Chapter 6

Community Engagement in Sustainable Consumption and Production: Empirical lessons and grass-root perspectives

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1. Introduction

Recognising the significance of the role of the community in promoting sustainable consumption and production (SCP), this chapter highlights the dynamism of community-based resource management, and draws lessons on how to empower communities toward more effectively undertaking sustainability policies and actions.

The chapter is based on empirical studies of projects undertaken under the auspices of the Asia Pacific Forum for Environment and Development (APFED).[2] It intends to address three questions regarding the functioning of communities: (i) what factors prompt communities to act collectively (or inhibit them from acting collectively) for promoting sustainable consumption; (ii) under what conditions can communities act most effectively; and (iii) how can community actions influence macro-policy and institutional transformation towards promoting sustainable consumption? To answer these questions, three steps were followed: (i) determine the analytical framework for the envisioned case studies, (ii) analysis of selected case studies, and (iii) examination of linkages between community types and policy factor performance in the context of promoting SCP.

Chapter Highlights

The focus of this chapter is on the role of the community in SCP by drawing on case studies from the Asia-Pacific region of local initiatives for SCP. To this end the chapter looks at the following key points in developing policy oriented empirical lessons:

- Analyse and build on the strengths of community characteristics when choosing the type of activities that communities are expected to undertake towards SCP.
- Governance and information based measures are a key to successful community involvement, but need further intervention to stimulate the interface between macro-policy and field level actions.
- Openness of the community to external facilitators and innovative technology is an important success factor, and there is merit in choosing a community that has such openness when there is uncertainty regarding community acceptance of innovative technology and practices.
- Motivating and mobilising people remains a key success factor, and mind-ware issues, such as environmental ethics and awareness, need to be taken into account in addition to software (social systems and regulations) and hardware (urban or land development).
- Multistakeholder partnerships are a tool to amplify project impacts and safeguards communities from risks associated with innovative projects.

Based on this analysis, a set of recommendations are then presented for mobilising communities and promoting collective policies and actions for SCP.

The concept of community has been applied to various kinds of aggregations of human beings and interpreted in different ways (Warburton and Yoshimura 2005). Community is defined, for instance, as a network of relationships among people, groups, traditions, and other behavioural patterns under respective regional conditions (Flecknoe and McLellan 1994).[3] Marquis and Battilana (2009) state that most definitions of community underline some combination of relatively small scale, boundedness, and strong ties among members of communities, and distinguish it from "society," as a larger and more impersonal form of relationship. In the development discourse, community is referred to as a group of people who reside in a certain geographical or spatial boundary. The scale of geographical area varies according to context, and is sometimes synonymous with administrative units. Community members may have either similar or different backgrounds in terms of occupation, ethnic origin and culture. Although perceptions on community may differ, it is nevertheless recognised as an important unit that plays a vital role in socio-economic activities.

The community's role in sustainable development has been highlighted since the 1990s in response to Chapter 4 of Agenda 21, the United Nations (UN) action plan for sustainable development from the Earth Summit held in 1992 (UN 1992). Much of the literature emphasises the importance of community engagement for sustainable development especially with regard to natural resource management and conservation through approaches such as participation and decentralisation (Chambers and McBeth 1992; Agrawal and Gibson 2001). Meanwhile, sustainable development has tight linkages with SCP. In relation to this, the UN guidelines for consumer protection encourage the promotion of SCP among its member states with a view to reinforcing SCP measures within society, including consumers, government sectors, and businesses (UNEP and Consumers International 2004). There is growing realisation that communities are one of the most important players for achieving SCP (Sustainable Development Commission 2003; Herman et al. 1994). For example, the Johannesburg Plan of Action 2002 articulates the role of community in promoting sustainable development, particularly in the aspect of SCP emphasising approaches such as "changing unsustainable patterns of consumption and production" (Section III) and "rural community participation to develop and utilize indigenous energy sources and infrastructure" (Para 20 (g)).

2. Analytical framework

The community functions and performance in policy processes have been analysed from various perspectives. An analytical framework normally rests on key pillars that govern community behaviour such as law, norms, culture and identity (Marquis and Battilana 2009) and regulative, social-normative, and cultural-cognitive features (Scot 2001). Others underline the governance structure of community (Taylor 1999) or representatives and participatory systems (Rako and Flint 2001) to analyse the co-relation between community characteristics and policy performance.

In the context of natural resource management, analysis is conducted on property ownership (Sikor 2006) as a key socio-economic factor that influences forest resource management at the local level. With respect to fund mobilisation, Hunter and Staggenborg (1986) assert that community homogeneity and coherence as determined by its smaller boundary are factors that raise efficiency in financial resource mobilisation.

A number of factors have been considered as potential elements of the analytical framework to address the cases collected from APFED activities. The governance structure was one critical factor. Many communities have developed village councils or

village association consultative and decision making mechanisms and their decision making processes are deemed as generally participatory although the extent of such elements varies from case to case. Legislative and normative features including property rights could have been a part of the analytical framework. However, the cases presented in this chapter vary in their tenure arrangements ranging from natural resource management of common property (e.g., water, forest resources and land) to private property (e.g., houses and wastes).

There seems to be a correlation between community behaviour and size, not just in terms of geographical space, but also in terms of economy and market, and the extent of economic inter-dependency within the community and with external communities. The cases presented in this chapter are intended to illustrate such co-relations in community-based activities to tackle specific sustainability challenges. The homogeneity of communities provides an explanation on behavioural difference to some extent. However, there are several other factors that can provide a basis for better analysis regarding the difference in community behaviour such as whether there is a conflict of interest between community members regarding the issues addressed in the various project activities. Even when the governance structure is deemed as akin, it is understood that community behaviours differ substantively with or without a dominant actor in the community.

Based on this understanding, the following section analyses selected cases from three viewpoints, namely (i) whether the community operates a small, simple economy or a large and interdependent economy through communal markets or with markets outside of the community; (ii) whether there is any conflict among stakeholders in the community; and (iii) whether a certain actor exercises dominant power in the decision making and/or policy/project implementation processes.

3. Case study analysis

In the following case study analysis, 13 projects were selected from APFED Phase II (APFED II) programmes that are relevant to community engagement in SCP. APFED II activities launched in 2005 include the Showcase Programme and the Ryutaro Hashimoto Award Programme. The Showcase Programme is designed to support innovation in terms of policy, social mobilisation, and technology application toward achieving sustainable development in Asia and the Pacific. The Ryutaro Hashimoto Award Programme intends to acknowledge good practices of Asia and the Pacific in promoting sustainable development and facilitate their replication while tailoring them to local conditions. Over the past five years, 49 Showcase Programmes have been supported and 27 Award Projects were analysed as case studies. For this chapter, 13 case studies were selected that are more illustrative of the co-relation between community characteristics and behaviour in promoting SCP. The following is a brief description of the project cases based on the aforementioned analytical framework and is the basis for further discussion on the co-relation between community characteristics and behaviour in promoting SCP in the subsequent section. For the convenience of reviewing the 13 cases, they are clustered under (i) energy consumption and production, (ii) consumption of materials and resource efficiency, (iii) consumption of biological resources, and (iv) sustainable food consumption and production.

3.1 Energy consumption and production

Project 1: Enhancing productivity in the utilisation of bio energy (Sri Lanka, Showcase 2006)

To promote non-fossil fuel energy as a part of the effort to mitigate climate change, Practical Action, an international NGO, in collaboration with the Rural Centre for Development, a local NGO based in Nikaweratiya, Sri Lanka, supports the experimentation of jatropha (*Jatropha curcas*), an oil producing shrub tree, for biofuel production in the community of Gurugoda. Community members plant jatropha around their farms and gardens as hedgerows or live fences to block the intrusion of livestock. Villagers harvest the oil bearing jatropha seeds and sell them to a local jatropha processing centre. Community members also purchase processed jatropha biofuel for motorcycles and operating tractors. The community benefits from offsetting gasoline needs and increased income from the sale of jatropha seeds. By promoting jatropha plantation in the margins of farmlands, the community has also evaded a land use conflict with food production.

Economic size

- The community is based on a subsistence agrarian economy, and the majority of community members are engaged in small scale farming, with no notable manufacture.

Jatropha plant in Sri Lanka
(photographed by I. Kikusawa)

Conflicts of stakeholder interests

- The community has long been engaged in community development activities with international aid agencies that have brought in a windmill power generator and reduced the cost to community members for electricity. Such previous experience in the community helped enable the introduction of the plan to grow jatropha.
- Jatropha biofuel remains expensive (LKR 300/litre) and does not pose any threat to petrol retailers as the petroleum price remains competitive (LKR 110/litre).

Actor dominance

- Community members share a homogeneous character and there is no stakeholder group that exercises dominant power in decision making and project implementation.

Project 2: Community-based educational and partnership actions: Carbon neutral initiative for community empowerment and climate change mitigation in Indonesia (Indonesia, Showcase 2007)

The project intends to promote non-fossil fuels by installing micro-hydro power generators to provide alternatives to fossil fuel and local fuel wood. The project is promoted by the Indonesian Institute of Science (LIPI), Bogor Institute of Agriculture and local communities. Micro-hydro generators can supply electricity through the use of abundant water resources flowing in streams that provide water for local paddy land. The schemes match local topographic and climatic conditions as the communities are

situated in humid, hilly areas that provide essential conditions for micro-hydro power generation. In addition, by generating electricity in the backyard of the house, the households that manage micro-hydro collectively reduce their electricity bill payments, and the surplus can be invested in productive activities thereby raising income levels and providing savings to send children to schools.

Economic size

- The community is in a rural area where agriculture is the major source of income. Community members are mainly small scale farmers. A few are engaged in shoe making for infants. The average income ranges around the national poverty line.

Conflicts of stakeholder interests

- Water resources are abundant as the volume of water flows in paddy land irrigating streams constantly remains high. No conflict is observed over water use. Community members are mainly Muslim and no ethnic or commercial interest conflict is observed.
- As the cost for installing micro-hydro power generators remains high, it is basically impossible for community members to install generators without grant fund provisions by the government or an aid agency. Micro-hydro does not pose any threat to the State Power Company, PLN.
- Micro-hydro options may be favourable to PLN in the long run as it would be very costly to meet the government's target of achieving universal access to electricity across the country particularly in remote rural areas.

Actor dominance

- The installation of micro-hydro power generators is carried out within the compound of a privately-owned property. There is no administrative procedure that hinders the use of waters flowing adjacent to the private land. The village chief was said to be supportive of the innovative action for experimenting on the first micro-hydro scheme in the community. No actor exercises any power over the decision making process of the individual community members who have decided to install and operate the micro-hydro power generators.

Project 3: Community-based wind energy system in the Philippines (Philippines, Showcase 2008)

Wind power is another energy source alternative to fossil fuel. The project's objective was to operate a wind energy system and was undertaken by a small local community enterprise called Sibol ng Agham at Teknolohiya Inc. A small-scale wind turbine technology has been constructed for the community in Lamag, an area with wind flows in considerable velocity. This technology supplies low cost electricity to communities in areas far away from a grid connection and which cannot afford an expensive power generator. As wind velocity varies over the season and time of day, proper planning to assess climatic conditions was required. The presence of a military base was another factor that made the planning process more complicated. The provision of electricity to allow motorisation of sugar cane processing is expected to increase sugar productivity thereby by raising the revenue of the community and improving the local living standards.

Economic size

- The project is implemented in a rural agrarian community with a small population. The local economy is small and subsistent in nature. The energy generated by the wind power turbine is used by a few farming households. There is no electricity transaction with the people outside of the group that have implemented the project.

Conflicts of stakeholder interest

- The project enables the community to avoid the use of kerosene for operating machinery to process sugar cane by using electricity generated by a wind turbine. With the motorised sugar cane processing machinery, sugar cane production has risen considerably. Local stakeholders and commercial agents were not inconvenienced by the introduction of the wind turbine. The presence of the military base simply raised a point of not disturbing military operations and this was a matter of simple precaution as the wind turbine was at a height that could potentially obstruct military operations.

Actor dominance

- As the wind power generation system is small scale, there was no potential loss of revenue by the national electricity corporation, and the military authority simply required the community to be cautious in order to avoid hindering air force operations. In such circumstances, no particular stakeholder group is dominant in decision making and implementation processes.

Project 4: Supporting farmers with silk houses and solar power for sericulture promotion (Nepal, Showcase 2006)

Sericulture is an important productive activity in the community in Nepal. This silk production promotion project is implemented by Energy and Environment Nepal, a local NGO. Before the start of the project, kerosene was used in the process of drying cocoons and silks. Smoke from kerosene and fuel woods was a cause of respiratory disease, fires and skin burning accidents in the community. By introducing solar power for drying cocoons and silk, the community succeeded in substituting solar power for fossil fuel and fuel wood and gave the community a sense of joining global efforts to mitigate climate change. With the introduction of solar drying systems, silk production has increased by 20% and fuel wood use has reduced substantively. The project also included other ecologically oriented projects, such as introducing a biogas plant using livestock manure and experimenting with composting activities to produce organic fertiliser.

Economic size

- The project is implemented in the community of Gandaki, a rural agrarian community where almost all the households are engaged in small scale agriculture. The economic activities in the community are thus considered as small, simple and subsistence in nature.

Conflict of stakeholder interests

- Initially a group of families was sceptical about the cost-benefits of introducing environmentally sound technologies such as solar power generation and biogas power generation systems. However, as many of the families have started experiencing an increase in silk productivity and household revenue, and a reduction in kerosene and fuel wood use, such sceptics have ceased to voice their concerns about the project. No substantive conflict was observed in the community.

Actor dominance

- In the small rural agrarian community where all members share a common interest, no domination by a particular actor was observed in the decision making and project implementation processes.

Project 5: Indonesia's utilisation of Kyoto Protocol's Clean Development Mechanism to enable investment by the private sector through public-private partnership (Indonesia, Award 2008)

The clean development mechanism (CDM) offers a useful international policy framework for promoting investment in environmentally sound technology. The CDM was established under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) as a mechanism to reduce greenhouse gas (GHG) emissions. PT Gikoko Kogyo Indonesia, a local enterprise supporting public interests, has developed a project that intends to capture methane gas from landfill sites and use it for bio-energy power generation. This project is outstanding in terms of mitigating climate change impacts since methane gas is known to be the major emission source from landfill sites, with a global warming potential 23 times higher than CO_2. What made this project so innovative was that PT Gikoko Kogyo has made an agreement with the local government authority and community to invest 7-10% of the revenue expected from the sales of the emission reduction credit (Certified Emission Reductions, CERs) into improving the systems of the local authority for collecting wastes, and ameliorating the living conditions of waste pickers/scavengers. The project was successfully registered as a CDM. However, the sales of CERs have not yet been completed and the subsidised low electricity price and the high transaction cost of using the power grid owned by the national power company, PLN, make it difficult for PT Gikoko Kogyo to make additional investments to install a power generator using collected methane gas.

Economic size

- The project is implemented in a community that has a relatively large geographic area, and that consists of members engaged in diverse economic activities. The community members' socio-economic conditions also vary widely. Thus, the economic size of the community is considered as large and inter-dependent.

Conflict of stakeholder interests

- There is a substantive level of stakeholder interest convergence as PT Gikoko Kogyo, the local community and local authority share the same interests in having public investment to upgrade waste collection systems and establish a public infrastructure for socially marginalised groups. However, the arrangements have not yet been concluded for distributing electricity through the grid owned by the national power company, PLN, as the power grid access fee are considered to be high. No attempt has been made to retrieve and use the organic material from landfill sites due to the varying views over the quality of organic material. Thus, although the objectives of the project have been achieved, there is still a work to be done to resolve existing conflicts of interest and achieve the final objectives.

Actor dominance

- The situation can best be described not as actor *dominance*, but rather a social and systemic structure that prevents PT Gikoko Kogyo from securing the favourable socio-political conditions conducive to achieving the project objectives more effectively. Innovative actions were made possible, but not fully to the extent needed to achieve the ultimate objectives. The electricity company, PLN, local government, farmers' groups and scavengers all have their own individual interests and have exercised their influence during the project. Yet, the extent to which such influence is exercised has not reached the level where one group can qualify their respective position as a dominant actor.

Project 6: Enhancing eco-efficiency and sustainability in primary industry (Thailand, Showcase 2006)

The Society for the Conservation of National Treasure and Environment (SCONTE) in collaboration with the Thailand Environment Institute (TEI) intends to enhance eco-efficiency in primary industries in Thailand as a way of reducing pollution and increasing resource use efficiency in food production and manufacturing sectors. As a part of their project activities, SCONTE and TEI intend to bring mutual benefits to business and civil society by improving resource efficiency and profitability for the company, and assuring safety in groundwater and clean air for the community. Various corporations participate in environmental training activities aimed at promoting cleaner technologies, energy efficiency improvement measures, pollution control actions, and other corporate social responsibility (CSR) activities. The project has been successful in raising environmental performance at the corporate and factory levels. Reductions in the use of resources also suppress the cost of production thereby raising profitability. However, they have not been successful in changing environmentally unsound practices when there are no immediate economic gains or when there can be short term economic losses. Community members residing in the areas around businesses remain impartial or are not informed of environmentally detrimental impacts, thus unsustainable business practices continue. Further advancing the achievement of project objectives would require not just decisions and actions by senior management, but also identification of shared interests with the government, local community and other business partners to facilitate a transformation to a more holistic policy and market framework in order to change production patterns.

Economic size

- Project activities have been implemented by a number of companies participating in the project. Production facilities and factories of companies that participate in the project are located in a relatively large scale community that is part of a developed and multi-faceted economy.

Conflict of stakeholder interest

- Pollution control and resource efficiency measures are promoted as a part of voluntary corporate actions and are not necessarily initiated out of any requirement to comply with government laws and regulations. Companies with increased profitability share a part of revenue with the community by investing in community development activities. However, certain changes proposed in the product design and production process have not yet materialised due to policy deficiencies. A bill banning single tier underground oil tanks was drafted over ten years ago, but has yet to be put into effect. Bans on using a single layer underground oil tanks and the legislative requirement for using a triple layer underground oil tanks are standard in many developed countries. In addition to a lack of market and public monitoring systems to support such changes, the short term loss expected from such changes is a major obstacle in changing product design and production methods.

Actor dominance

- Each corporation participating in the project has been carrying out their own activities more or less autonomously as they belong to different sectors of industry. The corporations have publicised successful aspects of changes in product design and production methods, however, there has not been much information shared on the difficulties faced by the corporations in changing product design and production methods to achieve higher environmental performance and sustainability. In the absence of information on policy, market and public monitoring deficiencies, a leading actor has not been identified in the decision making and implementation

processes. Social and systemic fragmentation and disconnection makes it difficult for corporations participating in the project to remove remaining obstacles to change product design and production methods.

3.2 Consumption of materials and consumption efficiency

Project 7: Youth leaders for waste-wise communities (Fiji, Showcase 2008)

The acronym "3Rs" calling for society to "reduce, reuse and recycle" waste has been influential in raising awareness and promoting actions to improve resource use efficiency even at the community level. Live and Learn Environmental Education (LLEE), a Fijian NGO, has undertaken a project to encourage the community to conserve and promote efficient use of environmental resources and product materials. Training workshops were conducted to promote environmentally sound resource and waste management practices such as composting and recycling. Organic and resource circulating farming practices have been introduced as well. A unique feature of the project is the involvement of youth leaders in the training programme to encourage them to disseminate their newly acquired knowledge and skills within their own community. As a part of the project implementation process, monitoring and evaluation are carried out to share successes and failures, and to ensure the delivery of expected outcomes. Throughout the project activities, the people participating in the project have been changing their consumption patterns, thereby reducing waste generation and promoting resource circulation.

Economic size

- The project has been undertaken in remote rural areas with limited economic activities. Youth groups are engaged in farming and fishery or otherwise unemployed.

Conflict of stakeholder interests

- People participating in the project generally promote the use of personal bags to be used repeatedly as a substitution for one-time-use and disposable plastic shopping bags, and composting by processing biodegradable kitchen wastes to be used as organic fertiliser. Such activities have not resulted in conflict with other stakeholders. The activities are widely accepted by the community.

Actor dominance

- LLEE and youth groups operate through communication and mutual understanding, and there is no evidence of a particular stakeholder group dominating decision making and project implementation processes.

Project 8: Promoting the 3R concept for sustainable solid waste management (Nepal, Showcase 2007)

Marsyangdi Rural Development Organisation (MARDO), a Nepalese NGO, has undertaken a project to provide training for people in Gokarneswor village to promote 3R actions. MARDO encourages community members to separate waste and practice composting of biodegradable wastes while supporting organic agriculture activities. MARDO has provided each household participating in the project activities with a composting container to support their waste separation and composting activities. Families have succeeded in producing marketable organic fertiliser from composted biodegradable wastes and the revenue from the sales of organic materials works as a concrete incentive for local people to stay engaged in 3R activities. The community devises its own plans to promote sound material and waste management practices thereby supporting SCP.

Economic size

- The target community is a rural agrarian village, and its economic activities are small scale and at the subsistent level.

Conflict of stakeholder interests

- Project activities are broadly accepted by the community as waste segregation and composting of organic materials are seen as a positive contribution to improving public hygiene and restraining soil and water contamination. Micro-enterprises have been developed through project activities as a recycling business, and this has not caused any conflict with existing socio-economic organisations.

Actor dominance

- MARDO steers project activities in close collaboration with community members, local stakeholders and the local government. As the project activities are broadly accepted, each of the community members and stakeholder group support project activities. The project activities can be sustained through self-help efforts by community members and do not necessarily require any substantive and additional financial and human resource input. The revenue generated from the sales of composted organic materials is also shared by participating households, and no particular conflict has been observed.

Project 9: Capacity building for sustainable construction in rural north-eastern China (China, Award 2008)

In Heilongjiang Province, northeast China, the Adventist Development and Relief Agency (ADRA), an international NGO, has collaborated with local communities for about a decade to promote energy efficient housing. As a target community is in a wheat production area, ADRA has elected to promote a project to apply straw bales as insulation material for housing. Compared to conventional houses constructed of brick and rock, straw bale housing is efficient in insulation which reduces fuel consumption. The project helps reduce GHG emissions not just from reduced fuel use at the household level, but also from the production of bricks. Straw bale housing also helps reduce health risks of respiratory disorders from smoke generated by using coal in the house, and improves the resistance of houses to earthquakes as straw bale has better elasticity and can absorb earthquake shocks to some extent.[4] The local government has enforced a ban on excavation and mining for brick production, and brick production itself as a way of halting land degradation, and has secured farm land, as well as enforced policies to tackle climate change and air pollution. The project supports such policy objectives as well. In comparison with conventional brick houses, the cost of constructing straw bale houses is much lower. It has also created new business and employment which is good for the local economy. More than 600 buildings have been built as of 2009.

Construction of straw bale building
(Photograph courtesy of ADRA)

Economic size

- The project has been implemented in a rural agrarian community. However, the volume of agricultural production is large and the level of economic activities is deemed as substantive. The market economy is well developed and community

members purchase food and household items at local stores. As a sign of economic dynamism, business entrepreneurship can be also observed in developing straw bale producers and house construction companies. The community is also open to foreign organisations such as NGOs and research institutes and has developed constructive partnerships to carry out project activities effectively. The local government also supports project activities as the project supports the general policies of the local government.

Conflict of stakeholder interests

- Under different conditions, there could have been a conflict of interest between business operators engaged in the production and sale of bricks and straw bales. However, as brick production has already been banned nationwide, such conflict does not exist. Farmers now have extra revenue sources by selling straw as construction materials. Community members have surplus income from reduced coal procurement for heating houses, and invest the surplus in constructing greenhouses and cultivating vegetables to gain additional income.

Actor dominance

- ADRA has taken the lead in promoting straw bale insulation methods and related technology. Such promotion has been carried out through multistakeholder partnerships involving the community, farmers groups, businesses and the local government. In such circumstances, no particular stakeholder group dominates decision making and project implementation processes.

Project 10: Solid waste management as a social enterprise: A community-based 3R approach (Philippines, Showcase 2007)

The Bago City Solid Waste Management Board (CSWMB) has carried out a project on solid waste management since 2008, which intends to establish a financially self-sustained, community-based solid waste collection (composting and recycling) system in order to promote environmentally sound waste and resource management, reduce poverty and malnutrition, and promote public health and sanitation. Waste composting and recycling have particular advantages in providing business and market opportunities for stakeholders. So far, multiple objectives have been achieved through the implementation of the project, including a 50% reduction in waste, improved sanitary conditions, a decrease in dengue fever incidents, increased income, enhanced community awareness, and strengthened community partnerships.

Economic size

- The project has been implemented in 24 communities in Bago city. A highly developed market economy is already in operation in the city. The project involves a wide range of stakeholders, both in the formal and informal sectors, including the local government, private businesses, NGOs, student groups and scavengers.

Conflict of stakeholder interests

- At the initial phase of the project implementation process, there was evidence of conflict between scavengers and project promoters as the proposed waste collection and management systems would reduce the volume of waste that scavengers could collect for revenue. However, communication and awareness raising activities have been carried out to promote better public understanding on the basis of improved waste collection and management systems to achieve multiple public policy objectives.

Actor dominance

- The local government of Bago city has played a leading role in the project implementation process in collaboration with other stakeholders such as communities, NGOs, businesses, and student groups. Dialogues and consultations have been promoted to ensure mutual understanding of the public interests of improved waste collection and management systems. In this process, no dominant power was exercised by any of the stakeholder groups.

3.3 Consumption of biological resources

Project 11: Promoting public participation in protection of Viet Nam's wildlife (Viet Nam, Award 2007)

Wildlife poaching and illegal trade has been a grave social concern in Viet Nam in terms of conserving biodiversity and protecting endangered species. Education for Nature Vietnam, a Vietnamese NGO, has been carrying out a project on environmental education programmes to promote public understanding with respect to the need to protect endangered species and increase public collaboration to halt illegal wildlife poaching and trade. One of the key features of the project is a "wildlife hotline." Tigers and bears are poached illegally for the trade of bones and gallbladders, respectively, as alleged aphrodisiacs, a claim that is rebuffed by mainstream science. Community members keep an eye on illegal trading of wildlife and its by-products and operate public peer pressure systems involving the media, as well as undertake consumer education programmes to curb such transactions. From the beginning of 2005 to the end of 2006, almost 400 cases were reported and culprits were arrested in over 80% of cases. By 2008, more than 1,400 crime cases were reported and documented. The information disclosure on illegal trafficking of wildlife and its products and prosecution of culprits reinforces the actions taken by local authorities and communities to suppress illegal poaching and trading of wildlife.

Economic size

- The project has been implemented with the involvement of a broad range of members of communities that operate in a relatively large market economy. The communities have multiple stakeholders who are engaged in various economic activities.

Conflict of stakeholder interests

- Wildlife conservationists have been confronting illegal traders of wildlife and their products, including illegal exporters and users in the underground markets. There are other intermediaries who benefit from assisting the illegal transactions such as local traders in both exporting and importing countries.

Actor dominance

- Conservationist groups have taken a strong hold in the entire process of project implementation, and their activities have been supported by the public and enabling policies provided by the government. Wildlife conservation is a part of the obligation and policy goals articulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Under such national and international policy frameworks, conservationist groups are able to take the lead and spearhead project implementation, thus exercising dominance over other groups. Public awareness and education campaigns have also contributed to winning public support for their activities.

3.4 Sustainable food consumption and production

Project 12: Improving rural livelihoods: Promoting sustainable and safer vegetable production (Bangladesh, Award 2008)

Excessive use of agrochemicals, particularly pesticides, was a severe concern for maintaining public health and ecosystems in Bangladesh. Untrained and unknowledgeable farmers spray pesticides without using proper masks and taking appropriate precautionary measures. Pesticides sometimes include those that are not approved for use in the country or have been banned internationally, but are illegally imported from neighbouring countries that have been accumulating stocks of banned agrochemicals. Drainage laden with chemical substances pollutes underground water and soil resulting in consumers ingesting high levels of agrochemicals that are detrimental to human health. The Bangladesh Agricultural Research Institute (BARI) and the World Vegetable Centre collaborated to implement a project called the Pheromone Trap Use for Pest Control. It is intended to promote economically and environmentally sustainable Integrated Pest Management (IPM) strategies, promoting sex pheromone traps for pests as an alternative to pesticides. This new IPM technology successfully reduced pesticide use by 65-75% in Bangladesh and India project sites and achieved up to a 30% reduction in the cost of production. As a result, participating farmers have gained an increase in their net income by about 60% as a result of IPM. The project implementation process involved pilot projects, dialogue meetings, training, and media campaigns with the involvement of multiple stakeholders, including farmers groups.

Economic size

- The project is being implemented in rural agrarian communities that have a relatively large number of farmers and trade their agricultural produce in the capital city of Dhaka and its neighbouring cities.

Conflicts of stakeholder interest

- There is a conflict of interests between project promoters and conventional pesticide producers and retailers. However, farmers have been very responsive to the fact that pheromone traps have been less expensive and more effective in curbing pest infection of vegetables, and the swapping to the pheromone traps from pesticides has increased their net income. The government reduced subsidies to agriculture inputs including pesticides, thus supporting the shift. Market conditions and sound government policies have proven conducive to successful implementation of the project.

Actor dominance

- BARI and the World Vegetable Centre have offered the option of pheromone traps for insects that other farmers had experimented with in the past and have been proven to be effective. The local business sector responded by creating a venture company to produce pheromone trap lures and market them to the farmers. The government ensures that its policies support the development of a sound market and the business sector. In such a process, no particular group exercises dominance.

Project 13: Wildlife-friendly products: Linking community agricultural cooperatives to biodiversity conservation (Cambodia, Showcase 2008)

Wildlife extinction is caused by the increasing loss of wildlife habitat. Migratory birds are endangered not only by illegal poaching, but also the conversion of wetlands and forests to paddy land. The Wildlife Conservation Society (WCS) Cambodia has been carrying

out a project since 2009 called “The Promotion of Wildlife-Friendly Products (Ibis Rice Project),” in which farmers agree not to convert wetland and forests to paddy land, and the rice produced by the farmers who have signed such an agreement is certified as a “wildlife friendly” product. It was also widely acknowledged by local stakeholders that the avoidance of forest conversion would help reduce GHG emissions. The certification ensures that the products are not made through processes that harm the habitats of endangered wildlife or accelerate forest degradation. The certified rice is called “Ibis Rice” as rice farmers have made an agreement not to reclaim a forest habitat of wildlife particularly inhabited by ibis and other migratory birds. The farmers have to register and follow the rules set out by the farmers association in order to receive a certification for their products. Certified products have been sold in the market with environmental premiums of 10-30%, particularly due to the favourable response by tourism sectors such as hotels and local restaurants. Farmers and the tourism sector collaborate in conserving wildlife; farmers already receive higher revenue from the sales of certified rice, and the tourism sector expects to increase the number of tourists who are looking to observe unique birds in the communities.

Economic size

- The project is implemented in communities that are agrarian, produce a large volume of agriculture produce, and trade their produce and products to Siam Reap and Phnom Penh.

Conflict of stakeholder interest

- The main interests of farmers were to increase their revenue. By introducing certificate programmes that have created an environmental price premium with the support of the like-minded tourism sector, the farmers group has managed to increase their income without expanding their paddy land though the conversion of forests and wetlands. The certificate programme has helped stakeholders evade possible conflicts of interest.

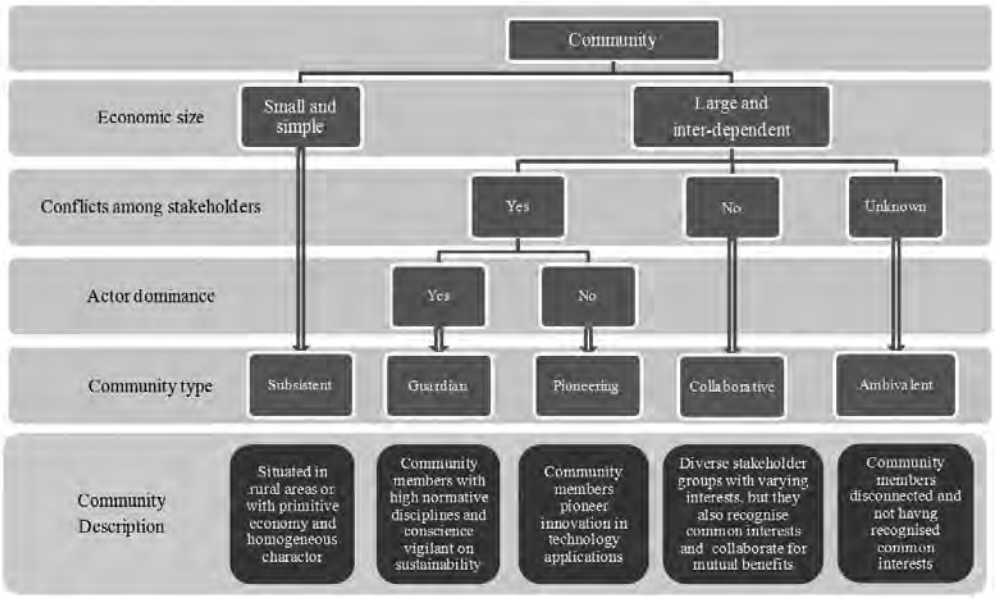
Actor dominance

- WCS has provided the concept of the certification labelling programme, as well as obtaining agreements with farmers not to convert wildlife habitat to paddy land. The concept was welcomed by local farmers, their associations and the tourist sector. In such a process, while WCS has taken a leading role, no dominant power was exercised by any of the stakeholder groups.

4. Community analysis

Based on the analytical framework presented in the preceding sections highlighting (i) economic size, (ii) conflict of stakeholder interests, and (iii) actor dominance, and the profiles of the selected 13 case studies, the communities presented in the case can be analysed as outlined in Figure 6.1.

Figure 6.1 Basis for community categorisation



Note: Economic size is assessed in relative terms, based on the overall size of economic activities taking place in respective communities.

Source: Author

To assist further analysis, the five categories in which the communities presented in the 13 case studies are classified as (1) subsistent, (2) guardian, (3) pioneering, (4) collaborative, and (5) ambivalent, as shown in Table 6.1

A “subsistent” community refers to a community that operates in a small size economy, and is socio-economically homogeneous in terms of occupation, income level, social status, religion and ethnicity. It is not difficult to form community agreement, but it is difficult to adapt to new technology.

A “guardian” community is one in which the majority of community members take a unified vigilant stance on sustainability issues despite the socio-economic conditions being rather diverse and complex, and can form a social force to confront and overcome conflicts of stakeholder interests, with a dominant power being exercised by conservationist/environmentalist groups. Not much extra effort is required to introduce sustainability policy measures as the society has already established socio-economic systems that can accommodate such policy measures.

In a “pioneering” community, members collaborate to overcome the conflict of stakeholder interests through mutual consensus and partnership building even if no stakeholder actor possesses sufficient power to dominate in sustainability policy decision making and implementation.

In a “collaborative” community, community members generally share sustainability policy values and do not necessarily have any stakeholder conflict. Under such circumstances, with the proper participatory consultation process, it is possible to introduce sustainability policy and activities.

In an "ambivalent" community, community members do not fully comprehend or share information on sustainability issues at the community level. For such reasons, the sustainability policy measures and activities remain within the realm of corporations and factories, and the communities do not play a role in raising the sustainability policy performance in a wider scope.

In the APFED programme evaluation processes, five factors have been identified as keys to the success of promoting sustainability, namely policy, markets, technology, information and stakeholder capacity level. In the following section, the operation of these five factors in five community types are analysed, and the correlation and interface between sustainability factors and community types are discussed.

Table 6.1 Community types

Projects	Economic Size	Stakeholder Conflicts	Actor Dominance	Community type
1. Jetropha Biofuel Project in Sri Lanka	Small	–	–	Subsistent
2. Micro-hydro Project in Indonesia	Small	–	–	Subsistent
3. Community Based Wind Energy System in the Philippines	Small	–	–	Subsistent
4. Supporting Sustianbale Sericulture Village in Nepal	Small	–	–	Subsistent
5. Capturing Methane Gas from Landfill site in Indonesia	Large	Yes	–	Pioneering
6. Enhancement of Eco-efficiency in Primary Industry in Thailand	Large	–	Unknown	Ambivalent
7. The Youth Leaders for Waste-Wise Communities in Fiji	Small	–	–	Subsistent
8. Promotion of 3R Concept for Waste Management in Nepal	Small	–	–	Subsistent
9. Straw Bale Insulation for Housing in China	Large	Yes	–	Pioneering
10. A Solid Waste Management as a Social Enterprise in the Philippines	Large	Yes	–	Pioneering
11. Wildlife Crime Hotline in Viet Nam	Large	Yes	Yes	Guardian
12. Pheromone Trap Use for Pest Control in Bangladesh	Large	Yes	–	Pioneering
13. Ibis Rice Project in Cambodia	Large	–	–	Collaborative

Note: Hyphenation—indicates No or negative.
Source: Author

5. Analysis on the correlation between community types and sustainability factors

Factors that have prompted a community to act collectively for its common interests are likely to fall under the following categories: (i) policy, (ii) finance, (iii) technology, (iv) local knowledge and (v) community empowerment. Accordingly, relations between community types and factor performance are examined below.

Through more articulated analysis of specific cases, the intention is to delineate conditions that will enable communities to act more like the "collaborative," "subsistent" or "guardian" communities, and to move away from characteristics of "ambivalent" communities. The analysis also aims to highlight some key aspects to enhance

community cohesiveness, mobilise community support, and build partnerships toward achieving sustainable development through sustainable consumption activities.

5.1 Policy measures for transforming community functions and stakeholder interface

A commonality observed across all five categories of communities is that the nature of stakeholder-to-stakeholder interface can largely be modulated by policies. Therefore, without manifesting a consistent policy orientation, it is difficult for communities to unite and act toward common objectives. The command-and-control approach still seems to play an important role in mobilising people and stimulating innovation to improve environmental performance and the well-being of the community.

With the exception of the guardian community, policy measures tend to be embedded in the socio-economic conditions surrounding the community, and do not appear to be a major factor for successful implementation of activities to promote sustainable consumption. This is because many of the countries already have broad enabling policy frameworks in place and policy deficiencies were not noted as a limiting factor for project implementation.

In Project 1, a community received guidance on national policies to reduce reliance on fossil fuel and to explore renewable energy. While the government of Sri Lanka explores a broad set of climate change mitigation and adaptation options, it does not specifically guide actions on the substitution of fossil fuels. Therefore, an international NGO named Gurugoda has promoted experimentation with renewable energy in a rural community in northeast Sri Lanka by introducing a wind turbine for power generation. This was a basis for sensitising the community on the need to reduce reliance on fossil fuels and promote alternative renewable energy. In this way, the implementation of the Jatropha Biofuel Project was promoted.

The same observations apply to Project 2. While the Indonesian government formulates broad policies for promoting renewable energy to mitigate green house gas emissions, concrete actions have been pushed forward by the Indonesian Institute of Academy and Bogor Agricultural University, which developed schemes to reduce fossil fuel reliance and provide alternative renewable energy in the rural setting through the establishment of a micro hydro power plant.

In both Project 1 and 2, the community is classified as “subsistent” where members produce alternative energy and benefit directly from it. When stakeholders perceive direct benefits from their own actions, broad and general policy guidance can encourage them to participate in SCP.

However, broad policy guidance does not suffice when the community members are not *prima facie* direct beneficiaries of conservationist activities. In Project 11, it is not obvious that community members engaged in the wildlife hotline have received direct economic returns from their participation. Wildlife protection satisfies the aspiration of community members to halt the loss of wildlife, but they would not necessarily gain economic returns from the increase of tourists or remuneration for reporting illegal trading.

Policy measures need to be supported by proper awareness raising and capacity development that facilitates institutionalisation of collaborative activities to curtail unsustainable consumption and develop social vigilance.

5.2 Market development and economic viability

The importance of linkages between financial measures and community types is highly variable. When there are no significant conflicts between the members of the community (collaborative community), the community seems able to develop self-reliant, long term financing mechanisms. The probability of creating such financing mechanisms can be lower in an internally competitive community (pioneering community). The Landfill Site Methane Gas Capture Project in Indonesia, Project 5, can be an exception as it has been approved under the CDM although the returns from investing in community development have not yet been obtained. For the subsistent community, financing mechanisms remain under-developed. For a guardian community, policy measures have been observed to be more effective than financing mechanisms in changing practices.

Communities can be encouraged to pursue sustainable livelihoods not only through the installation of proper policies but also through the enhancement of market mechanisms and viability. Project 12 provides an interesting perspective. At first, farmers had the misconception that reduction of pesticide application would increase pest infection among their crops and reduce their profits. The suspected economic loss was prioritised over securing human health and ecosystem functions. However an experiment on the pheromone traps awakened the community to the fact that benefits from applying this trap as a substitute for conventional pesticides are much greater than the expected economic loss. With the introduction of insect sex pheromone traps, the proportion of marketable fruit to total production has risen and the production cost has dropped drastically. The demonstration of economic benefits arising from changing production patterns has convinced farmers in the community to switch to pheromone pest traps. The reduction or elimination of pesticide spraying has not only reduced the health risk for farmers, created savings and increased economic gains, but has also reduced detrimental impacts on ecosystems and health risks to consumers.

When enabling policies and market mechanisms operate in synergy, a greater impact can be expected. Project 13 has designed an agricultural cooperative so that farmers who agreed not to convert remaining forests to paddy land gain certification for their rice and access to a premium price market. In Cambodia, the government has been promoting forest and wildlife conservation but the enforcement of this policy has been limited by land tenure issues, inadequate monitoring, and lack of human capacity. Therefore, the design of cooperatives that is facilitated through Project 13 provides farmers with multiple and long term benefits. The cooperative identifies hotels and restaurants that are ready to pay an environmental premium for certified “Ibis Rice.” The certificate shows the customers that this rice is produced by conservationist farmers, and the hotel supports such environmentally responsible activities. Without the presence of sensitised business operators who are willing to prioritise environmentally sound goods, the farmers’ activities would not have succeeded. This multistakeholder partnership between farmers and business operators, along with the combination of macro-policies, market development and labelling schemes for habitat conservation, were vital to begin this positive cycle of sustainable rice production. The project has generated a great deal of environmental and socio-economic gains for the community, which has been classified here as a collaborative community.

5.3 Innovation in technology and local knowledge

A common feature shared between projects is that technology has played an important role in mobilising communities. The technologies used in the studied projects are not cutting-edge technology, but rather simple and low-cost for expedient application. When

the technology in question can multiply outputs at a marginal cost, communities tend to show enthusiasm in applying it. Good examples are Project 12 (pheromone traps) and Project 9 (straw bales). Substantive economic returns have been generated against comparably small investment. On the other hand, although renewable energy, particularly solar and micro-hydro (Project 2 and 4), are instrumental in pursuing sustainability, they are also costly and need longer redemption periods which tend to hinder investment from the communities.

In Project 12, pesticide dealers have been competing over client farmers and provide short term incentives to stick to conventional products despite the fact that community members are becoming increasingly conscious about their negative impacts on the environment. Openness or pioneering spirit must be capitalised upon in order to pursue innovative changes for better environment and well-being.

In Project 9, the straw bale compression technology was introduced by foreign engineers. Although this technology is neither complex nor cutting edge, it was absent in the project locality, and was instrumental in this project due to its reasonable cost and replicability. It is important to emphasise that the technology has generated tangible economic returns to those households that have adopted it, in a number of ways. First, compressed straw bales used as a substitute for bricks has reduced the housing construction cost by a quarter against the average total cost of RMB 20,000 per house. It has also reduced the use of coal for heating by 50-70%, and has generated savings of about RMB 2,100. Public funding was injected to start up this technology application. The local government has subsidised 30% of the construction cost, and the aid agency, in this case ADRA, has funded an additional 30%. The farmers or the house owner pay only 40% of the total cost which is RMB 8,000 and equivalent to 1.6 years of average annual income. The technology application is thus kept within the reach of ordinary farmers in terms of financing. It has addressed the public policy challenges that the local government had also identified as a priority for sustaining local socio-economic conditions. It is also worth noting that there has been a considerable creation of employment. Straw bale collectors, compressor operators and distributors of compressed straw bale insulation material are some of the newly created income generating opportunities. These socioeconomic factors prompted the acceptance and dissemination of the straw bale insulation technology. The right choice and application of technology, in terms of objectives, operational cost and manageability, have catalysed a positive response from community members and local governments.

Local knowledge is underlined as a key factor in applying and managing technologies. For Project 12, local farmers' knowledge of prevalent pest species and their behaviour helps the effective application of pheromone traps. In Project 9, Chinese villagers have been using straw bales for multiple purposes, but newly introduced technologies have provided an additional choice of usage, and enhanced the housing insulation efficiency.

In contrast to the aforementioned projects, Project 6 provides useful perspectives to understand the complexity and challenges in changing production and consumption patterns in developing countries from innovative projects. Thai business corporations are in general very proactive in addressing social concerns including the environment through corporate social responsibility (CSR) and community support activities. The activities spearheaded under this project primarily target the efficiency of energy and resource use in the manufacturing sector. One of the common methods promoted in the project is to replace obsolete power distributors in manufacturing plants. The power distributors monitor power consumption throughout operating hours in order to stabilise power use to the average standards without causing excessive fluctuation. The cost

of advanced power distributors is redeemed in one to two years, and they bring about substantive economic returns. The installation of advanced power distributors is logical for proper plant resource management. Such advanced power distributors have been installed in a food processing company and underground oil tank manufacturer.

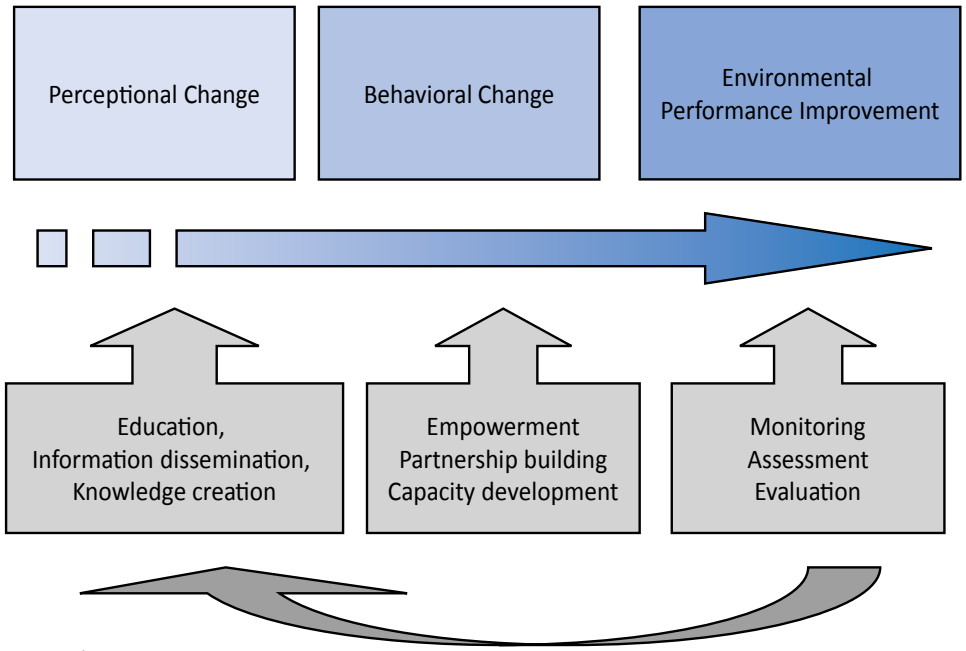
However, in an interview with the managers of the underground oil tank manufacturer, some problems were detected. Though OECD countries have already banned the use of single layered underground oil tanks due to the risk of oil leakage and soil contamination, the interviewed manufacturer still continues to produce the single layered underground oil tank for domestic supply. The government has already submitted a draft bill to ban single layered underground oil tanks but it has been pending over 10 years due to the recurrent government changes over the last decade and insufficient support from parliament members. It is not sufficiently linked with any particular public interest such as concern about environmental pollution or health hazards. Thus, the parliament does not consider this a priority for gaining public support and the public is not aware of the risks and economical disadvantages posed by the lack of regulation to ban single layered tanks and restrict underground tanks to triple layer tanks. Business corporations tend to focus on their own visible profit. Information is not shared with the public, so they remain ignorant of the risks. As it is not considered as a priority issue, no additional studies have been conducted on the risks imposed by the continuous use of the single layered oil tanks. Parliament members only chase after the issues by which they are certain to gain active support from voters in their constituencies. No single policy orientation emerges from the scattered interests of stakeholders, and the multistakeholder partnership is far from burgeoning. The state of the community resembles an ambivalent type of community.

5.4 Information dissemination and social capacity development

Knowledge and information sharing is imperative for facilitating policies and actions toward achieving sustainable development. All the cases described in preceding sections demonstrate the significance of the sharing and dissemination of knowledge and information as a first step for developing social capacity for sustainable development.

Questions remain as to what information is important and how such information should be shared among community members. People must know the meaning of invisible and creeping threats to the environment and to livelihood. It was significant in Project 12 that BARI has rebuffed the public concept that the more pesticides farmers apply, the lower the pest infection rate. Farmers were wondering whether the method of their pesticide application was a reason for increasing pest infection of their vegetable crops despite increased pesticide application. BARI conducted research on the relation between pest infection rates and pest control methods, and as a result, the myths surrounding pesticides were rebuffed. BARI communicated their research results to local farmers. Based on the information verified by this credible research institute, farmers found it easier to accept the assertion that reliance on pesticide applications and increasing its application do not necessarily reduce infection rates. Misleading perceptions need to be rectified by the presentation of reliable scientific findings. These findings need to be disseminated to promote perceptual and behavioural changes with a view to promoting SCP practices.

Figure 6.2 Continuum of empowerment for sustainability



Source: Author

In most of cases presented in the preceding sections, community members were given information and motivated to take actions or change their practices toward pursuing sustainability. In Project 11, Education for Nature, the organisation implementing the project, has set a strategy to undertake intensive awareness raising and outreach campaigns against the illegal wildlife market. In Project 9, the project implementers have conducted a series of training sessions for community members for straw-bale housing. In Project 13, the Wildlife Conservation Society has conducted training programmes on the form of adequate agriculture without hampering local biodiversity. Training and information dissemination are open-ended, inclusive and participatory for all interested community members.

The cycle of information provision is geared toward changing community members' perceptions as shown in Figure 6.2. With training and provision of technical assistance, community members are empowered to undertake activities conducive to achieving sustainability and ameliorating environmental impacts. Some community members undertake self-monitoring and regulation, and share information on the outcome of their monitoring and evaluation to urge community members to strive to achieve better environmental performance.

In contrast, the training conducted for Project 6 is more technical and business oriented in nature. Thus, it is exclusive to engineers and plant managers, and the issues are not necessarily shared beyond this group. Such a lack of interface with local communities adjacent to the plants makes it difficult to raise the profile of eco-efficiency issues as a public agenda item, and the technology upgrading at the plant level does not lead to policy transformation at the macro-level.

5.5 Sensitising community members and stimulating the movement beyond community

Community/stakeholder empowerment is considered the key factor across all the projects and community types. Most communities had undergone capacity development activities, and community members had acquired sufficient knowledge regarding the need to change their conventional practices. Such communities have formal and/or informal decision making processes and the modalities of decision making or governance structures have been observed not to be critical for the success of their activities as long as the community members are able to participate in such processes or their views are distilled and included in the decision-making.

Project 6 was an exception for sensitising the community. The project itself has been very successful in enhancing energy efficiency in the participating business entities and factories. However, some factories involved in the project continue to produce single layer underground oil tanks which have shorter durability (a 10-year warranty) compared to three layer tanks (30 years). As the single layer tank has a higher risk of oil leakage, OECD countries have banned its use. The government prepared a draft law banning it about 10 years ago, but it has not yet been adopted by the Parliament. The community is not informed of such policy deficiencies nor of the production of environmentally unsustainable products. Due to limited information disclosure and public awareness, neither the factory nor the community has acted towards changing business practices to promote SCP.

There are a number of projects that address SCP issues under the APFED Award or Showcase Programme that are not described in the preceding sections. This is because their activity impacts are oriented to waste management and composting of biodegradable wastes rather than to directly targeting the promotion of sustainable consumption, or targeting stakeholders that extend beyond a particular community. Yet, such cases have many common features with the cases presented in the proceeding sections.

As described in case study analyses, a number of projects address the 3Rs, and some of these projects have the promotion of biodegradable waste composting as a common feature. In Project 8, people mobilised by the NGO, MARDO, have been engaged in activities to reduce waste generation. In their project, biodegradable waste composting is used to generate organic fertiliser that can be sold and thereby enable people to obtain extra income. In Project 7, in addition to biodegradable waste composting, a campaign to refuse the use of disposable plastic shopping bags and to encourage people to carry reusable shopping bags is also influencing people's perceptions. Biodegradable waste composting and the shopping bag campaign may not necessarily have a significant impact on promoting sustainable consumption directly. However, they have been proven to have a significant impact on changing people's perceptions toward promoting sustainable consumption. It is worth considering integrating biodegradable waste composting and shopping bag campaigns in awareness raising and capacity development activities aimed at promoting sustainable consumption.

There are two other projects that promote biodegradable composting: Project 5 and Project 10. These projects are more centralised systems of composting and are quite different from composting at the household level. A major difference is that in household composting, community members receive direct economic returns from the sale of organic materials obtained from composting, while in the case of centralised composting, community members do not necessarily receive direct economic returns. However, in Project 5, the project organiser, PT Gikoko, has not succeeded in obtaining carbon

revenue from the sales of certified emission reductions under the CDM of the Kyoto Protocol to the UNFCCC. PT Gikoko has pledged to return 7% of carbon revenue for investment in community development and social safeguarding of the poor. In Project 10, it is not the Bago city citizens that manage the organic materials produced from composted organic wastes, but the Bago city authorities that manage such materials. It can be said that the citizens benefit from the centralised organic waste collection and composting systems from the reduced cost of waste management and better use of organic materials for parks and farms. However, there is no direct cash payment to the citizens of the city.

The three case studies in Nepal (Project 8), Fiji (Project 7), and the Philippines (Project 10) have a strong component of awareness raising and training regarding the segregation of degradable and non-degradable waste for effective composting. Project 5 does not integrate such awareness raising and training components in their project activities. This difference in approach seems to emanate from the difference in opinion of the leader and entrepreneur as to whether a high content of biodegradable wastes make it possible to collect methane more effectively. Centralised composting with strong awareness raising and training and the reinvestment of revenue in community development would provide higher incentives for community members to act collaboratively to achieve sustainability.

6. Recommendations

By narrowing the scope of our examination to the stakeholder interface and factor performance at the community level, this paper analysed a variety of community actions aimed at promoting renewable energy, energy efficiency and wildlife and ecosystem friendly consumption at the community level. Through the analysis of community types, a set of recommendations has been drawn with a view to mobilising communities to promote change towards sustainable consumption. These recommendations are described below.

6.1 Assessing community characteristics

When a community is at the stage of not having a formal or informal organisation to undertake communal activities, application of simple and low cost technology at the household or a level of a small community fraction has a high probability of producing an effective project (Projects 1 to 8). With such a household or sub-communal approach, it can be made clearer that participating households and sub-communal groups benefit directly from the project. It is seen as a key to provide communities with proper incentives for undertaking collective action. It can be said that in a subsistent community, a decentralised incentive driven system works well.

When the community has already developed formal or informal systems aimed at achieving the members' common objectives, market-based mechanisms will spur the application of technologies and prompt behavioural changes toward achieving sustainable consumption. Examples include Projects 5 and 12. In communities where conflicts of interest were detected (pioneering communities), such conflicts were overcome by the demonstration of tangible benefits such as higher yields and savings. In communities where conflicts of interest were not identified, members moved swiftly toward establishing systems to achieve common objectives (establishing labelling schemes for wildlife friendly products or centralised engineering composting plants). In organised communities, members undertake collective actions that achieve higher resource efficiency and improvement in environmental impacts.

In designing programmes to promote sustainable consumption at the community level, it is thus important to assess the dimension of stakeholders and their relations. This assessment will enable more suitable decision making on approaches to mobilising communities toward achieving sustainable consumption.

6.2 Enhancing policy and economic incentives through governance and information

No case was observed where successful field activities have directly prompted macro-policy and institutional transformation towards the creation of enabling policies to achieve the goal of sustainable consumption. In the cases analysed, each community had their own unique decision making and management structures. Therefore, it is important to acknowledge the characteristics of community in governing communal matters particularly when interest conflicts are observed in the community.

For Project 9, various governance structures are in place at the village, district and provincial levels. The provincial government banned brick production and promoted the use of straw bales in order to reduce the use of kerosene. The success of the project has more to do with the continuous interaction between the local government and community members. Community members understood that the continuous reliance on bricks exacerbates land degradation, land use conflicts over mining sites and farm land, household air pollution, and respiratory disorders. Community members who applied straw bales as insulation material in housing have successfully demonstrated savings from reduced demand for kerosene to heat their houses, and have used a part of these savings to invest in greenhouse vegetable cultivation.

Similarly in Project 12, pesticide distributors were considered potential opponents to the promotion of pheromone traps for pest management. However, agricultural advisors of the local agriculture association and BARI have interacted intensively with community members on the benefits of stopping the use of agrochemicals and applying pheromone traps as a means of pest management. Farmers were convinced of the merits of this strategy when they obtained higher yields from lower pest infection and savings from not purchasing agrochemicals.

With Project 5, the situation is a little more complex. It has been observed that the community is segregated in two groups, namely the village farmers who have resided there for generations, and the scavengers who are a minority and are immigrants from conflict prone areas of the country. With the agreement to invest revenues from CERs or carbon credits into community development projects such as the construction of clinics and of public housing, there emerged broad support from the community for this project. Yet for various reasons these plans for community investment have not yet been implemented. One of the impeding elements is the fact that the CERs have not yet been sold in the market, so the engineering company has yet to receive any revenue. Secondly, there is a plan to convert heat gained from methane combustion into electricity. However, as the cost of electricity is kept very low as a social safety net, there is no hope of recouping investment costs through marketing electricity locally generated from methane combustion. In addition, the Indonesian national electricity company (PLN) controls the electricity market including the electricity grid, and the suggested charges for using the PLN's grid is considered very high. For these reasons, although the community can be said to have come to a considerable level of interest convergence, they still have a way to go before the planned actions to share proceeds from CDM in promoting social development in the community materialise.

The project activities have demonstrated benefits of changing policies toward achieving sustainability through, for example, using biomass insulation material, applying integrated pest management or using renewable energy sources. However, the interface needs to be stimulated much more proactively between field levels and macro-policy levels to prompt policy and institutional transformation.

6.3 Promoting community openness and external facilitation through environmentally sound practice and technology

In the communities that are open to external facilitators, positive outcomes are observed in applying environmentally sound technology and practices. For example, Project 1 has been undertaken in a community that was quite unique in its openness to accepting jatropha, an alien, toxic, and non-edible, but oil generating plant proposed by an external NGO. The community intends to introduce biofuel as a substitution for gasoline in consumption while it also strives to increase biofuel production at the community level. In Project 9, the community was influenced by the external facilitators to introduce a new technique to use straw bales—agricultural residues locally available as insulation material.

The openness of communities to external facilitators is a part of the prerequisite for successful implementation of various projects reviewed in the case studies. However, it is not that the community members blindly accept suggestions from external facilitators. They assess the merits and requirements of policy options suggested by external facilitators. National and foreign facilitators are also cautioned not to impose pre-conceived project concepts without understanding community conditions. Wise collaboration with external facilitators is a prevalent factor in the case studies. The community must have developed a capacity to assess suggested propositions from external facilitators and adjust them sufficiently in the local context.

The application of environmentally sound practice and technology is embedded in many of the successful undertakings aimed at enhancing resource use efficiency. In Project 12 in Bangladesh, the pheromone traps for pest control were introduced through a programme funded by the Department for International Development (DFID) of the United Kingdom. Methane gas collection systems for Project 5 in Indonesia were introduced by a local engineering company, but managed with expertise provided by Australian volunteers. Machinery for compressing straw in the straw-bale insulation project in Project 9 in China was introduced by a research centre affiliated with a Swedish university.

Community members and stakeholders have interacted with external agents and supporters in regard to the potential of new technologies. The acceptance of the technologies is considered to depend on the people's assessment of the benefits to be brought by the technologies vis-à-vis other requirements such as possible social adjustments. Communities and external facilitators have chosen technologies that are low in cost, simple and expedient. None of the communities have chosen to introduce high or costly technology that often goes beyond their managerial capacity.

What looks quite significant in pioneering or collaborative communities is that they are open to innovative actions. They are given information and are involved in the consultations over the problems they face. It has also been observed that these communities have different levels of response to problems that present themselves. Some communities are indifferent while others are eager to introduce changes in order to tackle problems. These differences apparently stem from various factors such as

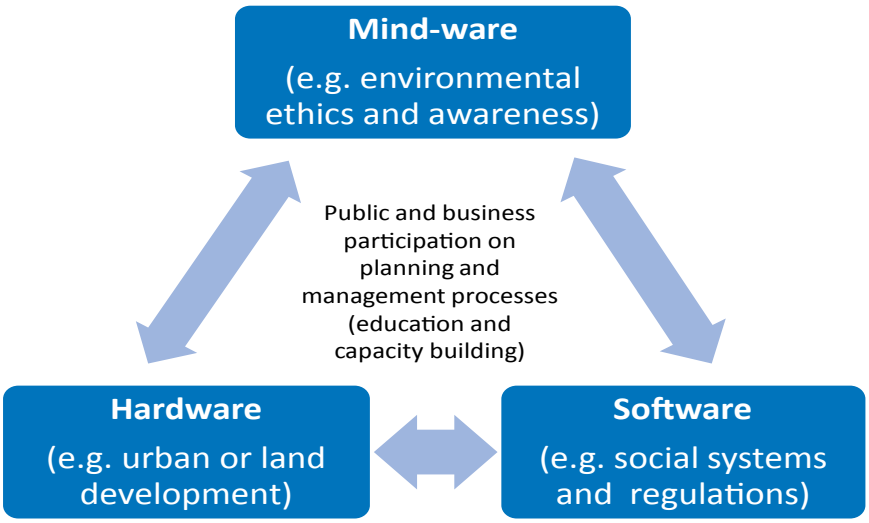
the level of economic prosperity and the level of understanding of the problems. It may be presumed that it would be easier to influence community members and change perceptions in subsistent communities. The subsistent community can be said to have a higher inclination to adhere to conventional values and practices and be less open to external facilitators who try to introduce new technologies and practices. To influence a subsistent community, mutual confidence needs to be established through continuous interaction and consultation.

6.4 Reinforcing policies and institutional framework through mind-ware

As stated earlier, reinforcing policies and institutional frameworks are vital for community mobilisation and successful implementation of programmes and policies. Broad enabling policies are embedded behind all the case studies presented in this chapter. However, it was the communities themselves that needed to take concrete steps to create more detailed programmes and systems and to establish supporting institutional mechanisms. Little influence of macro-policy was observed in the project implementation of Project 1 and 2. The Pheromone Trap Use for Pest Control Project (Project 12) does not have clear policy guidance on the use of pesticides. Yet, through the sharing of information on problems and benefits resulting from proposed prescriptive actions, the communities have made decisions to abandon or at least minimise conventional practice, and to have recourse to new practices and technologies. It is certainly best that the enabling policies be in place in a timely manner for the community to take collective action. However, our empirical studies show that the communities can still take collective actions in the absence of sufficient enabling policies if the community members are given proper information in a timely manner and share a common assessment of the problems and benefits of proposed actions.

It is a task of policy makers and probably also of research institutes that field level lessons be capitalised upon to facilitate macro-policy and institutional transformation. There is so far little evidence that shows that field level action has catalysed macro-policy and institutional transformation. This does not mean that there is no such linkage. Organisations implementing projects publicise their activities and the local and national newspapers carry coverage of innovative community activities. However there is a gap between the field actions and macro-policy decision making process. Feedback from the field to macro-policy decision making does not take place automatically. At present, there is a need for external and deliberate interventions to generate effective field actions towards the macro-policy. Research institutes, NGOs and other relevant stakeholder groups must document their successes, relate them to policy gaps and recommendations, and provide decision makers with inputs to facilitate macro-policy and institutional transformation with a view to enhancing their appropriateness and effectiveness. APFED, which integrates field action, case study analysis and policy dialogue, offers a useful international collaborative framework to link field actions with macro-policy and institutional transformation.

Figure 6.3 Area of environmental planning and management



Source: developed from Harashina (2009)

Overall, as Harashina (2009) describes, an adequate balance between "hardware," "software," and "mind-ware" is one of the most important things in order to successfully implement environmental projects (Figure 6.3). Hardware is defined as physical substances such as infrastructure, which require capital/investment/financial sources. Software is constituted by rules and regulations that relate to authority. Finally, mind-ware is the heart of the community that has awareness on environmental issues. Many projects have been successful because the mind-ware of communities was enhanced through capacity building, training and other awareness raising programmes. These activities are the core of public and business participation in project implementation, which are essential for successfully implementing the project in the long term with strong community support.

6.5 Facilitating multistakeholder partnership to amplify impacts and safeguard community from risks

Multistakeholder partnership is another important factor to encourage communities toward effective project implementation. In collaborative communities, multistakeholder partnerships have emerged swiftly. In pioneering communities, it takes a while to sort out communal conflicts. However, after communities have reached agreement on positions over the problems presented and proposed actions, they were also prompt in forming multistakeholder partnerships.

What should be underlined is that the communities were able to create new agencies if they encountered the need to do so. In Project 13, an association of conservationist farmers was established and started giving certification to wildlife friendly products. In Project 12, several companies were established to produce pheromone essence and containers for this. New engineering companies have been created to market and install straw bale as insulation material in Project 9. Successful multistakeholder partnerships are therefore not limited to existing stakeholder groups and agencies, but also to newly created business entities.

It was observed that to allow the creation of new entities and actors, governmental procedures should not be an impediment. In the countries where the presented projects have been implemented, there are standard procedures to register new companies. However, many of them have not encountered barriers to become operational swiftly. One of the reasons for their successful registration under national law and their entry into the market was a sound technical capacity to perform the intended operations.

It must be noted that the communities did not opt for a monopoly by the newly created business entities. In Project 12, there were deliberate attempts to create a number of companies to produce pheromone essence and tablets. By establishing three companies to operate in the same market, efforts to curtail monopoly were considered successful. Partnership does not grant monopolistic power to a newly created company. The stakeholders that need to work in partnership with the newly created business entity need to be vigilant regarding potential domination by such an entity in the market, and it is advisable to create a plural number of business entities to create a healthy competitive market.

6.6 Integrating community into actions to drive policies

As discussed in the preceding sections, communities have great potential for taking the lead in demonstrating innovative actions that can lead to macro-policy and institutional transformation. It is often the case that the macro-policy dialogues stall due to complex conflicts of interest and uncertainty over the outcome of suggested policies. However, by undertaking concrete action at the community level, people can observe tangible achievements and challenges that emerge though practical activities. As sustainability policy measures involve multi-faceted environmental and socio-economic issues, it is never simple to draw conclusions through abstract policy discourse. It is important to assess the characteristics and dynamism of communities, and bridge the gap between the field and macro-policy discourse. The challenge is how to replicate successful practices in other areas and countries while meeting conditions peculiar to the particular community or country. Systems that multiply effective environmental projects need to be developed and installed at a certain stage to upgrade successful practices. To realise the multiplication of successful practices, it is vital that programmes aimed at such replication across regions be developed and expanded as the regional and international collaborative programmes, and regional and international institutions are given opportunities to play a facilitating role in such a replication process in collaboration with national and local partners. It is hoped that such mechanisms will emerge in the immediate future with the concerted efforts of likeminded stakeholders and partners aimed at achieving a sustainable society in Asia and the world.

7. Conclusion

Through the analysis of the APFED case studies, it is clear that there are various factors that prompt communities to act collectively for promoting sustainable consumption. Those factors are policy, finance, technology, local knowledge, and community empowerment. The application of these factors needs to be balanced. Without such a balance, the capacity of the community to act collectively could be hampered. For example, policy can be ineffective if there is a lack of community empowerment. No matter how the community is categorised, it is clear that all projects were more successful under the combination and balance of these factors.

Activities for community empowerment and for the introduction of technology especially played an important role in general, although with variations in degree according

to community type. Though these trends were not always consistent, this type of analysis turned out to be useful for objectively understanding the characteristics of each community and examining effective approaches in the respective communities. Therefore, this type of analysis needs to be further developed by applying it to more case studies for the data to be more significant.

Examining the presented projects and analysing the co-relation between community types and sustainability factors, seven recommendations were derived as a means to realise effective community action for influencing macro-policy and institutional transformation to promote SPC. Those are recapitulated as follows:

(1) Assessing community's characteristics
(2) Enhancing policy and economic incentive through governance and information
(3) Promoting community openness and external facilitation through environmentally sound practice and technology
(4) Reinforcing policies and institutional framework through mind-ware
(5) Facilitating multistakeholder partnerships to reduce the creation of monopolies
(6) Integrating community to drive policies into real practices

These recommendations need to be implemented carefully with a clear understanding of the characteristics of the community. The form of application also needs to be tailored based on the varying conditions peculiar to each community as there is no single solution to the problem of promoting sustainable development. The integration of multistakeholders, multi-sectors, and multi-disciplines is indeed important for guiding comprehensive outcomes. In addition, continual monitoring and evaluation processes must be conducted to make the outcome more holistic and sustainable.

Overall, It is hoped that the conceptual framework of community characteristic analysis and its co-relation with policy factor performance provides useful perspectives in designing activities to lead communities toward SCP in both Asia- Pacific and worldwide. However, these processes must be further developed through the enrichment of further empirical studies and applications for more effective and pragmatic use in planning and implementing policies and community actions toward SCP.

Notes

1. With assistance from Izumi Tsurita, Sana Okayasu, Ikuyo Kikusawa, Emi Doi, and Aya Watarai.
2. The Asia-Pacific Forum for Environment and Development (APFED) was established in 2001 as an Asia-Pacific regional group of eminent experts on sustainability policies. In phase two (APFED II), (i) multi-stakeholder policy dialogue (Policy Dialogue), (ii) good practice award programme and database management (Knowledge Initiative) , and (iii) pilot project and research support (Showcase) have been promoted as three pillars with the institutional support of the Asia-Pacific Network of Policy Research Institutes for Environmental Management and Sustainable Development (NetRes). IGES operates as secretariats for APFED and NetRes. Details can be found at: www.apfed.net
3. Cohen (1985), on the other hand, has proposed a more simple definition of community as a form of society where one learns to be social outside the context of home or kinship.
4. The earthquake shock absorption was acknowledged in laboratory tests, but has not been tested during an actual earthquake.

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