Part 2
Papers & Comments

A Review of Forest Management in Indonesia and the Philippines

STRUCTURAL ANALYSIS OF FOREST LOSS IN THE ASIA-PACIFIC REGION[1]

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SECTION ONE

SCOPE AND APPROACH OF RESEARCH

1.1 - TARGETS

The team conducting the "Structural Analysis (ST) of Forest Loss (or Destruction)" focused mainly on the Underlying Causes (UC) of recent deforestation and forest degradation in the Asia Pacific region. The Underlying Causes, in line with major Proximate Causes (PC), are sorted out by discovering common points among target regions, as well as the uniqueness of the countries and sub-regions. Through this procedure clear pictures are grasped of the structural context of recent forest loss in the Asia and Pacific Region. We will later discuss desirable directions for overcoming forest loss. (The ST sub-team provided information to other sub-teams as a basis for the integration of overall research activities of the IGES Forest Conservation project).

1.2 - APPROACH

Two approaches were employed in the team's research activities: country studies and active collaboration in the Intergovernmental Forum on Forests (IFF) UC/NGOs Asian Process. For the first approach, country studies were conducted consisting of studies of Underlying Causes, data collection and studies of international linkages of forest resource use from the UC perspective. In the second approach, the team co-organized several meetings of the Asia regional process within the IFF-UC/NGOs initiative that were aimed at commitments to international policy dialogue.

As target study areas in the insular Southeast Asian sub-region, Indonesia and the Philippines were investigated. For the Mekong River basin region, Thailand, Lao P.D.R., Vietnam and Cambodia were selected. In Northeast Asia, studies in the southern part of the Russian Far East were mainly conducted and preliminary studies for China were carried out. For these target areas, members of four research groups for country studies collected information through available literature and workshops, as well as by carrying out field studies.

Non-governmental organizations (NGOs) and indigenous peoples' organizations (IPOs), in cooperation with governments and intergovernmental agencies, took the initiative (IFF-UC/

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NGOs Process) to contribute to one of the most pressing issues – the Underlying Causes of Deforestation and Forest Degradation, and started their research project after the UN Special Session. IFF organized a global workshop on this matter in January 1999, in addition to the case studies, which were conducted by some government and international NGO research teams. Mr. Yoichi Kuroda, in charge of an Asia regional focus, collaborated with Ms. Mia Siscawati (Indonesia) and attended a series of meetings at several large conferences. IGES also co-organized a preliminary meeting for the Asia Regional Workshop and the IFF-UC/NGOs Asia Regional Meeting aimed at inputting the discussion results into the IFF process effectively.

1.3 - ANALYTICAL FRAMEWORK

There are many underlying causes of forest destruction. However, we should address the vital underlying causes, which strongly contribute major direct/proximate causes to forest destruction. The underlying causes close to given direct causes may often be interrelated to each other, so it is necessary to identify the root and underlying causes and immediate causes of deforestation.

In the final steps of the study, an explanatory model of forest loss proposed by Hirsh (2000) (developed based on existing studies) was employed as a main analytical framework to consider the existing discussion aimed at addressing the causes of forest loss. This model is a schematic representation of the ways and modes of explaining deforestation (Fig.1-2).

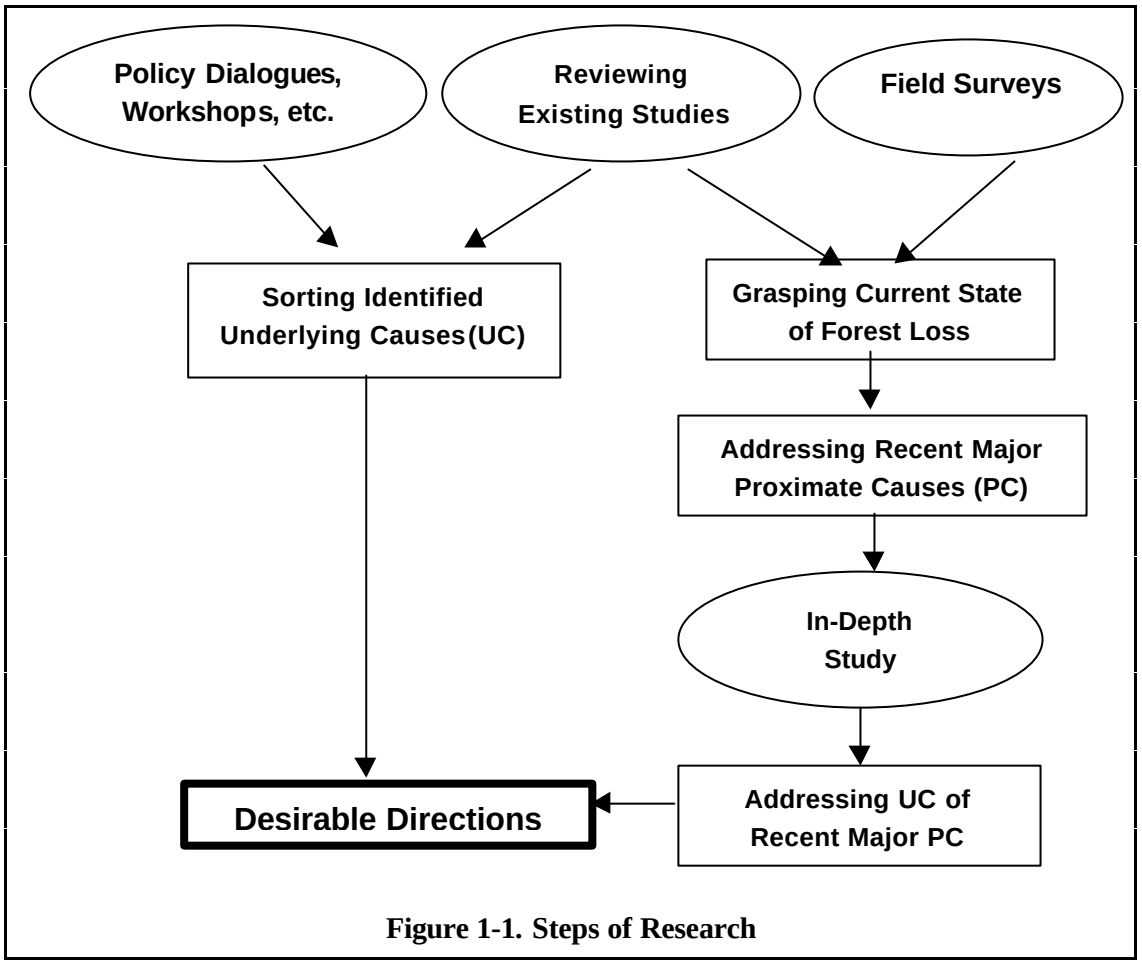
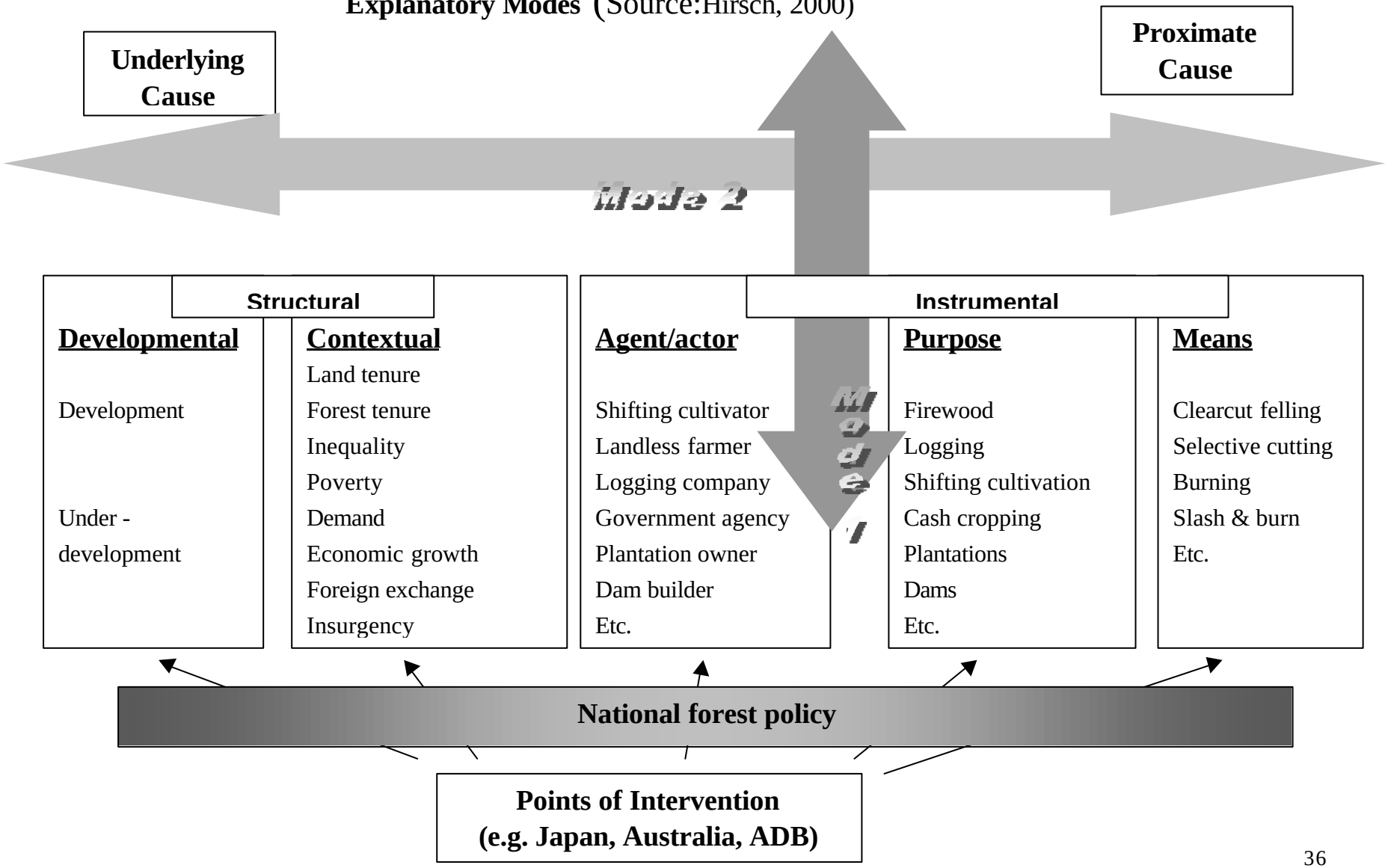


Figure 1-1. Steps of Research

Figure 1-2. Causes of Forest Loss:

Explanatory Modes (Source:Hirsch, 2000)



SECTION TWO

SYNTHESIS OF STRUCTURAL ANALYSIS ON FOREST LOSS IN THE ASIA-PACIFIC REGION

2.1 FOREST LOSS IN TARGET AREAS

The target areas of our study are categorized into three groups according to their percent of forest cover and rate of deforestation (1990-95) (Fig.2-1).

The first group includes the Philippines, Thailand and Vietnam, which have less than 30 percent forest cover and more than a one percent annual deforestation rate. These countries have experienced serious deforestation in a rather short time after World War II. Forests in the Philippines and Thailand were first exploited for commercial logging. After that deforestation was caused by forest conversion projects for agriculture and commercial ranching and forest degradation due to industrial tree plantations, which still progress at a rapid pace. In Vietnam, at least two million hectares were deforested quickly due to the direct and indirect impacts of the Second Indochina War. After 1975, deforestation has continued at a high pace from land clearing in accordance with their policy of rice self-sufficiency, in-country migration, coffee plantations, shifting cultivation and logging as a financial source of the military.

The second group includes Indonesia, Lao PDR and Cambodia. While these countries have rather abundant forests, with more than 50 percent forest cover, deforestation has worsened rapidly. The proximate causes of forest loss vary from country to country. In Indonesia, mainly commercial logging and forest conversion projects have caused deforestation, and recently, frequent large-scale forest fires have accelerated forest loss. In Laos, large forests were destroyed during the Second Indochina War and then cleared in compliance with a rice self-sufficiency policy, hydropower development and other forest exploitation with industrial emphasis. Cambodia has experienced rapid deforestation caused by land clearing for crops and chaotic logging under the protection of powerful people and the military.

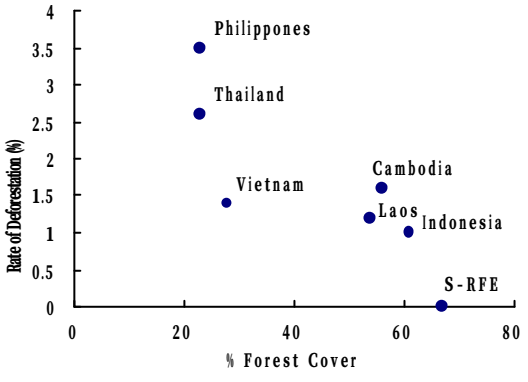


Figure 2-1.State of Forest Loss in Target Areas

The southern part of the Russian Far East (S-RFE), with boreal forest cover, belongs to the third group. The area has large tracts of virgin forests with more than 60 percent forest cover. Deforestation is not reported in statistics. However the area has experienced the steady progress of forest degradation mainly because of unsustainable forest exploitation for log-export and frequent large-scale forest fires.

While the specific features of forest loss in each target area vary from place to place, there are shared facts. Each of these areas has met rapid forest loss in a relatively short time and strongly needs measures to overcome this problem. Countries such as the Philippines and Thailand, which have experienced serious forest loss, have actively started reforming their legal and

administrative frameworks, including community-based forest management systems to ensure efficient forest conservation. In contrast, it seems that other countries with relatively abundant forest cover have not employed drastic policy reforms because of many obstacles, and unfortunately, it appears that current efforts are not enough to stop on-going forest loss.

2.2 - IMPACTS OF FOREST LOSS

2.2.1 - Environmental Impacts

In terms of environmental conservation, forests in the target areas are quite important from the global, regional and domestic perspectives. Until the 1950s, the target study areas possessed some of the largest tracts in the world of primeval forest and areas of high biodiversity, containing many endangered species. Forest "development" and forest fires have destroyed habitat and can devastate forest areas at a very rapid pace. Forest development also has directly or indirectly encouraged other environmentally-destructive activities such as colonization, commercial hunting, and clearance for agriculture, especially in tropical countries.

Forests in the target areas play a very essential role in stabilizing climate change, both in tropical and boreal forests. Forests have a particularly important function of minimizing climate change by absorbing carbon dioxide (CO2), which scientists have identified as the major cause of global warming, and storing carbon, both in the ground and timber. Large-scale deforestation and forest fires have caused mass emissions of CO2 and brought serious impacts on the CO2 balance in the global atmosphere. Destruction of boreal forest on permafrost also brings about the release of methane gas, another greenhouse gas, which is stored in the ground layer and has a warming effect 10 to 20 times that of CO2. A significant warming of the earth could cause massive melting of the permafrost, which covers 75 percent of the Russian Far East. The changes could in turn increase global warming and the vicious cycle would then feed upon itself.

2.2.2 - Economic Impacts

The forests in the target study areas also play important basic roles both for national and local economies. Note that timber trade is the key means of foreign exchange in all these countries. Timber and non-timber products are the basis of the domestic forest sector, and the forest sector often provides a basis for much of the local social structure and an organizational backbone for local town and village life.

The continuation of deforestation in each country has resulted in the loss of a valuable economic asset for their countries. For example, the Philippines lost its timber self-sufficiency since the 1980s and has frequently suffered disastrous floods that brought enormous economic damages and the loss of many human lives. Thus people in the countries are suffering inestimable costs from the loss of their 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 resources. We can also see very similar economic impacts of serious forest loss in Thailand.

Widespread uncontrolled illegal logging and timber trade accelerate forest loss and have very negative effects on forest conservation. In Cambodia in 1997, over $185 million worth of timber was illegally felled but only $12 million reached the treasury. In the southern Russian Far East, it is estimated that the actual timber harvest is four times the harvest reported in statistics. This

is why about 50 percent of the total cut was left at the logging site and the harvested timber is under-reported by 100 percent to avoid taxes in the region.

The economic impacts of large-scale forest fires, which are major proximate causes of forest loss among the target areas, are also quite serious. Damages from forest fires are inflicted not only on various forest-based resources such as timber or non-timber products, hunting and game stock, but also on human health and other activities. The 1998 large-scale forest fires in the S-RFE burned 2.2 million hectares, causing the loss of around 15 million cubic meters of timber and 207.2 million US$ worth of lost forest ecological functions. It is estimated that the Indonesian forest fires in 1997 caused economic losses of between 3.5 to 7 billion US$ from ecological and economic impacts (Elfian, 1998).

2.2.3 - Livelihood Impacts

The most severe effects of deforestation on human livelihood are shortages of fuelwood and forest products to provide subsistence. Moreover, the deterioration of the multi-functions of forests bring crucial impacts upon human activities such as agriculture and fisheries even downstream. An increase in the occurrence of floods and droughts will also affect livelihood security. In the Philippines, because of the collapse of ecosystems, disastrous floods now occur frequently and cause the loss of many human lives every year. In Cambodia, the effects of deforestation threaten their staple foods of rice and fish due to the siltation of rivers and lakes, while soil erosion reduces the amount of productive arable land. In the S-RFE forest exploitation has progressed under the new market economy and has destroyed the base of livelihood of the people, while benefits from the development have returned almost nothing to the indigenous people.

2.2.4 - 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. Our studies showed that conflicts over forest use are escalating between rural people, commercial timber operators, agricultural concessionaires, and protected area managers, both in the Philippines and Cambodia. Many cases of forest fires in the Philippines were set by arson as a result of such conflicts.

2.2.5 - Land Alienation

As local people become alienated from their lands, there appears to 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. Moreover, forest development makes a forest poor and consequently inactivates a livelihood strategy depending on forest products (in Indonesia and the S-RFE). Then local people often have to move out from their original land to new land and turned to non-traditional swidden farming (in Indonesia). Land alienation also leads to increased poverty and often forces people to degrade the land that they do have access to, or to harvest forest products illegally in the areas to which access is denied (in Cambodia and the S-RFE).

2.3 - ROADS TO FOREST LOSS

2.3.1 - Processes to Forest Loss

Based on the present research outcomes, the major proximate causes of recent forest loss in the target study areas can be summarized as follows:

1) Logging (mainly for commercial purposes);
2) Forest conversion projects (mainly with industrial emphasis);
3) Forest fires caused by human activities; and
4) Non-traditional swidden farming.

While they relate mutually, these proximate causes have made the forest degrade and disappear (Figure 2-2).

Much of the forest loss in the target areas generally started from logging of primeval forest. The logging caused degradation of forest, but is not connected directly with the major deforestation. Often logging is only the first stage of forest loss. Most logging operations target valuable timber for commercial purposes. In the pre-stage of forest conversion in every tropical country, projects were observed such as settlement programs, agricultural farm development (in many tropical countries), hydropower development (in Lao PDR), mining (in Indonesia), settlement (in all tropical countries), and many extensive large-scale logging operations. We recognized a shared feature that logging operations are conducted with the combination of commercial timber harvest. Such operations are often undertaken in a large-scale and extensive way in order to gain enormous profits. Moreover, our studies showed that these operations had very unclear granting procedures favoring special groups without any consultation with local people. In many cases in the Philippines, fires resulting from arson originated in land conflicts between local people and concession holders or logging companies (in the Philippines and Thailand). We also confirmed that extensive logging had strong connections directly or indirectly with forest fires due the drop in forest humidity after logging, the careless handling of fire by logging workers and the increase of small fire started by citizens.

After logging, forestlands are degraded or deforested via three processes: no management, planting, and conversion.

When logging sites are not managed, the forest land both in the tropical and boreal zones progress into secondary forest and finally, usually more than one or two hundred years later (if allowed), climax forest with almost the same structure as the original forest. However, cut-over land in tropical forests in the target study areas quite frequently experienced an invasion of settlers who came along with the road for the logging operation. Then settlers began slash and burn agriculture or non-traditional swidden farming. Forests, where non-traditional swidden farming was conducted, often turned into unproductive lands due to natural causes such as the ecological properties of tropical forest soils, the vulnerability of soil to erosion and meteorological factors. Without careful fire control, forest fires occurred frequently, and in consequence, the forests occasionally transformed into grasslands or barren lands. In this sense, the increase of non-traditional swidden farming that originated in natural forest extraction is a key proximate cause leading to deforestation. However, as shown in the diagram, non-traditional swidden farming is a part of the major activities leading to forest loss in tropical countries. Many field researchers have already indicated that deforestation seldom occurs in the

traditional manner. The blaming of deforestation solely on shifting cultivators is a simplistic approach (**discursive contestation**) which does not consider the many forces causing forest loss, thus we are requested careful examination of the type of shifting cultivation and the processes leading to deforestation.

When a cut-over area was planted with seedlings followed logging, large-scale tree plantations of fast-growing species for industrial purposes were promoted in many cases. Since such forest conversion projects largely degrade the ecological and production functions of a forest, industrial tree plantations are activities that can lead to further forest degradation. Industrial tree plantations were promoted actively when natural forest resources were depleted (in the Philippines and Indonesia). By the stage when tree planting was promoted actively, in many cases, the project site was already occupied by local peoples for their own use (in the Philippines and Indonesia). Our studies in the Philippines indicate that industrial tree plantations were proceeded with forcibly by big enterprises without consultation with local people and stakeholders. As a result, forest fires started by local people due to land conflicts occurred frequently. For land clearing on project sites in Indonesia, low-cost intentional burning was employed broadly and frequently caused forest fires even after an official circular on prohibition of burning. In short, forest conversion projects become a key proximate causes leading to deforestation if the procedures and controls are inappropriate.

There are many activities that can occur when a cut-over area is converted into other land uses. The common activities among tropical countries are reclamation for paddy fields or croplands. These developments have been preceded and tightly connected with settlement policies. Moreover, plantation developments such as rubber, coffee and oil palm have also brought large-scale forest conversions. Additionally, converting forest lands to commercial ranches (in the Philippines) and shrimp farming (in Thailand) are identified as major proximate causes. Forest conversion to dam construction is also addressed in Lao PDR. The common feature of these forest conversions is that products from the newly developed land, including electricity from hydropower dam development, are aimed at acquiring foreign currency, supported by strong demand in consumer countries. Since land clearing in these activities often employed low-cost intentional burning, escaped fires frequently caused forest fires. As a result, vast grassland and unproductive lands appeared due to repeatedly occurring forest fires.

In short, we found the following common features amongst the major proximate causes of forest loss within the target study areas:

- Large-scale logging or timber extraction is a common major proximate causes both in tropical and boreal forests.
- In tropical countries, tree planting and forest conversion projects were identified as common major proximate causes leading to the deforestation and degradation of forest lands. Because most of these activities have an industrial emphasis, it is considered that the expansion of them has accelerated forest loss notably.
- Forest fire is also addressed as a major proximate cause, which has tight connections with all major proximate causes. In many cases, forest fires were caused repeatedly and expanded, induced by other proximate causes.

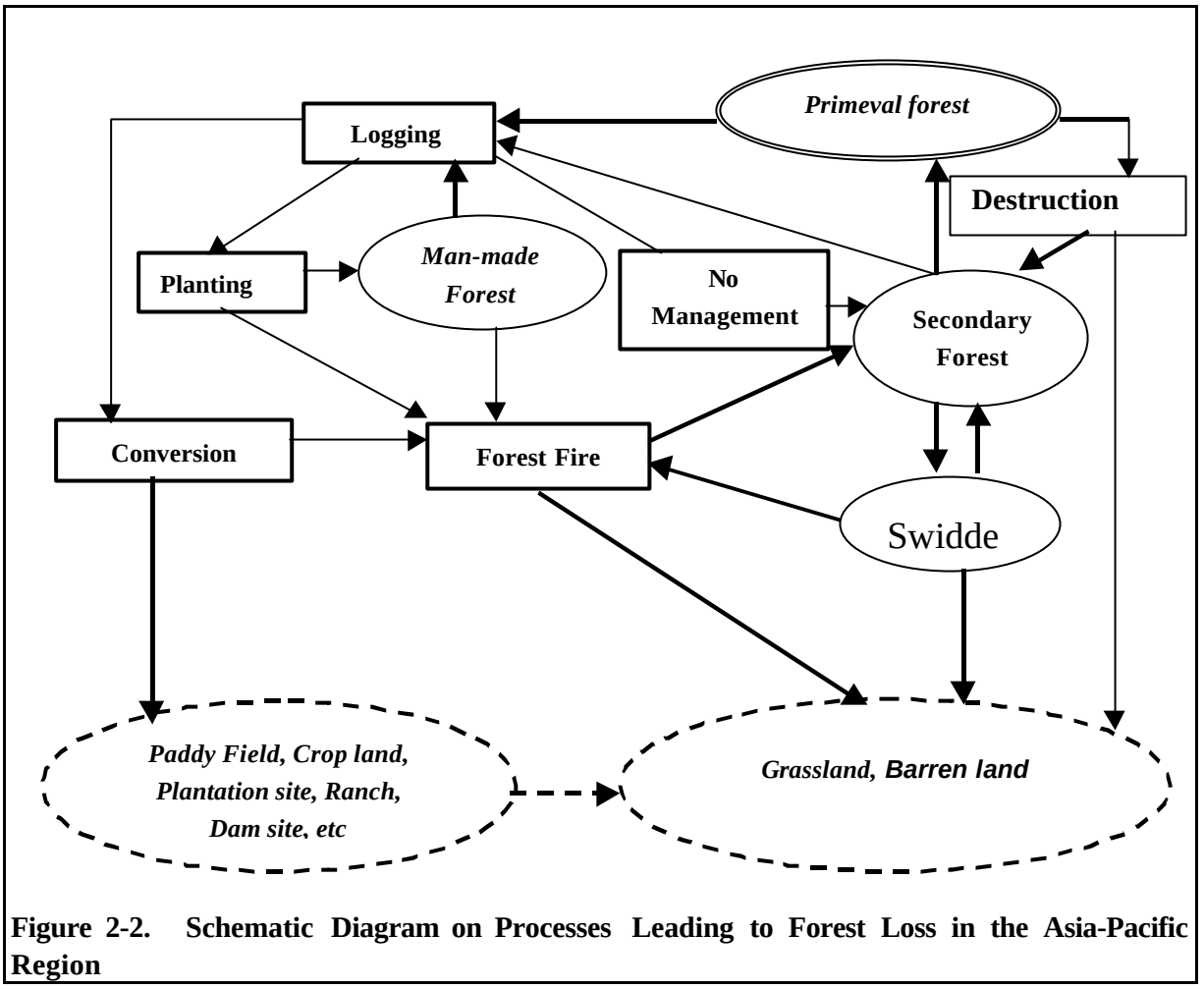


Figure 2-2. Schematic Diagram on Processes Leading to Forest Loss in the Asia-Pacific Region

2.3.2 - Country Experience

When the schematic diagram shown above is used to explain the processes of forest loss in the target areas, we can point out that the process of forest destruction in the S-RFE, for example, is rather simple. The forest loss in the S-RFE progressed with a combination of unsustainable commercial logging and frequent forest fires. On the contrary, tropical forest countries in the southeast region experienced more complex processes. We also confirmed that Thailand and the Philippines, which experienced serious forest loss in the past, have gone through most of processes shown in the diagram. Indonesia also has passed through almost all the processes for forest loss, excluding destruction by war. As for Lao PDR and Cambodia, the move from logging to planting has not been established in earnest but all other routes are identified.

In conclusion, the fact that forest loss in tropical forest countries has been caused as a result of a combination of many proximate causes suggests careful analysis of their actors and underlying causes. As for the S-RFE, it may be possible to conduct more focused examination of the underlying causes. Moreover, forest fire caused by human activities and forest developments with an industrial emphasis are key proximate causes of forest loss both in tropical forest countries and the S-RFE. Thus we believe that effective solutions and practical actions are quite essential to overcoming forest loss in the target areas.

2.4 - AGENTS/ACTORS OF FOREST LOSS

We identified agents/actors of forest loss in target areas from domestic and foreign elements as shown below. Solutions from both sides are essential to overcoming forest loss in the areas.

- ✓ Domestic agents/actors: government, domestic logging companies/industry, military authority, power people and local people;
- ✓ Foreign agents/actors: import countries, foreign capital from importing countries, foreign aid institutions

2.4.1 - The Government

The roles of the government vary among target areas but they can be classified according to their functions: planner and executor of economic development policies; planner of forest policies; and bodies responsible for forest management.

In terms of design and implementation of economic development policy, all central governments promoted timber logging as a major means of acquiring foreign exchange. At the same time, governments recognized forest land as a source to be converted into agricultural land or other land use, which then progressed to forest conversion projects. In general, the governments placed priority of development on more profitable projects like mining. Such large-scale forest development programs were done with a top-down approach and pushed forward forcibly without consultation with local people and other stakeholders, because in many cases the forests are owned by the state, and the government has quite a strong authority. Besides such forcible forest development, the governments promoted a set of policies aimed at industrialization and market economy transition. Such changes caused social and economic instability and severe impacts on rural people. Many indigenous people and local people were forced to abandon their original livelihood strategies, which strongly depended on rich forest products, and turned to non-traditional shifting cultivation or poor wage labor.

The role of the government as a planner of forest policy is also vital both in the natural forest-logging phase and the plantation phase. In the natural forest-logging phase, the first step of forest loss, natural resource policies aimed at extracting valuable wood were promoted in every area. In these policies of forest exploitation the logging operations were extensive, yet reforestation programs were not included. In this phase the governments wielded enormous power in the allocation of logging concessions. When natural forest resources became depleted, many governments aggressively promoted large-scale industrial tree plantations. These forest policies were frequently implemented forcibly under a top-down approach without environmental impact assessments (EIA), social impact assessments or consultations with affected parties, in particular the local communities and local authorities

In the "role of responsible bodies of forest management," our studies indicated that the inabilities of forest governance such as the violation of rules and corruption, and insufficiencies of management resources were common indirect causes of forest loss in target areas. Our studies confirmed the concrete influence of the inability of forest governance reputedly in logging concessions (in the Philippines, Indonesia, and others), forest conversion projects (Indonesia), and illegal logging (in Indonesia, Cambodia and the S-RFE). This inability of forest governance often originated with a shortage of finances, manpower and a lack of capacity on the

part of foresters. As shown in the S-RFE, an inability of the forest administrative body is caused by drastic transitions in social structure and consequent economic crisis. The effects led to a deterioration of fire monitoring and firefighting systems, and consequently resulted in frequently occurring large-scale forest fires. Beside such problems, aiming to cover budget shortages in local forest bodies, various types of violations such as corruption, disregarding logging-rule and illegal logging/trade spread notably. This has made the degradation of forests more serious as well.

2.4.2 - Domestic Logging Companies/Industry

This actor, connected tightly with the government, military authority and power people, has played a leading role in forest loss in many places. In target countries the lands and standing trees are often state property managed by the governmental authority. In many cases, a logging company conducted forest extraction through the allocation of a logging concession by paying some amount of forest-use charge to the national treasury. Large forestry concessions to companies were allocated in a very opaque way, while proper monitoring and control by forestry administrative bodies was quite limited. Thus many companies exploited the allocated forests illegally aiming to realize enormous profits. In general, many logging companies employed a "cut-irresponsibly-and-get-out" strategy, which became the most efficient way to maximize their profits. Even in the forest conversion projects such as oil palm plantation, in many cases the company's real objective was forest extraction, thus cutover areas were often abandoned after logging.

2.4.3 - Military Authority and Power People

There are many places where these two actors have played a strong role in forest destruction in the Asia-Pacific region. Countries where military authorities played a powerful role in forest loss are Indonesia, Vietnam and Cambodia. In Indonesia, the military authority has had strong powers for the allocation of logging concessions and they promoted many natural forest extractions under tight connections with the domestic forest industry, Chinese merchant capital and foreign capital from importing countries. In Vietnam and Cambodia, the forest has been exploited as a financial source for the military under both legal and illegal control. These activities were identified as the most serious causes of forest loss in the area.

On the other hand, powerful people are significant actors affecting forest loss in the Philippines, Indonesia and Cambodia. In the Philippines, in the past, members of Congress would establish forest policies and forest regulatory systems that enabled logging companies to obtain enormous profits. Many of the politicians were concession holders profiting from logging at the same time as they held political positions. In Indonesia, powerful people such as Chinese merchants, keeping close connections with the government and military authorities, proceeded with natural forest extraction and established a domestic plywood industry and oil palm plantation developments, which have led to large scale forest loss from the 1970s to the present.

2.4.4 - Local People

We have confirmed that local people have played a very significant role in the occurrence of forest fires through not only non-traditional swidden farming but also in local conflicts and the

careless handling of small fires. However, they seem to be passive actors affecting various social and economical underlying causes. In terms of the increase of the non-traditional shifting cultivator, various factors involved are identified in our studies, such as poverty and population increases in rural areas, political instability, in-country migration (internal colonization), timber extraction from land clearance of community forests, and others. Local people are the major culprits of arson, causing frequent forest fires as a result of land conflicts (in the Philippines). In the S-RFE, citizen's/local people's careless handling of small fires (such as bonfires) and throwing away cigarettes have contributed much to causing recent large-scale fires.

2.4.5- Import Countries and Foreign Capital from Importing Countries

In foreign actors, many studies indicated that "import countries" and "foreign capital from importing countries" has played a significant role in forest destruction within a background of strong demand in the consumer countries. The extraction of teak is the most typical example. In our study, Laos Cypress forest extraction was revealed as a special case, with logs exported at very high prices only to Japan and Taiwan. Moreover, it is difficult to talk about forest development in the Philippines and Indonesia without mentioning the strong demand in import countries, in particular Japan, and the Japanese investor's contribution. It is well known that Japanese investors have extracted valuable timber resources, depleted them and then shifted production to another country, one after another. When the supply of tropical raw logs decreased greatly or faced import restrictions, the Japanese plywood industry shifted from tropical countries to Russia. Our studies showed that the rapid increase of demand in consumer countries has contributed greatly to recent expansion of forest conversion projects aimed at industrial plantations. In terms of drastic increases of oil palm plantations development in Indonesia, the influence of strong demand in importing countries, boosted by corporate image strategies that vegetable oils are good for the environment and health.

Beside these causes, we identified that intervention in adjoining countries, such as policy changes leading to a decrease of domestic timber production under strong wood consumption, has accelerated forest development in supplier countries. Such effects of intervention were found in the recent increases of border timber trade from the RFE to China and from Lao PDR and Cambodia to China and Thailand. Such regional trade seems to be more active even in the near and middle-term perspectives.

2.4.6 - Foreign Aid Institutions

Many NGOs have already pointed out that "foreign aid institutions" have been playing a negative role leading to forest loss in developing countries. Our studies also confirmed two types of causes leading forest loss: "structural adjustment programs" and "individual project support."

Both in Indonesia and the S-RFE, the "structural adjustment programs" by the IMF and the World Bank forcibly pushed ahead hasty reforming of economic policies, including forest policies. Our study of oil palm plantation development indicates that the "improved" policies still contain various defects, which would bring still more forest destruction. Studies in the S-FER also showed that structural adjustment programs have led to a serious economic crisis and consequently deterioration of the forest sector then leading to an acceleration of forest loss.

In terms of "individual project support," the story of international aid for industrial tree plantations in the Philippines is interesting. After the Aquino government came to power, developed countries provided "environmental aid," and the introduction of participatory forest policy was connected with this funding. On continental Southeast Asia, "The Greater Mekong Sub-regional Cooperation Program," promoted by the Asian Development Bank along with support from many bilateral and multilateral agencies, prompted large-scale infrastructure development. The accessibility afforded by the expanded regional road network can be expected to increase the rate of log extraction and, more generally, encourage settlement and land clearance for cash crops. Hydropower projects prompted under the same program are encouraging further forest clearance. As well, the Market Development Program promoted by the Mekong program also put pressure on forest products previously used mainly for local subsistence purposes. And in more than a few cases, foreign aid programs for natural resource extraction such as mining functioned indirectly to promote forest destruction.

2.5 - ROOT CAUSES OF FOREST LOSS

The underlying causes of forest loss addressed in this analysis, which are closely related to recent major proximate causes of forest loss, were classified using the following four criteria (Table 2.1):

- ✓ Market Forces
- ✓ Economic or Forest Development Policies
- ✓ Legal / Administrative Base of Forest Management
- ✓ Social and Economic Conditions

2.5.1 - Market Forces Leading To Unsustainable Resource Use

It was very often observed in our studies that the forest developments in target areas were driven in unsustainable ways that centered on monetary benefits, in particular foreign exchange, and on market forces which originated in strong consumer demand for products, especially in importing countries. Strong demand in consumer countries for forest-related products has been generated by the rise of consumption as well as a fall of domestic supply of timber, along with strong influences of economic growth and resource policies. Thus in terms of market forces, consumption and trade policy/strategy affecting forest-related products both in supplier and consumer countries can be recognized as important root causes of forest loss.

2.5.2 - Economic / Forest Development Policies with Industrial Emphasis

Our studies indicated that the forest-use paradigms in target areas emphasized industrial uses of forests Thus there is no doubt that economic development/forest policies under such a paradigm are also root causes leading to forest loss in every target area. These policies were strongly intended to exploit the benefits from timber extraction and forest conversion as a means of obtaining foreign exchange. It was "powerful people," such as members of congress, big capitalists, military authorities, etc., who wielded the greatest influence on these policies. This situation caused very inappropriate allocations of logging concessions. In many cases logging companies employed a "cut-and-run" strategy. They ignored traditional forest uses and the rights of local people, and more generally, ignored the real value of forests including

environmental functions and the livelihood base of the local community, as they aimed to maximize economic profits from the development. In the background, the lack of appropriate knowledge of forest biodiversity, ecosystem management and traditional forest use among the parties concerned seems to have encouraged narrow-minded resource use policies.

2.5.3 - Legal and Administrative Base of Forest Management

Various kinds of underling causes of forest loss were specified from our studies, however insufficient political will and shortages of compliance to stop destructive forest development should be recognized as a root cause of ongoing forest loss in many countries. Many institutional causes, such as an incomplete legal and administrative base for sustainable forest management, incomplete public forest land policy, inadequate/corrupt forest governance, and insufficient attention to local people's right can be extracted from this root cause. In many cases, the lack of capacity or shortages of forest administrative personnel were basically brought about by the lack of sufficient finances and human resources, as well as weak political will for forest conservation. Interventions by powerful people disturbed the establishment of political will and its effective compliance. Thus, the settlement of dependable mechanisms to ensure compliance with regulations, in particular a legal and administrative base, and a strong political will for sustainable forest management, are urgently needed to halt major proximate cases of recent forest losses, especially large-scale forest fires and destructive forest development in the region.

2.5.4 Political / Economic Instability

Although our studies did not examine this factor in detail, it is certain that many direct or indirect causes of forest loss were strongly affected by political disorder and economic difficulties. Political and economic instability has brought about many causes of forest loss such as inability of forest governance, the expansion of rule violation and corruption, the increase of poverty and the consequent rise of non-traditional, shifting cultivators. Thus political and economic instability is a key root cause of forest loss in the region. Moreover, various impacts of forest loss themselves have often brought on more political, social and economic instability. In this sense, the progress of forest loss itself is a root cause of forest loss. Political/economic instability was also caused by interventions from outside the country such as structural adjustment programs imposed by international financial institutions, war in neighboring countries and regional trade. Thus the lack of sufficient regional coordination on regional economic development strategies, peacekeeping activities and natural resource trade should be included as a root cause of forest loss.

2.6 - RECOMMENDATIONS [3]

To overcome forest loss in the Asia-Pacific region, our research outputs suggests that effective measures to prevent or stop the following three major proximate causes of recent forest loss should be clarified:

[3] The recommendations in this section are derive much from a paper on Cambodia (Bottemly 2000).

- ✓ Unsustainable logging/extraction and forest conversion projects with industrial emphasis;
- ✓ Non-traditional swidden farming caused by social and economic problems such as population increase, poverty, inadequate forest policy, etc.; and
- ✓ Forest fires caused by human activities inducing forest development or other causes.

In addition, key elements to be incorporated into a regional forest conservation strategy should be extracted on the basis of identified underlying causes of forest loss among study target areas.

The members of the sub-team proposed strategic solutions grouped into six headings: Government Responsibilities, Forest Development, Forest Fire Control, Community Forestry and Participatory Forest Management, Sustainable Trade, and International Responsibilities.

2.6.1 - Government Responsibilities

The central government must continue to show the **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 central and local governments must allow for transparency and consultation on all decisions regarding the forestry sector, and provide for participatory processes that actively engage a wide range of stakeholders.
- The central and local governments must ensure that they take into account all social, environmental and economic costs when considering the benefits of any land or forest development.
- The central and local governments 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 central and local governments should call for an immediate reconsideration or 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 central and local governments 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 central government must recognise that provinces need to be involved in land-use planning, as mutual land-use planning cannot be done at the national level alone. The central government must play a regulatory but also a facilitative role, and should concentrate on the capacity-building of local authorities that will be better able to facilitate community resource issues. In addition, the central government should promote careful involvement of local governments because the regional elite classes even more easily manipulate local governments in some countries. The intervention into forest management of these elites seeking special concessions is likely to lead to undesirable results from the perspective of resource management by local people.
- The central and local governments must continue to work towards the prevention of illegal and unsustainable logging activities through, for example, the introduction and maintenance of the log export ban, the enriching and drafting and enactment of new forestry law, and the

termination of concessions operating illegally or in contravention to their management plans. Closing down the parallel shadow economy under which illegal logging has thrived is a prerequisite to creating properly functioning judiciary and law enforcement agencies

- The central government must provide efficient coordination of inter-ministerial conflicts earlier. The central government is not monolithic. Opposition exists between different ministries related to forest management and use, as shown in the Philippines. The discrepancies among governmental authorities have occasionally caused serious conflict at the local level.

2.6.2 - Forest Development

The improved management of forest developments such as timber concessions and forest conversion projects alone will not solve deforestation. Centrally-imposed forest developments should be reconsidered 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 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.
- Land with traditional social, economic and cultural significance should be delineated and excluded from the concessions. 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.
- Procedural[4] and substantive[5] 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 a 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 cut 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.

[4] Procedural protection includes the right to information concerning the environment that affects you directly and the right to a fair hearing.

[5] Substantive protection may range from co-management to usufruct rights - to outright ownership.

- 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 provided training.
- Security and freedom from intimidation of village and NGO monitors needs to be addressed and ensured by the Forestry department.
- A mobile ombudsman-type 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.

2.6.3 - Forest Fire Control[6]

Forest fires often caused large-scale forest loss in many places of the Asia-Pacific region and thus effective countermeasures and a legal and administrative base should be provided urgently. The economic, social, and political backgrounds, or underlying causes, of forest fires in Indonesia, the Philippines and the S-RFE mostly coincided with that of general deforestation in other Asian-Pacific countries. Forest fires may be compared to a reflection of forest health and of the economic, social and political healthiness surrounding the forest. The examination on the causes of forest fires in the target study areas must contribute to tackle forest-related issues in other Asian-Pacific countries. Our findings suggest the importance of focussing on the underlying causes and try to overcome them, both in the short and long term. The following requirements should be examined earnestly to prevent situations forest fires occur repeatedly:

- Administration of national and local forest fire control, coupled with the national fire control policy and programs, should be strengthened.
- Well-balanced forest control measures with attention to both advanced technology and practical equipment should be allocated in the system. The government tends to use expensive technology to extinguish fires through support from other countries such as by employing aircraft, helicopters, and rain-making projects. However, the effectiveness of that technology is very limited. Our observation indicates that it would be more effective to distribute a certain amount of portable fire extinguishers (hand-powered, pump-style fire extinguishers) to each village in danger of conflagration, using only a portion of the financial resources that are invested in expensive technology. Moreover, sufficient financial and human resources should be allocated to the local stations.
- Public awareness of fire prevention and environmental education on proper knowledge of the forest should be promoted, both for local people and city residents.
- Intensive efforts and effective measures to overcome contradictions between the customary land utilization based on customary laws and authorized land management systems based on legal land ownership should be, as well as the improvement of participatory forest management systems.
- The restriction of development activities, in particular, intended burning for land clearance, should be reinforced more strictly.
- International cooperation for fire control and expansion of international aid should be promoted under the full support of developed countries in the Asia-Pacific region.

[6] The recommendations in this sub section are derive much from a paper by Inoue (1999).

- International community's monitoring of the restoration of burned sites is very important, because the areas tend to convert into plantations for economic benefit, biodiversity of the site will be deteriorated in the long-term, which will have serious adverse effects on ecological systems. Moreover, such conversions are pushed ahead without any consideration of or cooperation with local people. Disputes over land use will occur more often and more social unrest will ensue.

2.6.4 - Community Forestry and Participatory Forest Management

The right of communities to manage land and forests 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. All Ministries related to forest conservation such as 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 forest 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 central and local governments should recognise, endorse and protect the customary rights of indigenous highland and rural communities to collect and use forest products.
- The Community Forestry legal base 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 legal base 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.
- 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 forest policy, it is recommended that all countries develop a 'menu' of social forestry options that allows planners and communities to pick and choose the best solutions.[7]

2.6.5 - Sustainable Trade

[7] 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)

Our studies indicate that forest development aimed at foreign exchange on a background of strong demand of natural resources both from forests and forest-converted land has accelerated forest loss in the target countries. Illegal or uncontrolled forest extractions originated also in many cases in strong demand from consumer countries coupled with an inability of forest governance of supplier countries. To realize sustainable trade the following requisites should be examined:

- The central and local governments should require all timber to be certified by an international auditor as originating in sound environmental and social practice. The Forest Stewardship Council (FCS), established in 1993, constitutes an internationally-recognized and independent certification process.
- Major importers of illegally-cut timber must take responsibility to exert severe control over the origin of wood products that are imported, and refuse transactions of timber of illegal and non-sustainable origin. Non-certified timber should not be imported from any countries. For effective monitoring or to control illegal trade capacity-building of relevant officials should be promoted.
- Consumer countries should promote a sustainable trade of agriculture and forest products through encouraging the following principles of resource use: the reduction of resource use, promotion of recycling, and re-use. For such changes more efficient techniques of resource use should be developed and employed positively. In addition, consumer awareness and education is essential.

2.6.6 - International Community Responsibilities

As our study shows, the role of the International Community in forest loss in the region is quite vital. Thus the following efforts can be essential to stop forest destruction:

- 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 government must be held accountable for its policies.
- The International Community needs to call for an immediate halt or reconsideration to operations within concessions on indigenous land until the government has the institutional resources and political will to prevent human rights abuses and ecological abuses.
- The International Community needs careful consideration of aid from international institutions and bilateral cooperation for large-scale tree plantation projects aimed at forest carbon sequestration. Such plantation projects in the name of CO2 reductions under international "emissions trading" will prompt more evictions of local people.
- The International Community should assist governments 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 a country.

- The International Community should make the best use of forest loss experiences in forest-depleted countries such as the Philippines and Thailand. In its move toward people's participation in forest management, the Philippines are on the leading-edge compared to other East Asian countries. However, the country has learned from its negative experience. In the Asia and Pacific region, there are several countries that employed similar forest policies and faced similar problems. Thus the Philippines and the international society should disseminate their experience to other countries so as not to make the same mistakes twice. International aid institutions should also examine their aid and support policies, taking into account the lessons from the Philippines. On the other hand, the Thai experience should serve as a vivid example of the costs of uncontrolled logging, but the lessons from there are subsumed by the powerful forces which sustain the timber industry, and in part, forms of upland agriculture that are more destructive. The lessons of Thailand could contribute to understanding the impacts or results of rapid deforestation on communities and a national economy.
- Regional coordination on the impacts of deforestation should be encouraged because, in many cases, a regional approach to conserve forests is warranted as the impacts of deforestation often cross national boundaries.
- The International Community should support education on forest-related issues for journalists. In order to avoid the "stereo-type" reporting on causes of deforestation, it might be effective to encourage the journalists to learn more about forest-related issues, especially the underlying causes as key subjects to be considered.

- Table 2-1 Addressed Causes and Actors of Recent Forest Loss in Target Areas

Category	Items		Philippines	Indonesia	Mekong Basin				The S-RFE	IFF-NGO／UC Process
					Thailand	Laos	Vietnam	Cambodia		
Major PCs	Forest Fires caused by Human Activities		◎	◎	?	○	?	?	◎	
	Forest Conversion Projects/Activities		◎	◎	○	○	◎	○	—	
	(Commercial) Logging		○	○	○	◎	○	◎	◎	
	Slash & Burn Agriculture		?	○	○	○	○	?	—	
	Civil War					○	○			
Key UCs	Market Forces	Strong demand in consumer countries	○	◎	○				◎	◎
		Overseas investments leading to unsustainable forest development	?	○	○					◎
		Trade supported by strong demand	○	◎	◎				◎	◎
	Development Policy	Migration policy paying less attention to resource use and rights of local people	○	○	◎				—	
		Economic Policy aimed at the acquisition of foreign currency	○	◎	○				◎	◎
		Agricultural development	○	○	◎				—	
		Subsidies & financing leading to unsustainable forest development	○	○	?					◎

		Less consideration of forest's multi-function	?	○	?	○	◎
	Institutional shortages	Incomplete land & public forest policy	◎	◎			◎
		Insufficient Forest Governance	○	◎	◎	◎	◎
		Insufficient involvement of local people	◎	○		○	◎
		Insufficient Forest Fire Control System	?	◎	?	◎	
	Social / Economic Conditions	Lack of appropriate understanding of Forest value & Functions				◎	◎
		Frequently occurring conflicts on land & resource use	◎	?	?	—	
		Increase of population pressures	○	○		—	
		Political disorder	○	○	◎	◎	
		Economic recession and crisis	○	○	○	◎	
Main Actors	Domestic	The Government	○	○	○	○	
		Forest Industry Sector / Enterprise	○	○	△	○	
		Local People	△	△	△	○	
		Military Authority/Powerful People	△	○	○	?	
	Foreign	Consumer countries/ Capital	○	○	○	○	
		International / Foreign Aid Institutions	○	○	○	—	

Note 1 :Including industrial plantation, agricultural plantation, Commercial Ranching etc.

Note 2: in the column of PCs and Ucs, ◎; Most influential now,○; influential

△ ; Occasionally influential ,? : Unknown or Not studied

SECTION THREE:

OUTPUT FROM THE IFF/UC-NGO ASIA REGIONAL PROCESS[8]

3.1 - IMPLEMENTATION

The IFF/NGO Asian Process organized a series of meetings at several larger conferences. Some examples are COP 4 of the Convention on Biological Diversity in May, the World Industrial Plantation Conference in June, the First IGES FC Workshop in July, the IFF-2 Meeting in August, the IFF/NGO Regional Workshop in December (all in 1998), and a Global Forum in January (1999). Through these meetings, various causes of forest loss were identified and categorized. The FC Project co-organized several meetings of the Asia regional process and again, Mr. Yoichi Kuroda, in charge of the Asia regional focus, collaborated with Ms. Mia Siscawati, Indonesia.

[8] This part is based on a Synthesis Report of Asia Regional Process, *Addressing the Underlying Causes of Deforestation and Forest Degradation in Asia*, Bio Forum, 1999, p51, Bogor, Indonesia.

3.2 - FINDINGS

The major interrelated and underlying causes of forest loss in the Asian region, based on discussions at the Asia Regional Workshops, were summarized as follows:

- The lack of recognition of the real value of forests;
- The development paradigm, based on over-consumption of timber;
- Subsidies and inappropriate incentives that created inappropriate governmental policies and control;
- Shortcomings in political and governmental systems - lack of decentralization, participation and transparency in government decision-making;
- Inadequate land and resource allocation systems that do not take adequate account of the various stakeholders under the occurrence of population growth, migration and poverty;
- The lack of appropriate knowledge of forest bio-diversity, ecosystem management and traditional forest use among the parties concerned with forest use; and
- The negative effects of international financial and aid institutions, and private capital investment.

3.3 - RECOMMENDATIONS

As for suggested solutions and actions, participants of the workshop proposed strategic solutions that were grouped into six headings: Market Forces, Economic Policies, Legal Measures, Institutional Policies and Social Injustice.

'Market Forces' could be used as levers to reduce resource use, including consumer awareness, through education and promotion of recycling, reduce and re-use techniques. The use of sustainable production, regulations and the exports of agriculture and forestry were also recommended.

'Economic Policies' could be used to reduce the rate of forest loss. Workshop participants supported both full assessments of the impacts of financial aid at the international level, and the elimination of monopolies and inappropriate subsidies, as well as the promotion of community-based economics at the national level.

Effective **'Legal Measures'** to recognize rights, knowledge and the participation of local communities in forest management were emphasized.

Under **'Institutional Policies,'** participants recommended a participatory and more transparent system of forest land-use and management decision-making under decentralized and good forest governance, as well as 'capacity-building' at both the government and community levels.

The establishment of **a new national 'forest policy'** which redefines forest estates and effectively implements the policy was also recommended, with the promotion of participation and transparency in decision-making, under the recognition and involvement of stakeholders.

Lastly, to overcome **'Social Injustice,'** proposals included building awareness of biodiversity and various forest functions, as well as strengthening community networks and providing full support for local communities.

SECTION FOUR

UNDERLYING CAUSES OF RECENT FOREST LOSS IN THE PHILIPPINES[9]

4.1 - INTRODUCTION

The tragedy of the Philippines 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 now been abandoned, and a "Community-Based Forest Management Strategy" (CBFM) that 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" in depleting its own domestic forest resources compared to other tropical countries; the country learned from its negative experience. This is the other side of the coin.

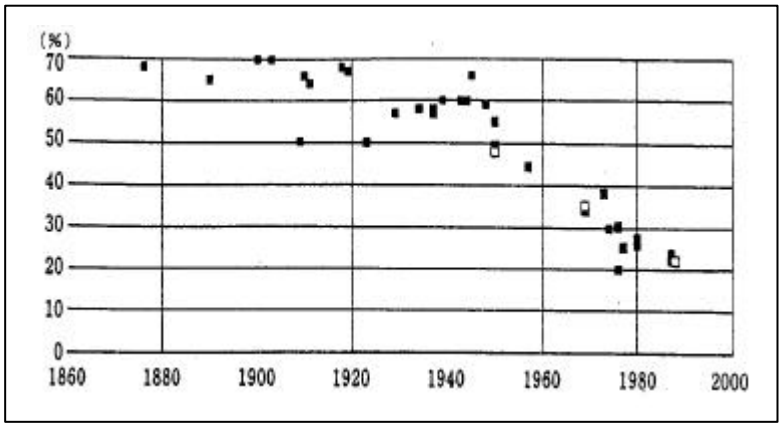


Figure 3-1. Change in % Forest Cover in the Philippines
Source: David M.Kunmmer (1991) / S Nagata (1994)

4.2 - FOREST RESOURCES AND CHANGES IN FOREST COVER

[9] This section are much owed a commission paper on the Philippines by Seki(2000).

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).

The most important feature about forest loss in the Philippines compared to other Southeast Asian countries is that the ratio of forest turning into grasslands is conspicuously high. Of land deforested after the war, most has turned not to agriculture but into grasslands. Grasslands now account for 30 percent of the national land area.

In short, in the Philippines, the deforestation of natural forest occurred rapidly after Independence, the rate of forest cover dropped sharply while changing into secondary forest and meadow. The structure of the forests has deteriorated at the same time.

4.3 - LEADING PROXIMATE CAUSES OF RECENT FOREST LOSS

4.3.1 - Purpose and Means

As the key proximate causes of forest loss in the Philippines, we identified four factors;

- Export-oriented, unsustainable commercial logging
- Forest conversion to commercial ranching
- Frequent forest fires caused by local people
- Failure of industrial plantations

a. Export-oriented, unsustainable commercial logging

Full-scale commercial logging in Philippines started in the era under American rule during the 1910s. By 1930, timber exports to Japan exceeded 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 the overseas demand depleted all the timber resources that 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.

Commercial logging activities caused the first impacts of development on the forests, but this did 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) that 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 areas. If such a forest is left to regenerate through natural succession, it will likely return to the original dipterocarp climax forest. However, the commercial logging was the start of deforestation as will be described later.

b. Forest conversion to commercial ranching

In the Philippines, the development of logged land for agricultural use was not legally sanctioned but nonetheless, logged land is often used for commercial ranching. "Pasture fires"

were a common means to open up a forest for commercial ranching. As a result of repeated fires, secondary forests were converted to grasslands covered with herbs such as cogon (*Imperata cylindrica*), and a vast grassland scenery has emerged in the country. 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 the forests.

c. Frequent forest fires caused by local people

The logged-over areas of the Philippines gradually became grasslands because of the fires, which occur 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 another, the direct causes of fires in upland areas.

d. Failure of industrial plantations

In the Philippines, conversion of logged-over areas for agricultural purposes has not been approved, but commercial ranching was officially admired in logged areas. As a result, the stance towards forcible eviction of "squatters" was softened, and then the Integrated Social Forestry Program (ISFP) started in 1982, in line with this orientation. However, this was due to the promotion of large-scale plantation projects started in the latter half of the 1980s, and with the restriction of people's access to commercial plantation areas, land problems happened anew. The industrial plantation projects, such as the Contract Reforestation Program (CRP) and Industrial Forest Management Agreements (IFMAs) promoted actively in the 1980s, have not produced good reforestation results due to resistance and conflicts with local people. In consequent, these projects supported the modification of commercial logging sites into grassland.

4.3.2 Actors Involved in Forest Loss

As the leading actors involved in forest loss in the Philippines, we examined the role of the following agents:

- Foreign Corporations from Timber Importing Countries
- The Government of the Philippines
- The Philippine Timber Industry
- Foreign Aid Institutions
- Local People

a. 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, eleven Japanese corporations were producing timber under the supervision of the military government. Thus foreign corporations from timber-importing countries were the main actors of deforestation even before the War.

After World War II, as foreign capital participation in logging activities was limited to a maximum of 40 percent, Philippine companies essentially managed logging for timber. However, as foreign corporations were the buyers of this timber, they largely influenced forest

development policy in the Philippines. Accordingly, during the post-war period, corporations on the importing side, especially Japan, have been important actors.

b. The Government

The Government and many members of the Congress, who had the authority over policies and systems on state forests, were the main actors of deforestation in the target countries. During the period when export-oriented commercial logging was developing actively, the Government set up forest policies and forest regulatory systems which enabled logging companies to obtain enormous profits. The Aquino Government moved the industrial plantation policy forward while undertaking the influence of the aid institutions in the developed countries.

c. The Philippine Timber Industry

The land and standing trees were state property managed by the government's Bureau of Forest Development. However, logging companies were able to acquire a Timber License Agreement (TLA) (logging concession) by paying a set amount of "forest charges" to the national treasury. Logging companies employed a "cut-irresponsibly-and-get-out" strategy (Repetto, 1988).[10] This became the most efficient strategy to maximize their profits.

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 laid the foundation for a forest regulatory system, which enabled logging companies to obtain enormous profits, and they played a very important role as patron who supported the forest administrative sector.

d. Foreign Aid Institutions

The role of foreign aid institutions in setting forest policy in the Philippines is enormous. After the Aquino government came to power, developed countries provided "environmental aid" generously, 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. It is obvious that 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) because the loans required government-initiated, large-scale, industrial monoculture plantations.

e. Local People

Although local people are the actors who live most closely connected with the forests, the government excluded their use of forests as forest policies were designed mainly to represent the profits of forestry capital. Until recent years, the Philippine government declared that slash-and-burn agriculture (*kaingin* in Tagalog) conducted by local people was the "ringleader of forest destruction." However, 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 forestland.

[10] Repetto, Robert. 1988. The Forest for the Trees? Government Policies and the Misuse of Forest Resources. World Resources Institute: Washington D.C.

4.4 - UNDERLYING CAUSES OF LEADING PROXIMATE CAUSES

Within the four key proximate causes extracted from the studies, we addressed the underlying causes of three causes: export-oriented unsustainable commercial logging; the failure of industrial plantations; and frequent forest fires.

4.4.1 - Export-oriented unsustainable commercial logging

The demand for tropical timber increased in the import countries such as Japan. As a result the country was focused on as a key log supplier. In line with the sharp increase of log export timber, it became a main source for the acquisition of foreign currency. In cooperation with such trends, the government established a logging concession system, which enabled logging companies to obtain enormous profits and to employ a "cut-and-run" strategy. As background, the close relations among the Congress, the army and the bureaucrats enabled them to accumulate wealth, as was already pointed out.

In short, the underlying causes of commercial logging in the target countries arose through the intensive demands of timber import countries (especially Japan), through the establishment of relevant forest regulatory systems that enabled parties including foreign corporations from timber-importing countries and the domestic forest industry, and the movement to accumulate profits from forest development.

4.4.2 – The Failure of Industrial Plantations

The largest forest-related project, the Contract Reforestation Program (CRP), was implemented using funds from overseas during the Aquino-era in the latter part of the 1980s and was very much controlled by the central government, based on the principle of state control of plantations. The following two structural causes of the 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.

At the same time, the DENR promoted the government-managed CRP and Industrial Forest Management Agreements (IFMAs), and leased several thousand hectares to one company. When an unbroken area of several thousand hectares is granted to one company, it is almost impossible to avoid conflict of interests with local people's land use. It's only natural that, as with the CRP, the IFMAs have not produced good reforestation results.

In conclusion, the failure of industrial plantations originated in the defects of forest policy that employed a top-down project to establish large areas for plantation lands while disregarding forest use by local people. Preventing their access conflicted with the forest uses of the local people. Moreover, the shortage of good governance is thought to have led to lack of appropriate control of the projects. In the background, the behavioral patterns of authorities leading to the centralization of power and profit seeking , conspicuous during the Marcos-era, were still prevalent.

4.4.3 - Frequent Forest Fires Caused by Local People

Human activities are, for one reason or another, the direct causes of fires in upland areas. As mentioned earlier, the official government figures state that slash-and-burn (*kaingin*) fires are the cause of fire in no more than 5.3 percent of cases, with 6.8 percent of fires reportedly caused by arson. In many cases, the fires resulting from arson were set by locals angered about having their access to forests restricted by the government. Although the cause of fire is "not determined" for almost 70 percent of incidents, it was a fact that, overwhelmingly, the greatest number of forest fires occurred in the man-made plantations. Moreover, there were many conflicts between local people and the government on restrictions of local people's' access for commercial logging and industrial plantation projects so far. These facts indicate that conflict over public forest use between the government and local people was a major secondary causes of frequent forest fires.

Almost all such serious conflicts and antagonism between the government and local people arose from the public forest policies implemented after the country's independence. After the 1960s when commercial logging was activated, areas of public forest lands that were once open to indigenous peoples and pioneers from the lowlands were closed, and local people's access to the area and dwelling in the public forest land was restricted. The locals, including indigenous people and pioneers, were declared to be squatters and looked upon as enemies of the government. Serious problems have emerged under the industrial plantation projects since the latter half of 1980s, such as the promotion of large-scale plantation projects, widespread corruption over enormous amounts of project funds, non-payment of contract fees to workers, and so on. Such inadequate forest policy, leading to enormous profit accumulation by certain parties and the disregard of local people's rights to land and forest resources, have always caused conflicts with local and indigenous people. In some cases they intensify and lead to civil war. As a result, the picture emerged that the forest fires occurring repeatedly resulting from arson were frequently set by locals.

In conclusion, the root causes of deforestation originated in past forest policies which promoted commercial logging, commercial ranching and industrial plantations. These policies involved not only disregarding the right of land possession or of forest resource use on public forest land but also directing the profits of the projects to specific parties such as logging companies. However, such forest development went against the reality that indigenous peoples and pioneers from the lowlands had inhabited public forest land since after World War II, and that they had used various forest resources there.

4.5 - RECENT STRUCTURE OF FOREST LOSS IN THE PHILIPPINES

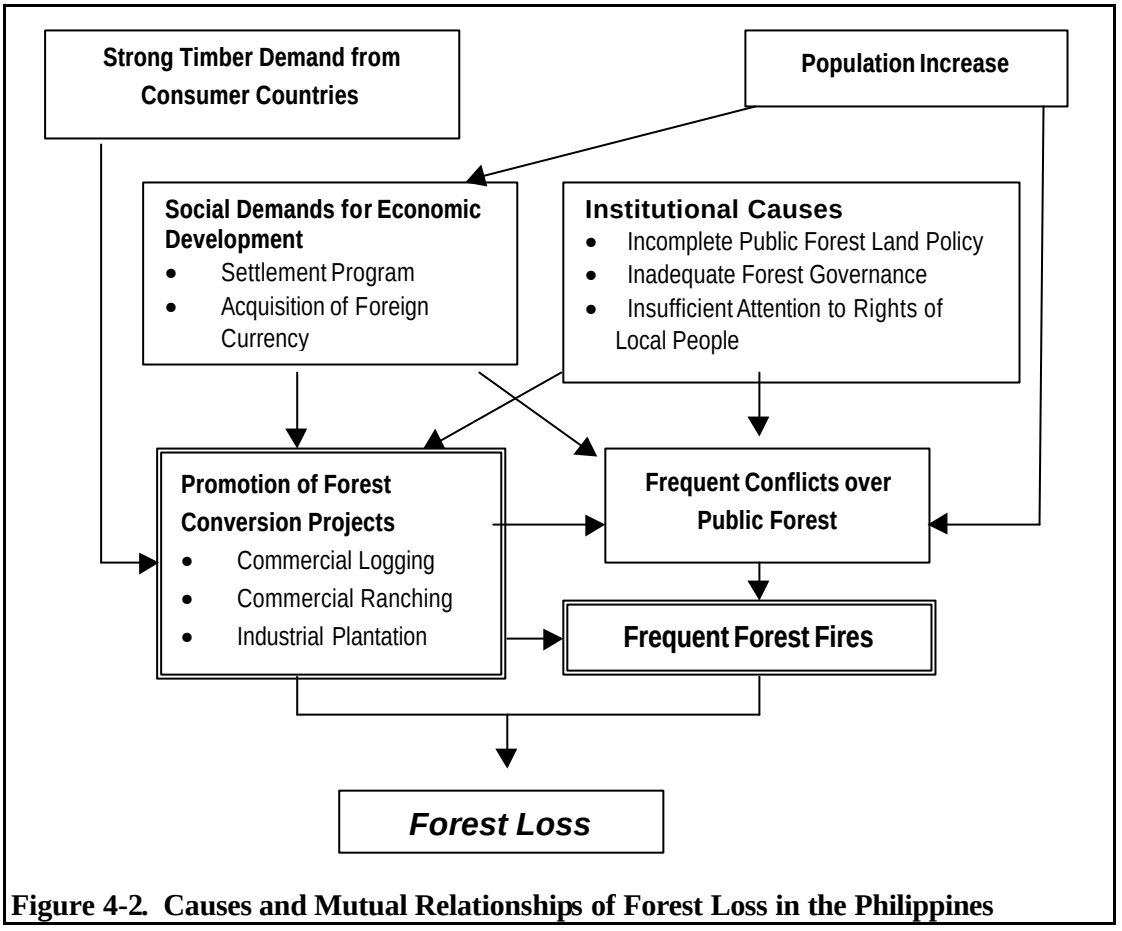


Figure 4-2. Causes and Mutual Relationships of Forest Loss in the Philippines

SECTION FIVE

UNDERLYING CAUSES OF RECENT FOREST LOSS IN INDONESIA[11]

5.1. - INTRODUCTION

After Brazil, Indonesia has the world's second-largest tropical forest area. The area being deforested is also large. An FAO report[12] estimates that from 1981 to 1990 Indonesia lost 1.2 million ha of forest annually; that's 8 percent of the total 15.4 million ha of world forest loss yearly.

There is a large difference regionally in the rates of forested areas. Kalimantan, Irian Jaya, and the Moluccas are highly forested at 68 percent. In contrast, Java is only 23 percent forested. By region, per capita forest area ranges from 17.5 ha on Irian Jaya to 0.3 ha in the *Nusa Tenggara* and to nearly zero on Java.

Table 5-1. Indonesian Forest Loss

[11] This section are much owed to four commission papers on Indonesia by Mia (1998), Okamoto(2000), Inoue (2000a & 2000b).

[12] "Forest Resources Assessment 1990: Tropical Countries," FAO Forestry Paper No. 12, 1993

Land base	Thousand hectares	Percent of total
Total land area	181,157	100
Total forest area	109,791	61
Average annual % change (90-95)	-1	
Natural forest	103,666	94
Plantations	6,125	6

Source: Global Forestry Data in forestworld.com (http://www.forestworld.com/index.html) . All data for the "Land base" section are from Roberts (1998). Roberts (1998) data are from 1995, except for plantations, which are from 1990.

5.2 - HISTORICAL VIEW OF FOREST LOSS AND ITS ROOT CAUSES

5.2.1 - Pre-Independence

Even before the country's independence in 1945, certain amounts of forest, mainly in Java, were deforested by commercial logging for foreign consumers. Forest degradation started in the Dutch colonial period as the result of selective harvesting for teak wood. After World War I, commercial logging targeted mainly dipterocarp trees, and up to the 1950s the timber was mainly for domestic consumers.

5.2.2 – The 1970s - Advent of Full-scale Forest Destruction

The full-scale forest 'development' in Indonesia that started in the 1960s was encouraged by several factors such as the rapid increase demand for tropical timber from consumer countries, the abundant forest resources still remaining in Indonesia, and the establishment of large-scale logging operations with logging machines.

Towards the end of the 1950s, Japanese demand for hardwood logs – as raw material for its wood industry – began to soar. Production rose rapidly through the 1960s, and between 1970 and 1985 Japan alone took half the world's imports of sawlogs – mostly from Southeast Asia. For the first time, there was substantial demand for dipterocarp from Southeast Asia, especially from Sundaland (Peninsular Malaysia, Sumatra and Borneo). The group of the Shorea species known as meranti, abundant in the lowland forests, was the first emphasis of demand. 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 over those on Borneo.

For the exploitation of these abundant timber resources, new technologies—especially the one-man chainsaw first developed in the 1950s—coupled with improvements in transportation, powerfully influenced forest exploitation methods. These made possible a great increase in productivity and exploitation in remote areas. Other significant innovations were the outboard motor (used on rivers and bays), bigger and more powerful trucks, four-wheel drive vehicles, and powerful new equipment such as the bulldozer and the crawler tractor for hauling logs

(which made possible extraction from increasingly sleep slopes). Most of the workers were Javanese who had immigrated or were there just to earn money. This system increased log production exponentially. For example, in East Kalimantan log exports grew 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.

Forest development in Indonesia after World War II was prompted by the establishment of the Kalimantan Forest Development Corporation (FDC) started by Japanese capital, and the Indonesian Forest Corporation (*Purufutani*), started in 1963 under the Sukarno government. The forest development conducted by FDC was called the 'Production Sharing' approach in which the Japanese invested capital in equipment and road construction for logging / harvest operations and shared fixed profits according to their investments.

Since former President Suharto started the policy on the introduction of foreign investments under the first five-year economic development plan (1969-1973), full-scale forest development in the country was substantially launched. The government presented foreign companies with quite preferable conditions and issued large-scale logging concessions to these companies based on the Basic Forestry Law . These policies opened up access to logging concessions to foreign companies and joint venture capital, and provided the foundation of export-oriented forest development by tropical timber import countries. As a result, by the end of 1969 the number of applications for logging concessions reached 151 for an area of 18.28 million ha, equivalent to 43 percent of the forest designated for production. Under such conditions all indices of log production, log exports and export amounts increased sharply.

The main actors in forest development in this period were the government and foreign corporations from timber-importing countries. Moreover, it is often pointed out that the military authorities and Chinese merchant companies also played quite influential roles. They had almost unlimited power on decisions of issuing export licenses and logging concessions. Such power led to strengthening the relations between Chinese merchant capital and foreign capital.

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*. Furthermore, the extensive forest fires of 1983 burned over much of the logged areas.

5.2.3 – The 1980s - Logging for the Plywood Industry

In 1970, immediately after the logging boom began, the Suharto government issued an order that required all companies with logging concessions (HPH) to establish forest product processing plants, such as for plywood, within three to ten years after the start of logging. Although HPH companies started building plywood plants in 1973, these were at first almost all producing for the domestic market. Then a 1980 change in forest policy obligated HPH companies to supply logs for domestic use, and 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. As an effect, the plywood industry developed rapidly into an export industry after 1979 with exports of about 120,000 cubic meters growing 30-fold in six years to over 3.5 million cubic meters in 1985 and to 9.6 million cubic meters in 1993.

Such rapid growth in the Indonesian plywood industry was supported by national

economic development policies backed up by the forest resource nationalism influenced by OPEC's behavior. Another reason why the government selected the plywood industry for emphasis was the social need to create new employment through the promotion of labor-intensive processing industries and to establish new alternatives to oil and natural gas fields for trade (Araya, 1998).

As a result, in 1985, plywood outstripped traditional export industries such as coffee, tin, processed rubber products, and shrimp, and came 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 contribution to the national economy and employment increase even more. 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.

As mentioned above, the strong government policy to stimulate rapid growth of the plywood industry under the log export ban or restriction was a key factor that caused forest loss in the period. However, scalars revealed many other leading underlying factors such as the need to change the industrial structure due to so-called "oil shock," abundant manpower at low-cost, enough markets in the Near and Middle East countries for low-quality products. In addition, construction of plywood mills by Chinese merchant capital was recognized as a staple element (Araya, 1998). Even in the development phase of the plywood industry, like the stage of raw-log exports, Chinese merchant capital maintained strong connections with parties in power, such as the army authority, politicians and bureaucrats, that played essential roles in natural forest development.

5.2.4 – The 1990s - Progress of Industrial Tree Plantations

In the 1990s, Indonesia's government energetically promoted “industrial tree plantations” (HTI), which signified the planting of production forestland by business concerns with an “industrial tree plantation concession” (HPHTI). Its purposes were to strengthen the domestic wood industry while promoting environmental conservation by planting trees in deforested areas. HTIs are areas used to produce chips for pulp and other purposes. 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, 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 percent of costs covered by the government and they need only 21 percent owned capital.

However, many people have already settled on lands to be reforested, where they practice swidden agriculture (Box 1). Some of these people are the indigenous 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 forest lands will have been logged over and replanted with fast-growing species, leaving the settlers with little space for swiddens. Losing their land this way 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. They would allow the people to intercrop food crops among the planted trees for one or two years in return for managing the trees, and lend guidance and assistance in planting trees needed in their livelihood. Basically, however, the only two choices that settlers in industrial tree plantation areas have are to either become forestry workers or leave.

Forest policy is shifting from the natural forest-logging phase to the plantation phase. This shows the failure of sustainable forestry that consists mainly of 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, friction between forest inhabitants and forest policy, which was not very evident during the natural forest-logging phase, is becoming evident over land exploitation for industrial tree plantations.

5.2.5 - Major Proximate Causes of Forest Loss in Indonesia

Major identified proximate causes of forest loss in Indonesia, sorted by the purpose of development, are: export-oriented commercial logging; commercial logging for the domestic plywood industry; transmigration projects and paddy field development projects; unsustainable slash and burn agriculture; industrial tree plantations; and agricultural farm development such as oil palm plantation. Large-scale forest fires were significant causes leading to forest loss directly or indirectly. Among them we concluded that large-scale forest fires and oil palm plantation development contributed much to recent forest loss in the country.

Sorting by the means, natural forest logging, conversion to agricultural fields and plantations, industrial afforestation, slash and burn agriculture, and intended burning for site preparation in forest conversion projects are addressed as key causes.

In terms of agents / actors of forest loss, the Government, foreign capital in timber-importing countries, the military authority and Chinese merchant capital, and local people were identified.

5.3. - UNDERLYING CAUSES OF LARGE-SCALE FOREST FIRES IN INDONESIA

5.3.1 - Frequent Large-scale Forest Fires

The forest fires are not a new problem for Indonesia. There was a big forest fire on the island of Borneo, which burned for several months in 1983. At the time it was thought to be the biggest forest fire in history. The combined effects of fire and drought destroyed 25,500 km^2 of primary and secondary forest and a further 7,500 km^2 of settlement areas. Since then, the cycle of forest fires in Borneo appears to be increasing and fires were reported to be larger than ever before during 1994 (Table 5-2).

Table 5-2. Major Forest Fires in Indonesia

Forest Fires (main areas)	Year	Affected area in ha
Kalimantan/Sumatra	1982/83	3.5 – 3.7 million
Sumatra/Kalimantan	1986	~ 1 million
Kalimantan/Sumatra	1991	~ 500,000
Kalimantan/Sumatra	1994	300,000
Kalimantan/Sumatra/	1997	1.7 – 2 million

IrianJaya/Java/Maluku/Sulawesi/ East Kalimantan	1998	More than 290,000 ha

Source : Bobsien & Hoffmann (1998).

FAO estimates in SOFO[13] 1999 that around two million ha of Indonesian forest area was burned in 1997 and more than that was burned in 1998. The fires caused great damage to human health, to the forests and natural ecosystems, including wildlife habitat, and to the social and cultural dimensions of forest-dwelling people, and will evidently quicken the global warming process by CO2 emissions (Box 3).

5.3.2 - Agents / Actors of Forest Fires in 1997/98

"Forest fire" as defined by foresters does not include the intentional burning for clearing land. The specific term "forest fire" means the burning of vegetation caused by leaping flames in land classified as a forest. Therefore, neither burning for industrial tree plantations in productive forests nor for oil palm plantations is considered "forest fire." The important point when examining the cause of a conflagration is the land classification of the burning area, such as forest, farmland or transmigration area, because possible causes are different in each case. Investigation of where the fire initially started is also important because the character of a fire is different under different conditions. In other words, it is a question of whether the fire was started by a company, by inhabitants or by leaping flames. The first two cases are intentional for the purpose of clearing land, while leaping flames would be considered unintentional.

Our analysis on the speculated causes of fires and estimated burned area (hectares) in 1997/98 (Table 4-3), based on existing information from both the Indonesian government and NGOs, including representatives from other countries, clarified two points:

- The primary cause of the fires was development of plantation agriculture such as oil palm plantations.
- The secondary cause was industrial tree plantations of fast growing species for the purpose of producing timber for pulp and paper.

The Indonesian government officially identified the role of timber plantations and tree-crop plantation businesses as a major and immediate cause for the forest fires in 1997. The Minister of Environment stated that about 80 percent of the fires were caused by plantation owners, industrial estates and transmigration land-clearing projects (Bobsien & Hoffmann, 1998). The former Minister of Forestry, Djamaluddin, announced that 46 percent of the hot spots appearing on satellite images on 28 September 1997 were in the lands granted for plantations (Jakarta Post, October 9th 1997 in Schweithelm, J, 1999). So far, 176 plantations, timber and construction companies and transmigration projects have been named as possible users of fire to clear land, despite a ban on burning during the unusually long dry season.

Other causes have been cited, such as a rapid spread of flames due to slash-and-burn agriculture by local people, transmigration reclamation, and the development of one million hectares of paddy fields in central Kalimantan.

5.3.3 - Underlying Causes of Recent Large-scale Forest fires

[13] FAO, State of the World's Forests 1999

a. Forest Development Policy and Fire Regulations

We concluded that recent large-scale forest fires were closely connected with several polices for forest conversion projects. From the perspective of countermeasures, incomplete regulation for escaped fire and intended burning were identified.

For **the development of agricultural plantations**, intended burning was employed broadly as a recommended tool for land clearing, but particular countermeasures to prevent forest fires were not prepared in the past. Even after the Circular on prohibition to conduct intended burning for land clearing, the low cost of intended burning means it is still used as the main tool.

In the **industrial plantation projects**, the Ministry of Forestry announced several regulations after the fires in 1983, 1991, and 1994. Within these regulations there was a requirement that felled trees should be reused in industry as much as possible instead of disposing of them by burning, but companies tend to choose the lower cost alternative - burning.

In terms of **transmigration projects (*Transmigrasi*), t**he Ministry of Transmigration has improved land-clearing techniques through the study of "land clearing without the use of fire" (Pembukaan Lahan Tanpa Bakar or PLTB). In the General Director of Settlement Circular No. 58 (Surat Edaran Direktur Jenderal Permukiman Nomor: SE-58/PL/1995), it stated that land clearing on the transmigration project site would be done by the PLTB method starting in fiscal year 1995/96. In spite of the existence of such rules, it is questioned whether the companies doing land clearing have been following these rules.

The project generally called the "**million hectare paddy field development project**" is operated through the transmigration project and the rules of fire prevention correspond with the description under the transmigration project.

b. Fire Control System in Indonesia

The country has established certain administrative structures for fire control due to her past experience with several large-scale forest fires. Systems for fire prevention and extinguishment in areas classified as forest have been designed now from the national to the local levels. For fires outside of areas classified as forests, the National Coordination Team for Forest / Land Fire Control (*Tim Koordinasi Nasional Pengendalian Kebakaran Hutan dan Lahan*) coordinate among ministries and agencies. However, the fact of frequent large-scale forest fires and the expansion of their size may indicate that the current fire control system is still insufficient somehow.

In August 1997 the Minister of Forestry issued a prohibition against intended burning for site preparation of agricultural estate developments, industrial plantations, and transmigration project developments to local authorities in Circular No. 899 (*Surat Edaran* No.899/*Menhut*-VI/1997). This prohibition includes stripping a company's timber use rights (IPK) when they do not comply with this rule. Following these announcements, the timber use rights of 154 companies were actually cancelled (Soemarsono, 1997). These decisions meant that the authority accepted the defects of current forest development policies as a key underlying cause of recent forest fires.

At the ASEAN level, the Environment Ministers of ASEAN countries agreed to take action against smoke pollution (Regional Haze Action Plan, 22 December 1997, Singapore) based on the consensus from collaborations on trans-boundary pollution. In this agreement, they committed to complete strategic plans by March 1998, including a policy and guidelines for effective fire prevention. The importance was emphasized of the reinforcement of the ASEAN

Specialized Meteorological Center (ASMC) aimed at improving local monitoring systems. In addition, it was agreed to create a program to improve fire-fighting capacity for ground fires and forest fires, and to investigate the possibility of technical cooperation from outside ASEAN. In these efforts, the Asian Development Bank (ADB) is supposed to provide assistance. At a meeting of Environment Ministers held in Brunei it was agreed to establish a fund to prevent smoke pollution caused by the Indonesian fires, as well (Asahi Shinbun, 7 April 1998).

It is obvious that such official inter-governmental agreements arose by common acknowledgement of the shortage of well-established fire monitoring and fire-fighting systems, and the insufficiency of resource allocations, such as budgets and personnel, both in Indonesia and other Asian countries.

c. Underlying Causes of Recent Forest fires

In conclusion, recent large-scale forest fires were caused mainly by the following underlying causes:

- National economic development policies promoting large-scale forest conversion projects, supported by strong demands for forest products in the consumer countries;
- Inability / insufficient enforcement for fire prevention in the forest development programs; and
- Incomplete forest fire control systems.

5.4 - CAUSES OF RAPID INCREASE OF OIL PALM PLANTATIONS

5.4.1 - Development of Oil Palm Plantations

Oil palm plantations in Indonesia were first set up during the Dutch Administration period. In 1938, the combined export from North Sumatra and Aceh were the highest in the world as a result of an injection of Dutch capital, which led to a rapid expansion in the area of plantations and production. The sub-sector stagnated after Indonesian independence in 1945 but then started to grow since 1967, the beginning of the New Order period under Suharto, when the government of Indonesia made direct investments through state-owned companies (Box 4). Since then, the government has vigorously promoted oil palm estates on converted forestlands. During 1967 to 1977, expansion of oil palm plantations was still at a low rate. But since 1978, expansion of oil palm plantations increased by 21.7 percent for industrial private plantations and 2.9 percent for state-owned.

In 1996 the total area planted with oil palm plantations in Indonesia was about 2.2 million hectares. And most recent figures suggest that there are now 2.4 million hectares of oil palm, of which state-run companies possess 443,000 hectares of older, productive plantings, small-holders have 824,000 hectares and private companies have the rest - primarily new, immature plantations (Potter and Lee, 1998). By 1997, the total area under oil palm cultivation reached 2.5 million ha. Conglomerates now dominate the sector, with eight of them owning land banks totaling 2.1 million ha out of 5.4 million ha officially allocated for oil palm.

The development of oil palm plantations is a recent key proximate cause, not only because it led to deforestation but also the activities have strong connections with forest fires. When agricultural plantation is conducted, the forest is felled clearly and then intended burning is broadly conducted on the area of new land cleared. This method of site preparation brought "forest fires" caused by escaped fires and the expansion of forest fires. Using the occasion of the forest fires of 1997 and 1998, the government restricted the use of fires when clearing land. However, the large-scale use of agricultural chemicals would easily have led to not only health damage of people but also the degradation of forest and the loss of bio-diversity, because repeated use of herbicides causes environmental pollution. 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.

5.4.2 - Major Underlying Causes of Rapid Growth of Oil Palm Plantation

All of Indonesia is suited to oil palm cultivation, excluding eastern Java Island, the Lesser Sunda Islands and part of Sulawesi, thus there are vast available lands that could be converted to plantation sites. On the other hand, the area under cultivation in Malaysia, currently the world's top producer, has reached the saturation point and cannot be expanded. Accordingly, such natural factors, along with the rapid demand growth in consumer countries and favorable domestic policies as mentioned later, have brought strong pressure for conversion in terms of both area and production.

a. Strong Demands

In terms of steady growth in domestic and overseas demand for oil palm, we can point out several factors such as the versatility of uses of palm oil, health-conscious trends worldwide and nature awareness. 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. These demand factors, especially in foreign consumer countries, are behind the promotion of intensive oil palm plantations in Indonesia.

b. Domestic Policy

It is pointed out that Indonesia applied a "full-set" industrialization approach in the oil palm industry, which develops industrial processes from agricultural plantations downstream to palm oil processing, cooking oil manufacturing and oleo chemicals. The fact that production costs are low due to Indonesia's cheap labor force is another reason this sector is seen favorably.

Employing the Nucleus Estate and Smallholder system linked to the transmigration program (PIR-TRANS), which is quite an advantageous system for large capital, was an institutional cause that brought the rapid increase of oil palm plantations (Box 5). Large corporate groups including Raja *Garuda Mas, Salim, Sinar Mas,* and *Astra* became dominant nucleus companies of oil palm agricultural estates. The oil palm industry not only supplies raw materials but 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. The funds for the projects can be borrowed under favorable conditions from international financial institutions such as the World Bank (WB) and Asian Development Bank (ADB). Thus we can conclude that during the development phase of the Nucleus Estate and Smallholder system, large corporate groups and international aid organizations played an important role in leading

the expansion as well.

In the forest conversion to plantation site, while certain orders or regulations were enforced, various kinds of loopholes and illegal acts were actually observed broadly. In consequence, natural forests and high-quality production forests were often developed into plantation by logging companies who hold a wood-use permit (*Izin Pemanfaatan Kayu* or IPK) issued by a provincial government. In many cases, as the company's real objective is to use the wood, it abandons the land after logging. This practice is rampant with companies who have logged an area, then selling to other companies their permit for release from forest land and business permits. In addition, there have been many reports of national parks being logged to make way for oil palm plantations. In several cases where parks were turned into plantations, road construction made access into the forest easier, allowing illegal logging to run rampant. Thus a company logging just for profit while applying for plantation projects was a key actor.

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. Policies on the development of oil palm plantations also experienced reforming (Box 6). However a series of policy changes has not functioned to reduce the development. Against the purpose of the policy reforms, new rules strengthened the superiority of large enterprises and prompted gaps between the actual land use and the category of land classification. Moreover, newly created regulations occasionally stimulate modification of provincial land use plans, which provide more preferable land classification for plantation developments. In consequence, such an arbitrary decision pushed out indigenous people (= traditional community) from their lands and forests where people have been managing / using their natural recourse very sustainably under common low.

FOREST MANAGEMENT IN THE PHILIPPINES: A BRIEF ASSESSMENT OF POLICIES AND STRATEGIES

By: E. S. Guiang[14]

1.0 Introduction

This short paper presents a sketchy analysis of forest management in the Philippines. It provides the status, issues, and challenges of forests and forest lands management in the country; discussions on how participatory forest management policies have emerged over time; and outline on how participatory forest management policies are impacting the development of plantations, agroforestry systems, protection of biodiversity and critical habitat, and sustainable management of watersheds and natural forests especially in the residual and old growth forests.

The paper intends to initiate discussions and reactions among participants and hopefully elicits different perspectives, viewpoints, and awareness among non-Filipinos in order to further enrich participatory forest management in the Philippines. The paper does not claim to have treated the key issues and concerns on participatory forest management in an in depth manner. It recognizes the fact that in many ways, the experiences of the Philippines have a lot of similarity with several tropical developing countries such as the Indonesia, Thailand, and probably Vietnam and other neighboring countries.

2.0 Visions, Missions, and Objectives of the Philippine Sustainable Forest Management

The Philippines was one of the signatories to the Agenda 21 (Rio de Janeiro agreements). The Philippine Constitution supports sustainable development, social justice, and equal access to natural resources. The Department of Environment and Natural Resources (DENR) has been mandated under the PD 705 (Revised Forestry Code), Executive Order No. 192 (the creation and re-organization of the environment and natural resources department), the National Protected Area Systems (NIPAS) Law, and other related legislative policies to focus, adapt, and, if necessary, recast its statement of visions, missions, and objectives following certain key guiding principles, such as:

2.1 The conservation and development of forest lands and forest resources;
2.2 The protection and preservation of biodiversity;
2.3 The sustainability of goods and services emanating from the sustainable management of forest lands and forest resources over time;
2.4 The enforcement of regulations on the use of forest lands and forest resources; and
2.5 The adoption of social equity principle in the access of natural resources including forest resources.

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DENR's mandates over the years have been translated and asserted into four major powers as means to carry out its visions, missions, and objectives. These powers are the (a) power to allocate forest lands, (b) power to issue resource use rights, (c) power to title forest lands that were converted to alienable and disposable lands, and (d) power to issue environmental compliance certificates. In theory, the main justification for exercising these powers are to ensure the sustainable use of forest resources, protect biodiversity, and provide equal access to forest resources. However, like any power, there have been cases where these powers have been used to serve vested interests, curtail sustainable development, and discouraged the entry of other stakeholders in the sustainable protection and management of forests and forest lands in the Philippines.

3.0 Status, Issues and Challenges in Forest Management

Several studies and reports have confirmed that the Philippine forests were abundant in the fifties and a major source of export earnings in the sixties and seventies. These forests, however, were largely deforested in the seventies, converted into agricultural production areas and upland agriculture in the late seventies and eighties, and became a major focus of democratization and biodiversity preservation movements in the nineties.

The studies and reports point to generic conclusions and observations that require generic recommendations – decreasing forest cover, increasing marginalization of the uplands, increasing land conversion, inadequate livelihood opportunities in the uplands, decreasing productivity, increased erosion and siltation, loss of biodiversity, slow rate of rehabilitation or reforestation, meager private investments, inconsistent policies, a history of resource allocation bias towards the rich and the influential, degrading and deteriorating watersheds, increasing open access, increasing migration of lowlanders to the uplands, illegal cutting, centralized and ineffective bureaucracy, graft and corruption, among others. At the institutional and advocacy fronts, there has been a preponderance of "quick fix" solutions to forestry problems combined with ill-designed and implemented reforestation and industrial tree plantation programs.

3.1 Forest Cover

The forest cover of the Philippines declined from 70% of the country's total land area in 1900 to about 18.3% in 1999 or a little bit over than 5 million hectares of natural forests composed of residual and old growth forests. The old growth forest was estimated to be less than a million hectares and are mostly located in protected areas, reservations, concession areas, and cancelled/suspended/expired concession areas. The forest cover was projected to be further reduced to 6.6% in year 2010 if there is lack of commitment and budgetary support for people-oriented programs; however, it is expected to increase to 19% if there is a genuine commitment from the government to implement community-based programs.

The annual deforestation decreased from an all time high of 300,000 hectares from 1977-1980 to about 100,000[15] hectares in the nineties. Historically, annual deforestation rates

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[15] *Based on discussion of Director Bert Argete of DENR Policy and Planning Services, the 100,000 hectares per annum deforestation rate of the Philippines was based on projections using two forest cover data points. The points are the forest covers in 1980-81 (based on aerial photos) and in 1987-88 (based on spot imagery). This deforestation rate is oftentimes contested in public meetings and*

were 100,000 hectares in l935, 150,000 hectares in 1940-1950, 300,000 hectares in the late 1960s, and dropped below 100,000 in the late l980s. The average annual deforestation rate was estimated to be 172,000 hectares between 1960-1975. Presently, about 86% of all lands in the public domain are in serious need of rehabilitation. At the end of 1980, 24 out of 34 major islands in the Philippines that were heavily forested in 1900 had less than 10% forest cover.

The rapid increase in deforestation rate between the sixties and seventies was the Philippines' opportunistic response to the expanding export markets for tropical logs. Between l961-1972, the Philippine government increased the area of forest lands leased for logging concessions from 4.48 million hectares to 10.6 million hectares.

Increase in population combined with inadequate economic opportunities in the industrial and service sectors has continually threatened the conversion of forests into agricultural lands. Before the fifties, the Philippines had only a population of less than 19 million; today, the country has more than 70 million Filipinos and more than 20 million of them reside in the uplands. The highly skewed distribution of fertile lowlands in favor of a few landed elite followed by an ineffective land reform program and slow pace of industrialization forced many rural people to speculate for lands, clear logged-over areas, and eke a substandard living in the uplands. Hence, agricultural farms in kilometer square almost doubled from 1948 to 1980.

Obviously, the Philippines requires more reforestation efforts today than 75 years ago. The Philippines has greater need to rehabilitate and protect the watersheds of rivers that support hydro-electric and irrigation facilities and waterworks systems. Reforestation has become the battle cry of most environmentalist to counteract the unfavorable impacts of rapid deforestation on the productivity of lowland agriculture and technical and economic viability of irrigating additional agricultural lands. Only a massive and sustained reforestation program could avert the country's economic losses which could arise from soil erosion, siltation of water systems, flash floods, hydrological deterioration, biodiversity losses (in terms of species and genetic richness), degraded mangroves and coral reefs, sudden climatic changes, displaced wildlife, disrupted natural regeneration and ecological succession.

In 1988, forest depreciation resulting from the loss of forest cover was estimated to be more than P800 million. The forest cover loss also directly and indirectly depreciated fishery resources and has been a major factor in the depreciation of upland soils (close to about one billion pesos in 1996/97).

Analyses have shown that deforestation could not be solely blamed on TLA holders and their logging operations. There are several reasons for the accelerated deforestation in the sixties and seventies in the Philippines. Logging operations made the primary forests accessible to the increasing population for slash and burn farming, agricultural expansion, and illegal logging activities. Many overlogged primary forests were subjected to forest fires and converted into upland farms. Extensive slash and burn farming in logged-over areas and brushlands caused at least 60% of forest denudation in the Philippines while agricultural expansion accounted for at least 30% of lost forest cover. Presently, in the estimated 100,000 hectares of deforestation rate, commercial logging only account for at least 10% or 10,000 hectares. The largest culprit has been the increasing "open access" situation of many forest lands with existing old and residual forests. These are the easy targets of illegal cutters. In these areas, the government has not been able to adequately protect and assert its ownership of public forest lands.

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fora; however, it is used in this paper for lack of other reliable information.

In the past, there were more incentives and motivations for many TLA holders to overcut. Forest charges were very low. From the 50's up to mid-1990, forest charges as an ad valorem rate ranged from an average of 2-6.3% of the log value computed with the wholesale price. The Philippines was only charging a little more than $1 per cubic meter while Indonesia at this time was already charging more than $15 per cubic meter. Accountability and responsibility have not been clearly mandated because the TLA allocation process has been a privilege-driven and patronage-biased system for obtaining a forest concession. Transaction costs were high because of regulations and unstable and unpredictable forest policies. The harvesting policy under the selective logging system also unintentionally allowed overcutting in natural forests. This has positively favored many of the TLA holders.

The other factors that contributed to the accelerated loss of forest cover include government policies of "land for the landless" and generous equipment financing which opened up opportunities for importing heavy equipment for logging, road construction, and large scale conversion of forest lands into agricultural production areas.

The present forest cover of the Philippines ranks as one of the 11 worst cases among 89 countries in the tropical domain with a per capita forest cover of about 0.085 hectare. And as everybody realizes, the significant reduction of forest cover of the Philippines impacts on- and off-site communities, habitats, infrastructures, and the ecological stability. The loss of forest cover affects biodiversity, habitats, stability of watersheds and water supply for domestic and irrigation needs, acquifer recharge, security of communities from flash floods and pests and diseases, coastal and mangrove productivity, and the protection and maintenance of roads, bridges, dams, and ports. The loss of forest cover also means that the Dipterocarp forest of the country, which has been the source of the "Philippine mahogany" in the world market will become a history by itself.

3.2 Upland Population

The Philippines upland population has continued to increase and the present estimates show that it would shortly cross the 20 million line, of which 6.3 million belong to indigenous peoples. At 2.8 % growth rate, the UP Population Institute projected that the upland population will be 24.7 million in the year 2000. The upland residents are considered to be the "poorest of the poor", impoverished, highly marginalized, and are treated as "occupants" and "squatters" in public lands. As early as in the beginning of the seventies, forest management policies in the Philippines has started and gradually broadened its perspective on how the upland communities could become partners and considered as major stakeholders in sustainable forest management.

The need for "pump-priming" in the upland communities (the country's most depressed areas) with rehabilitation projects (i.e. reforestation, assisted natural regeneration, timber stand improvement, agroforestry, and others) would ignite local economic activities and provide the farmers/forest occupants a "breathing space" in the undergoing, prolonged, and acute economic recession. Reforestation activities, for instance, could easily create one new job per hectare, which is a significant contribution of the national government in uplifting the rural communities' socioeconomic condition.

Most upland communities are in dire need of basic rural infrastructures such as farm to market roads, communal water impoundment systems, domestic water systems, schools, multi-

purpose solar dryers, planting materials, extension services, basic health delivery system, and access to credit.

3.3 On-site Forest Management Systems

The absence or almost lack of operational and effective on-site management systems in and for many of the forest lands and forest resources characterizes the Philippines forests and forest lands (please refer to Table 1). Only 19% of the 15.5 million hectares of forest lands are considered to be under some kind of on-site management systems. Most Philippines forests and forest lands, now totaling at least 9 million hectares, are now under de facto management. These forests and forest lands, whether directly or indirectly managed by the government, private sector, communities, indigenous peoples, local government units, and civil and military organizations are either inadequately or poorly managed.

Most government's "set asides of forests and forest lands" for protection of biodiversity and habitats, watersheds, civil and military reservations do not have approved, legitimized, and funded comprehensive resource management plans. The government has demanding the holders of TLAs, IFMAs (Industrial Forest Management Agreements), CBFMAs (Community-Based Forest Management Agreements), and CADCs (Certificate of Ancestral Domain Claims) to submit and obtain approvals or affirmations of their comprehensive and long-term resource management plans and their annual operations plans. Requests for the issuance of resource use permits of the aforementioned holders could only be processed and approved upon the submission of resource management plans.

The forest lands area of the 18 active TLAs with a total of little more than 0.9 million hectares are probably under the most effective forest management because these holders (with their annual allowable cuts of almost 0.6 million cubic meters) are generating revenues to finance the protection and management of their forest lands. The natural forests under CBFMA and CADC areas with resource management plans could only be effectively protected and managed with accompanying resource use rights (as the communities' major source of revenues to finance their protection and management activities). Resource use permits for the communities, however, were suspended by the DENR Secretary effective September 1998. A more restrictive policy (and tied up with the involvement of the Natural Resource Development Corporation) has been formulated for issuing resource use permits for the communities.

Most if not all the country's watershed forest reserves (with a total of 124 covering a total area of 1.38 million hectares) do not have approved and legitimized comprehensive watershed management plans with sufficient annual budgets to fund protection, development, and management. Almost all the protected areas totaling 1.34 million hectares including those funded by the World Bank and EU do not have approved, legitimized, and funded Protection Area Management Plans.

In summary, out of the total 15.88 million hectares of forests and forest lands which are considered to be public domain, only 20-25% are probably under some kind of effective, on-site forests and forest lands management. At least 5 million hectares are not covered by any form of tenure, proclamation, or special use permit for protection and management.

Table 1. Rough estimate of status of forest and forest lands management in the Philippines

Type of Allocation of Forest Lands	Area in '000 Hectares	Status of Plans and On-Site Management	Remarks
1. Protected Areas (National parks, Game refuge and bird sanctuary, and wilderness area)	1.34	Ad-hoc and highly dependent on availability of funds. Most, if not all, do not have protected area management plans	The World Bank and EU are currently funding the preparation, validation, and legitimization of the protected area management plans in at least 18 sites.
2. Established forest reserves	3.27	Ad-hoc and highly dependent on availability of funds. Most, if not all, do have approved, legitimized, and funded resource management plans.	Most declared watershed reserves, even those that are considered to be critical such as the Ambuklao and Binga Watershed, Pantabangan, and Magat are not under effective on-site management systems.
3. Established timberland	10.02	Only those covered by active TLAs, IFMAs, CBFMAs, and CADCs are under some kind of on-site management. It is estimated that at least 5 million hectares under this category are considered "open access".	The on-site management systems of the TLAs, IFMAs, CBFMAs, and CADCs are highly dependent on the approval and award of resource use rights to the holders of these tenure rights. This is only probably around 1.8 million hectares (0.9 million from TLAs, 0.4 million from IFMAs, and 0.5 from communities)
4. Civil/military reservations, fishponds, and unclassified lands	1.25	Highly variable; some civil reservations are under some form of management; most forests in military reservations are not effectively managed. This also applies with some of the large fishpond lease agreements.	Some LGUs are taking a closer look at how these reservations are being managed. The LGU of Nueva Vizcaya, for instance, took the initiative to put an on-site forest lands management for the Lower Magat Forest Reserve.
TOTAL	15.88		

3.4 Supply and Demand of Forest Products

From the estimated consumption of wood and related products in the late eighties amounting to 37 million cubic meters, the Philippines' domestic demand for wood products, fuelwood, and pulpwood will increase to more than 76 million cubic meters in the year 2000. The existing residual and virgin forests including forest plantations will not be adequate to meet the projected demand for wood, fuelwood, and pulpwood. The remaining old and second growth forests would only be able to supply a total of about 18.5 million cubic meters of wood by the year 2000. Forest plantations, enrichment plantings in inadequately-stocked logged over areas, and reforested areas are expected to meet the projected demand gap unless the Philippines will import wood, fuelwood, and pulpwood from other neighboring countries.

The average annual demand for forest products, mainly construction timber and related products was estimated to be 5 million cubic meters. This is expected to grow between 2-5% per annum. Presently, demands for construction timber and similar type of forest products are met by:

12% from harvest of residual forest (mostly with the existing active TLAs and communities);
1% from plantation forests;
16% from imports;
15% from coconuts; and
56% from substitutes and “illegal sources”.

Most illegal sources of construction materials are probably coming from existing residual and old growth forests that are generally considered to be open access or forests that are not under sufficient forest protection activities.

3.5 Opportunities in the Forestry Sector

The Philippine forestry has the potential to rebound and become a key player in the local and regional economies. The Philippines key forestry policies are in place. The sector has pioneered the adoption and implementation of community-based forest management as the national strategy. The country has the existing human resource and the most ideal agroclimatic conditions in establishing fast growing hardwood and becoming a major exporter in this part of the world. Economic rotation and yield of key fast growing species such as albizzia, mangium, gmelina, and eucalyptus average 6-12 years and at least 200-300 cubic meters per hectare, respectively. In Eastern Mindanao, forest plantations could potentially generate more than $ 3 billion a year instead of incurring $ 1 billion for imported forest products. There are thousands of professionally registered Filipino foresters who are just waiting for new challenges and opportunities to emerge.

4.0 Trends in Forest Management Policies and Strategies

The quality and quantity of the Philippine tropical dipterocarp forests, the expanding world markets, the entry of capital-intensive technologies, increasing population, the cry of "lands for the landless", patronage and cronyism, the rise of environmentalist movements, concerns on biodiversity, the democratization agenda, and increasing incidences of environmentally-related natural disasters have, over the years, shaped and influenced forest management policies and strategies in the Philippines.

4.1 Overall Trends

Table 2 presents in chronological order the major policy instruments which defined and directed operational policies and strategies in the Philippines forest management. The trends follow at least four major directions: (a) moving towards state control of the remaining natural forests after two or three decades of massive forest resources exploitation, (b) increasing participation of communities and indigenous peoples in the protection and management of forest lands and forest resources, (c) decentralization and devolution, (d) emphasis on biodiversity protection and conservation, and (e) tree plantation/agroforestry development.

In the sixties and seventies, the major policy agenda was to refine and implement the selective logging system of the Philippines, to gradually reduce and stop the export of raw logs, and to increase the efficiency of the forest products industry. The sixties was also the period when consolidation of concessions and their integration was initiated. The late seventies and eighties saw the emergence and advocacy for the participation of forest occupants and claimants in forest land development and management. Agroforestry and upland development became key phrases and bywords.

The late eighties and nineties, especially after the EDSA Revolution in 1986, opened up the gate for the advocacy and movement towards pro-people, decentralized, devolved, democratized and equitable distribution and access to forest lands and forest resources. Many timber holder agreements were cancelled, suspended, and not renewed. Log bans were intensified. The trade off was the increasing open access, increased illegal logging, displaced workers from the forest products industry, and reduced household incomes. Enforcement was given attention using "unsustainable" external funds. Reforestation strategies with NGOs, communities, and LGUs bloomed. Forest policies shifted towards biodiversity protection and conservation, watershed management, multiple-use systems, forest plantations, recognition of indigenous peoples rights, and empowerment of communities and local government units.

Presently, more than 70 percent of the Philippines 77 provinces, for a variety of reasons, are now under logging bans or moratoria. These bans or moratoria are covered by administrative orders, letters of instruction from the Office of the President, radiogram orders or laws such as the NIPAS Law and the RA 7611 (Strategic Environmental Plan for Palawan Act). The log bans are "disallowing the extraction of timber from the natural forest. DENR issued DAO 21 Series of 1991 banning timber harvest in all old growth/virgin forests in the Philippines. The same order bans timber harvest in areas above 50% slope and in areas located above 1000 masl. The NIPAS law reiterated this order. The reasons for these "log bans" are centered on preserving biodiversity, reducing the incidence of natural hazards such as flash floods, protection of key infrastructures from massive erosion and siltation, protection of the indigenous peoples' ancestral claims, among others.

The Philippines National Forestation Program as part of the Master Plan for Forestry Development was designed to increase the dependence of wood supply from natural forests to plantations. Policies along this line, however, did not result to positive responses from the private sector. Inconsistent and unstable forest policies especially on tenure, participation of communities in forest lands, access to financing, and peace and order condition discourage many private companies to develop forest plantations.

The convergence of political, economic, environmental, and social issues combined with the rise of environmental movements notably from advocacy NGOs and media resulted to policy shifts towards community-based resource management, biodiversity, ecological-based and landscape-based watershed protection and management, multiple use of forests and forest resources, enforcement to curb graft and corruption in forest regulations, and transparency in the allocation process to minimize the use of patronage system in obtaining or renewing timber license agreements.

4.2 Emergence of Participatory Forest Management

Forest management policies and strategies in the Philippines are faced with both public land and forest resource management. It gradually shifted from "protect, prohibit, and punish" mode with communities to "protect, participate, and profit" paradigm. As seen in Table 3, community-based forest management in the Philippines started with the individual claims and upland farms of residents in the public forest lands, with or without forest and near or adjacent with natural forest or planted areas. First, there was the recognition issue, followed by partnership arrangement in the earlier efforts of reforestation and rehabilitation, followed by community organizing and empowerment and issuance of individual or communal tenure.

The next wave was directed towards organizing communities, near or adjacent the forest lands (with or without natural or planted forests owned by the state), into peoples organizations with the assistance of NGOs and government agencies so that they could apply for communal tenure and resource use rights under the tenurial instrument called, "community-based forest management agreement". The CBFMA was made possible through administrative policies – an Executive Order signed by the President of the Philippines in 1995 and series of Department Administrative Orders. The CBFMA as communal tenurial instrument provides the communities access to forest resources including natural forest products (and timber from residual forest), allows members to apply for individual property rights within the communal tenure, and enables the community organization and its members to enter into joint venture or agreement with the private or public sector for the development and management of the forest lands covered by the tenure.

CBFMA as a tenurial instrument now covers claimed upland farms, open/brushland areas, open access forest lands with planted and natural forests, certain zones of declared watersheds and protected areas, and mangrove forest lands. Even former government reforestation projects may be included as part of CBFMA areas.

Another variant of the CBFMA instrument has eventually emerged. This is the co-management agreements between the DENR and the LGUs in the protection, development, and management of forest lands including watershed reservations and existing natural forests. The LGUs, in this case, could enter into sub-agreements with communities inside the co-management area.

Under the Indigenous People's Rights Act (IPRA Law), the IPs are issued with Certificate of Ancestral Domain Titles or Certificate of Ancestral Land Title after adequate and satisfactory validation of their claims. Most of their claims are located in public forest lands. Previously, the claims of the IPs were addressed through a DENR's administrative policy. In this claims, the IPs may continue to access forest resources following their traditional practices. The IPRA law, however, is presently being contested in the Supreme Court as to its constitutionality. This legal impediment has virtually stopped the issuance of titles to legitimate IP claims.

5.0 Overall Summary

Despite the adoptive forest management policies and strategies in the Philippines, there are indicators that show that the forests and forest lands in the country are under severe management crisis. The indicators such as those mentioned elsewhere – decreasing forest cover, increasing open access, increasing dependence on imports, stalled investments in forest plantation development, threatened biodiversity, and centralized bureaucracies – show that participatory forest management in the Philippines faces new heights and challenges. There are signs that the participatory forest management approaches are beginning to pay off. But, like most policies and practices in developing countries, the key for sustained forest management depends on the ability of the institutions to build on with what they have, what they know, and with what they want to be in the future. This is clearly founded on the commitment of government, private, and academic institutions to strengthen the base of the "building up process" instead of continually "re-inventing the wheel" for the sake of showing that something is happening in the forestry forefronts of the Philippines.

Table 2. Key forestry policies in the Philippines

Policy Instrument	Form and Year Issuance	Major Focus and Mandate
Revised Forestry Code	Presidential Decree No. 705 of 1975	Creation of the Bureau of Forest Development with line authority. Mandates the adoption of multiple use, selective logging system, land classification and delineation of forest lands, industrial tree plantations, key conservation and reforestation strategies, census and initial recognition of forest occupants.
The 1987 Philippine Constitution	1987 Constitution	Adoption of the Regalian Doctrine; the State may undertake on its own the development and utilization of natural resources or enter into co-production, joint venture, or production agreements.
Executive Order No. 192 on the Reorganization of the Environment and Natural Resources	Executive Order with legislative and executive powers issued in 1987	Downgraded the BFD from line into a staff bureau; DENR was mandated to conserve, manage, develop, properly use, license and regulate the use of natural resources.
Local Government Code	Republic Act No. 7160 of 1991	Partially devolve some functions of the DENR to the local government units.
The Law on National Integrated Protected Area Systems	Republic Act No. 7586 issued on 1992	Allocation of forest lands and forest resources into protected area systems for biodiversity purposed, preservation of habitats, watershed protection, and maintenance of ecological balance.
The Law on Forest Charges on Timber and Other Forest Products	Republic Act No. 711 issued on 1993	Mandated the government to increase forest charges for timber and non-timber forest products to as high as 25 % and 10% of FOB prices, respectively.
Executive Order No. 263 on Community-Based Forest Management Strategy	Executive Order of 1995 with no legislative power	Mandated the DENR to adopt community-based forest management as the strategy for sustainable forestry and social justice.
Indigenous People's Right Act	Republic Act No. 8371 in 1997	Mandated the government through the newly-created National Commission on Indigenous Peoples (NCIP to recognize, protect, and promote the rights of IPs.

Table 3. Types of Community-Based Forest Management in the Philippines

Types of Community-Based Forest Management	Operational Policy Mandate (Order, law, etc)	Tenurial Instrument
1) Rehabilitation, Protection, and Management of Reforested Areas by Communities	DAO # 31, S. 1991; DAO # 71, S.1990; DAO # 33, S. 1991; DAO # 23, S.1993; DAO 96-29	Forest Land Management Agreement (FLMA)- 25 yrs + 25 yrs. NOW part of the COMMUNITY-BASED FOREST MANAGEMENT AGREEMENT (CBFMA) that includes resource use rights, transferability, and limited divisibility rights (e.g. joint ventures and contracting)
2) Rehabilitation, Protection, Improvement, and Management of Fragmented Natural Forests (Degraded and Productive Residual Forests, Brushlands, Virgin Forests, Marginal Lands) by Communities	DAO # 123, S. 1989; DAO # 24, S. 1991; DAO # 25, S. 1992; NIPAS Law; DAO # 22, S. 1993; DAO # 2, S. 1993; EO 263 of 1995; DAO 96-29	Community Forest Management Agreement (CFMA)- 25 yrs + 25 yrs; NOW part of the CBFMA with resource use rights in residual forest and other benefits in Item No. 1 above.
3) Rehabilitation, Protection, and Adoption of Agroforestry Systems in Occupied Public Forest Lands	LOI 1260, S. 1982; DAO # 04, S. 1991	Certificate of Stewardship (CS)- 25 yrs + 25 yrs; Certificate of Forest Stewardship Agreement (CFSA) - 25 yrs + 25 yrs; NOW part of the CBFMA and addresses the issue of individual property rights within the communal tenure – CBFMA.
4) Protection and management of buffer and multiple use zone in Protected Area Systems	DAO in June, 2000	CBFMA for tenured migrants and also for IPs (25 years + 25 years); limited and restrictive provisions on resource use rights especially on access to natural forest products.
5) Protection and management of IP claims – A & D areas, public lands with or without forests.	DAO 93-02; IPRA law	CADCs or CALCs were issued to IPs with resource use rights; with no time constraint.
6) Rehabilitation, Protection, Improvement, and Management of Natural Forests by Qualified Organizations with the Incorporation of Communities in the Overall Management	DAO # 42, S. 1991; DAO # 24, S. 1991; DAO # 27, S. 1991; DAO # 2, S. 1993; DAO # 78, S. 1991; Draft Modifications to DAO # 42, S. 1991; DAO 97-04.	Industrial Forest Management Agreement or Environmental Protection and Management Agreement - 25 yrs + 25 yrs

POLICY AND STRATEGY OF CONSERVATION IN THE NATURAL PRODUCTION FORESTS

By Bambang Riyanto*

I. Introduction

In general, the vision of natural forests management is to implement sustainable and environmentally friendly natural resources management based on national standards of Sustainable Forest Management (SFM). This includes sound practices regarding production, social and ecological aspects.
Indonesia's present (1999) natural forest covers 121.1 million hectares, consisting of 113 million hectares of permanent forest and 8,1 million hectares of convertible forest. The following table shows forest land use in 1999.

Indonesia's Forest Land Use in 1999.

No	Forest Land Use	Area (mill ha)	%
1.	Conservation forest (national parks, natural reserves, etc)	21.5	17.75
2.	Protected forest	33.0	27.25
3.	Production forest	58.5	48.31
4.	Convertible forest	8.1	6.69
	TOTAL	121.1	100.00

The Table above shows that production forest covers nearly 50 % of total forest area. These forests are almost entirely on the "outer islands". For about three decades, natural production forests have been managed intensively under the Indonesian Selective Cutting System (TPI) and later under the Selective Cutting and Planting System (TPTI). The latter has been applied to ensure sustainability and increase forest productivity by enhancing growth, ensuring a sustainable yield of timber and preserving the social and ecological functions of natural forest. Annual timber production varied between 24 and 29 million m^3, however, 1998/99 production decreased to 19 million m^3, including 7 million m^3 from the IPK.

Due to the continued decreased of natural forest production, timber plantations (HTI) have been established to support the demand by wood-based industries and to re-grow denuded or unproductive forest lands with exotic and superior local species. Until 1999, 2.5 million hectares of unproductive lands were recorded as being re-grown, with a number of fast-growing species such as Acacia mangium, Paraserianthes falcataria, Gmelina arborea, Eucalyptus urophylla, etc.

Efforts toward conservation of production forests have continued because of the importance and strategic value of forests economically, socially and ecologically. Therefore, supervision of

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TPTI implementation, carried out by concession holders, has been strengthened and sanctions applied to deal with neglected silviculture steps or illegal logging. Annual performance assessment of forest management is continuously carried out in order to monitor and promote sustainable forest management (SFM).

Regarding SFM, MOF, APHI and the Indonesian Eco-labeling Institute (LEI), established in 1993, joined together to prepare a Sustainable Forest Management (SFM) Certification System. The activities comprised of developing a certification system as well as criteria and indicators for SFM (C & I) through a series of discussions, workshops, seminars and field tests involving local stakeholders and international experience. International cooperation in forestry research and development has been sought for technology promotion and financial support. Funding comes from, among others, the World Bank, ODA, UK, JICA, European Union, US AID, GTZ and is focused on stimulating activities with multiple effects.

II. Conservation Policy and Institution

The responsibility for production forest management in Indonesia falls under the Ministry of Forestry and Estate Crops (MoFEC). The Ministry provides policies and guidelines for managing these forests, whereas the implementation is mainly carried out by forestry state enterprises, private companies, some Universities and forest cooperatives.

In contrast to protected forests, National Parks or Natural Reserves, conservation in production forests is strongly tied to the obligations of its management. These obligations are to produce forest products optimally and rationally through forest productivity and continuation of its ecological and social function. To support this purpose, regulations and guidelines are issued to ensure the quality of forests: production, social and ecological functions, are sustainable.

The following are regulations issued to manage production forests, where forest conservation is prescribed.

1. Minister of Agriculture Decree no. 76/Kpts/Ekku/3/1969 on General Guidelines for Forest Harvesting. In this guideline, technical prescriptions must be followed by concession holders, such as criteria of trees permitted to be cut, felling direction, etc. Some other points are: bucking should be conducted at the felling site, skidding of entire trees is prohibited and, high lead yarding is prohibited. All these limitations are expected to help conserve the soil and potential tree regeneration and guarantee the continuation of forest production for the next felling cycle.

2. Director General of Forestry Decree no. 35/Kpts/DD/I/1972 on Guidelines for the Indonesian Selective Cutting System (TPI). This system regulates the minimum cutting diameter, the required number of residual trees for the next cutting cycle, restocking of logged-over areas and protection of forest areas. The minimum cutting diameter is fixed at 50 cm dbh and the minimum number of residual trees is 25 per hectare with a minimum of 35 cm dbh. The technical prescription emphasizes conservation in production forests.

3. Director General of Forest Utilization Decree no. 564/Kpts/IV-BPHH/1989 altered to no.151/Kpts/IV-BPHH/1993 on the Indonesian Selective Cutting and Planting System (TPTI). As compared to TPI, the TPTI system is more sophisticated and gives more detailed prescriptions for planning steps before, during and after felling. The system consisting of 11 steps, proposed to increase forest value in respect to the quantity and quality of residual stands, and ensure the continuous growth of timber for the next cutting cycle. This system includes planting of open areas or enrichment planting of low stock areas. The minimum diameter allowed to be cut is 50 cm dbh and 25 residual trees per hectare with a diameter between 20 - 49 cm remaining.

4. Presidential Decree No. 32/1990 on the Management of Conservation Areas. Based on this regulation, there are parts of forest concession areas that should not be harvested, including strips along rivers, steep patches, plasma nutfah, etc. Conservation of such areas contributes substantially to maintaining bio-diversity.

5. Government Regulation no.7/1990 on Industrial Timber Plantations (HTI).
   As mentioned before, timber production in natural forests has continually decreased. This has lead to an imbalance in supply and demand of timber for wood industries. A strategic program of timber plantation namely "Hutan Tanaman Industri/HTI" has been issued. The purpose of this program is not to convert more forests into production forests, but to increase productivity of forest areas by planting fast growing species to prepare raw material for wood, pulp and paper-based industries. Indeed, the timber plantations are promoted to maintain or restore the productivity of forests, particularly degraded lands.

6. Director General of Forest Utilization Decree no. 646/IV-BPH/1994, dealing with obligations to plant on unproductive and bare forest lands. Concession holders are obliged to re-plant at least 300 hectares of unproductive and bare lands with potential local species annually. This program is aimed at preventing erosion and continued multiple protection of forest areas.

7. Minister of Forestry and Estate Crops Decree no. 393/Kpts-II/1989 amended to become no. 315/Kpts-II/99, dealing with sanctions for violations of forest utilization rules and regulations. This regulation points out sanctions against concession holders who violate management regulations for their forest areas. The sanctions could be a fine, a reduction of the concession area, even withdrawal of the concession right.

II. CHALLENGES TO IMPLEMENTING CONSERVATION

Historically, when the production forests (about 64 million hectares) began to be utilized in the 1970s with forest concessions (Hak Pengusahaan Hutan/HPH), Indonesian did not have any experience in managing natural forests. The management only focused on exploitation of timber resources. Millions of cubic meters of logs were exported. Unfortunately, this was not countered by reforestation. Lack of supervision, enforcement and legal sanctions contributed to the destruction. The ban on log exports implemented since 1985, in which concession holders are obliged to build wood industries, increased added value and employment opportunities for Indonesians. Modern wood industries were built, among others plywood mills, sawmills,

blockboard mills, particleboard and more. Development of wood-based industries brought about huge financial benefits from the export of wood products, particularly plywood. Indeed, natural forests are continuously over exploited to supply the demand of timber for these wood industries, which is up to 3 times the available timber from natural forests.

The political situation in the past gave very large concession areas to a small groups of conglomerates. The records show that about 25 million hectares (49 %) of natural production forests are owned by 35 groups of HPH. This excessive occupation of forest areas leads to inefficient and unsustainable forest management, since their business is only orientated towards short-term profits and often just "timber mining". Whereas the basis for utilization of non-wood products by local people such as rattan, copal, resin, turpentine, sago, etc is often destroyed by pure timber management.

The exclusive rights to production forest management of private enterprises, causes a lack in local community participation, particularly those who live in and around the forests. Because of the low benefit sharing from forest utilization, they do not have any sense of belonging. This condition has lead to a negative effect on forest conservation. The natural forests come under pressure from people's activities, such as illegal logging, shifting cultivation, land-encroachments and forest fires.

Based on Government Regulation No. 21/ 1970, the period of forest concession rights is limited to 20 years and subject to renewal. The concession is renewed only if the HPH holder can prove good performance management. This short concession period does not support SFM. HPH holders only consider short-term profits rather than long-term benefits. Indeed, concession holders are unwilling to reinvest their money in the forest.

The current challenge to implementing forest conservation and sustainability is that Indonesia still in a tremendous economic, political and social crisis, having to seriously consider SFM to save its forest resources. Misunderstandings of policies in the reformation era has stimulated people to take over, including claiming large areas of forest instead of taking responsibility for conservation. Local autonomy is being prepared to deal with the challenge of democracy, but conservation remains at stake. In this situation, administration, institution and policy restructuring are being undertaken. This needs time and a professional approach.

III. Conservation Strategies in the Future

Certainly, conservation in production forests is not the same as in protected forests or Nature Reserves. It should be formulated with a silvicultural system, designed to produce wood and support non-wood-based uses and social benefits (tangible and intangible).

The following are strategies to deal with conservation in production forests that shall be implemented in the future:

1. Re-inventory of natural production forests to decide suitable forms and degrees of utilization and development needs.
2. Restructuring forest concession rights regulations.

3. Increasing the productivity of forests through rehabilitation and reforestation programs in accordance with sustainability criteria.
4. Changing the paradigm from "timber-based management" to "resource-based management" (multiple-use forestry).
5. Application of reduced impact logging (RIL) in logging operations.
6. Developing diversification of forest products by the forest industries.
7. Giving opportunities to stakeholders to participate in forest management.
8. Empowering small and medium-sized business and cooperatives to benefit from forest utilization.
9. Support universities, research and development institutes, global cooperations and NGOs to carry out research and development to improve the management system of natural forests.
10. Applying certification of forest management and forest products to promote SFM and allow for incentives for forest enterprises that reach and maintain certified SFM-status.

IV. Closing

Conservation as a part of sustainable production forest management is essential to avoid further degradation of forest resources. This action is aimed at maintaining forest productive, social and ecological functions. In line with efforts for forest conservation, new strategies should be implemented to support SFM. Moreover, a change in thinking of forest managers is needed from " timber-based management" to "resource-based management" with long run benefits. Administrative restructuring in accordance with regional autonomy will hopefully not to lead to a reduction in efforts to apply SFM and conservation. SFM and conservation is in the interest of the forestry sector itself. Better control and supervision from local officials must support and enforce better forest management. And finally, the choice of sustainable forest management is the only way to conserve the natural forests of the World.