growth forest for the collection of non-timber forest products
- Spirit forest
- Bamboo forest (for the collection of building materials)
- Watershed protection forest
- Burial forest
- Buffer forest (around the village)
- Village residential area
- Paddy
- Swidden and fallows
- Perennial fruit orchard
- Investment zones for cash crop production

The total area covered by the land use map is approximately 1,200 hectares. Of this, about 35% is agricultural land, approximating five hectares of land per family.

For each of the micro-zones, a village Land Use Working Group developed internal regulations on use and management, with technical assistance provided as required by the NTFP Project and a counterpart from the central Land Titles Department. The process of formulating the regulations included holding regular meetings involving all village members at which the regulations were reviewed.

All communities with user areas adjacent to Krola village sent representatives to join the process at all crucial steps. Krola village representatives attended meetings in all of the neighbouring villages in order to ensure the understanding of the process and to resolve any outstanding disagreements about the extent of user areas between the neighbouring communities. Once the negotiations were completed, elders and leaders from the neighbouring villages placed their thumbprints on the land-use map to signify their support.

As the support and recognition of the authorities is a crucial factor in ensuring security over land and resources, relevant authorities and line departments were also involved in the process at all steps. These included:

At Provincial Level:

- Forestry Office, Land Titles Department, Environment Department, the Provincial Secretary General
- District and Commune authorities

At Central Level:

- A Counterpart from the Land Titles Department
- A Counterpart from the Forestry Department

The process of mapping and developing user regulations took approximately four months during which time a Land and Natural Resources Committee was elected. The land management regulations include provisions for the re-election of the Committee and principles of its operation.

Examples of the Regulations

- Sale of land (even small parcels) must be endorsed by consensus of at least 80% of the voting members of the village
- The community allocates access and rights of use to land to individuals or families who are members of the village. Productive activities are primarily carried out by individual families
- Swidden land may be converted to permanent land uses such as perennial fruit orchard or cash crops. Any family who develops a parcel of land is recognised as having exclusive rights to harvest the produce, and may pass these rights on in inheritance. A ceiling of five hectares per nuclear family is placed on conversion of swidden land to settled users. This helps to protect widows and other families with limited labour resources from being marginalised by more aggressive community members. The five-hectare provision encourages families to engage in perennial cash crop production, according to the provincial development policy. Villagers can expand their area of perennial crops year by year, according to their capability. As these crops come into production, one may expect a corresponding decrease in dependence on swidden cultivation
- As the village population increases (and the number of nuclear families), the situation may arise whereby all swidden land has been allocated to individuals. At this stage, parcels may begin to be divided to children by inheritance. This situation would be little different from having private land title, with the exception that sale of the land would not be permitted
- Old growth forest areas and spirit forests are protected from further encroachment
- Significant areas have been set aside for joint investment in cash crop production. The community welcomes any investors who are interested in developing this land for cash crops. The period of cooperation and provisions for sharing responsibilities and benefits between the investment company and the local community would be defined. Such an approach allows for the Government priorities of encouraging investment to be realised, while at the same time protecting the community interests. It effectively recognises that Government, local communities and investors are all legitimate stakeholders in the land. This approach introduces a new tier of decision-making in development and investment on customary land: that of consultation, participation and negotiation with local communities. It can help to ensure a more transparent process in decision-making about development projects

The Advantages of Community Tenure (usufruct rights) through Land-use Planning

- Local highland people can easily adapt to this approach
- Rapid mapping is possible involving the whole community at a time, as compared to surveying for individual titles. This ensures that a level of protection over rights to land can be delivered quickly for local people
- The Land-use Planning Process describes actual de-facto tenure (current use and occupation) which are recognised as possession rights under the 1992 land law. Article 70 accepts 'fallowing land for the purpose of restoring soil fertility' as being a legitimate use of land. Thus active fields and fallow swiddens can be described as part of the community possession
- Participation of all stakeholders is an effective method to prevent conflict. Neighbouring villagers, local authorities and the community are all involved in the process. The reduction of civil conflicts is a major priority of the Ministry of Interior. Participatory Land-use Planning will greatly reduce the time that local authorities have to spend on resolving conflicts
- The productive potential (and thereby food security) of the village is protected for present and future generations
- The gradual conversion of swidden land to more productive uses such as fruit trees or perennial crops is encouraged through this process. This is consistent with Government priorities. Conversion to sedentary agriculture is able to take place at a pace which the community can handle. This may take up to fifteen years
- The existing community labour force for agriculture development is utilised. Rather than being marginalized or disadvantaged by the development, as happened with the oil palm concession, local communities can participate and benefit
- Private investment is allowed through the entering into joint agreements with the local community
- Important forests are conserved and the watersheds are protected

Obstacles to Community Tenure

- The Land Titles Department and some local authorities are resistant to communal forms of land tenure as it has the potential to effectively lock-up large areas of land from the speculators market and therefore from the titling and land transfer process
- As yet there is no clear policy framework. Progress on the policy for highland people's development has been static for almost three years. A chapter on indigenous community land rights has recently been drafted into the land law, but not yet approved
- The type of tenure provided under a community Land-use Plan is, as yet, unclear

Because there is no policy framework, each Land-use Planning application must go through an expensive and time-consuming process of consultation and workshops at every level. This process involves consultation with the relevant authority as the first stage, followed by the presentation of an official application based on the results of the first level of consultation.

Recommended Types of Agriculture Investment for Community Land

- Investments that are high in biodiversity should be encouraged, based on the existing agriculture systems and incorporating native varieties. In this way the ecological and environmental advantages of the traditional systems can be maintained
- Investments of perennial tree crops should be a major component. Perennial tree crops help to stabilise the system and replace some of the ecological functions of the secondary forest
- Family food production should be a first priority. The marketing of surplus products would be a second priority
- Investments should be labour intensive rather than capital and inputs intensive. Labour is one of the main limiting factors for the highland family in implementing agriculture change, therefore appropriate ways of saving labour will need to be found

APPENDIX TWO

HUMAN RIGHTS AND CAMBODIAN FORESTS⁶⁹

Article 31 of the Cambodian Constitution recognises and respects all human rights stipulated in covenants and conventions related to human rights.⁷⁰ Several human rights provisions enumerated in the International Covenant of Civil and Political Rights (ICCPR), ratified by Cambodia in 1992, and the International Labour Organisation (ILO) Convention No. 169 are relevant to current forestry practices, and to the situation of the highlanders of the Northeast. These treaties engender the following binding international obligations on the Royal Government of Cambodia:⁷¹

1. **The right to culture** – Article 27 of the ICCPR stipulates that, 'ethnic ... minorities ... shall not be denied the right, in community with other members of their group, to enjoy their own culture [or] to profess and practice their own religion.' Indigenous cultures in Northeast Cambodia are intimately interwoven with the natural world. Animist religions place great emphasis upon peoples' obligations to and relationships with the natural world and the consequences for failure to meet these obligations. Culture and personal identity is thus inextricably bound to a sense of place and oneness with their immediate natural environment. Where land and forest is the focus of religious and cultural signification, the right to cultural difference and autonomy hence resets upon access to these resources.
2. **The right to life** – every individual has a right to life. Article 6 of the ICCPR states that everyone has 'the inherent right to life. This right shall be protected by law.' Consequently, governments have a duty to preserve, or at the very least, not harm, the resources upon which individuals depend for their survival. Land, forest and fishery access rights are of primary significance to most rural Cambodians as a source of food security and livelihoods. A variety of subsistence strategies have helped to protect rural Cambodians against catastrophe in any particular area. Forest resources are an essential part of this subsistence 'safety-net'. Deforestation undermines a staple of rural Cambodian livelihood strategies and reduces the ability of the rural poor to avoid landlessness and poverty.
3. **The right of equality** – the current use of forests vitiates the right to equality in two ways. First, the exploitation of forest resources is currently heavily biased towards logging, which means that the value of the forest for local communities using NTFPs is systematically devalued. Timber exploitation often fatally compromises the ability of forest residents to gather NTFPs, thus preventing them from pursuing their livelihoods. Thus, the current exclusive focus on timber has an actual negative impact on forest-dependent communities in that the costs of forest exploitation are unevenly distributed among the population. Second, virtually all legal revenues from timber exploitation flow directly to Phnom Penh. Little if any is reinvested into the communities that have suffered the most from deforestation and environmental damage. Thus, the distribution of forestry revenues is deeply flawed and damaging to health and life because of its inequality. In conclusion, both the distribution of costs and benefits from current forest exploitation are systematically skewed against forest-dependent communities in favour of military and political elites in Phnom Penh. Consequently, the current system of timber exploitation has an important impact through the exacerbation of income inequalities throughout Cambodia.

⁶⁹ Source: Huq, A. & Muller, D. (1999) Human Rights and Cambodian Forestry Practice (Phnom Penh)

⁷⁰ Hence, the RGC is under a legal obligation to guarantee these rights.

⁷¹ Several other international treaties signed by Cambodia create obligations to behave in a particular way in relation to forest resources. For example, instruments like the Convention on Biodiversity and the Ramsar Wetlands Convention demand that the environment be managed sustainably, minimising the number of externalities (such as the siltation of and concomitant loss of fishery stocks in the Tonle Sap).

4. **The right to self-determination** – Article 2 of ICCPR guarantees that ‘all peoples may, for their own ends freely dispose of their natural wealth and resources.’ While this right has traditionally been applied to the State, its application in the case of indigenous groups has been suggested by ILO Convention 169, which promotes the control of resources by those who immediately depend upon them. This provision is particularly pertinent for the highlanders of the Northeast, and may mean that at least some of these forest communities will have a direct claim on the ownership of forest resources. In addition, Article 7 of the ILO Convention 169 says that indigenous people have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions, spiritual well-being, and the lands they occupy or otherwise use.

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