



Chapter 2

Literature Review

2.1 Sustainable Management of Tropical Forest

(1) Definitions of Sustainable Development

Environmental sustainability is essential for the human-being to survive, while economic development is desperately needed for a large number of people on the earth. In 1989, United Nations released a report by Brundtland that asserted 'a fivefold to tenfold increase in economic activity would be required over the next 50 years to achieve sustainability.' [Goodland 1992, p16]

However, Goodland pointed out that 'it seems unlikely that the world can sustain a doubling of the economy, let alone Brundtland's five- to ten-fold increase'[-ditto-], stating that various global environmental capacities, such as food production, CO₂ sink in forests, biodiversity and so on, have already reached their limits.

Meanwhile, UNCED placed 'sustainable development' as the main concept required for the global community to survive into the next millennium.

Hence, it has become quite important to know the definition of the 'sustainable development' which can satisfy both survival and development of the human-being at the same time. Robert Goodland argued on this matter in detail in his 1997 article 'Biophysical and Objective Environmental Sustainability.' Goodland stated a few definitions of sustainable development. The first definition was given in the 1989 Brundtland report: 'Development that seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future.' WWF introduced a new definition in 1993: 'Improvement in the quality of human life within the carrying capacity of supporting ecosystem.' Goodland himself stated another definition: 'Development without throughput growth beyond environmental carrying capacity of supporting ecosystem.' [Goodland 1997, p66]

The most important argument Goodland provided is that currently low income countries to become as rich as the North is 'not possible.' [Goodland 1997, p68] Therefore, in order for environmental quality to become sustainable, development of poor countries may have to stay in the low level. Encouragingly, however, Goodland further argues that income level of \$1500 to \$2000 is possible and the level can provide 80% of the basic welfare provided by a \$20000 income. [-ditto-]

In the case of tropical forests, the above Goodland's view indicates that sustainable management of tropical forests may not be achieved unless the development in the producing countries through the exploitation of forests is partially sacrificed. How this concept can be accommodated into the ITTO framework depends on the negotiations among the ITTO member countries.

(2) Economic growth for local welfare and conservation - Sustainable Development -

World population has been increasing at a rapid rate, growing from around 800 million in the late 18th century to 1.6 billion at the beginning of the 20th century to 5.6 billion today. Kono states that there are some forecasts predicting that the world's population may become doubled in 50 years, though the increase rate seems to have slowed down a little in recent years. [Kono, p685] The recent UN report indicated that the world population is nearing 6 billion as of October 1998 and it will become 9 billion in the mid of the next century. [Yomiuri, 1998 Oct 31]

Sakai introduced his view that industrialization has caused environmental pollution and destruction of the natural environment in many regions of the world. Various kinds of serious industrial pollution were recorded since the beginning of the Industrial Revolution in the mid-1800s, and have been witnessed more frequently as industrialization advances world-wide. [Sakai 1997, p38]

Barry Field also summarizes to the effect that global environmental problems

such as global warming, the depletion of the ozone layer, and the destruction of ecosystems due to the loss of biological diversity have become increasingly obvious. Among a number of reasons, human economic activities, especially the expansion and globalization of industries and the vicious circle of population growth and poverty in the developing nations are considered to be the most serious causes. The origin of the current environmental problems lies fundamentally in the expansion of economic activities of both the excessive consumption of resources and the emission of waste beyond the environment's capacity to assimilate. [Field, p35]

Needless to say, the natural environment is essential for human life. Besides supplying the lifeblood of existence such as air, water, and food, the environment also gives us resources, absorbs and assimilates waste, and provides amenities.

According to Volger, the major global environmental goods affected by pollution, such as the air and the oceans, are called global commons [Volger, p6].

Global commons are shared by all the people in the world, and these precious assets are irreplaceable. Therefore, it is imperative to apply countermeasures against global environmental degradation such as global warming and the loss of biodiversity. Otherwise, future generations will have to face catastrophic consequences from the environmental degradation now being caused by current economic activities.

However, it should be noted that these problems cannot be solved simply by the action of a single nation. International coordination is imperative. In this regard, the issue of equity between the nations of the industrialized countries and the developing countries must also be considered. It should not be a mistake to say that the industrialized nations are largely responsible for environmental damage of today, and that development and economic growth remain the most important objectives for the developing nations, while their economic growth will cause future degradation of environmental assets, including depletion of tropical forests.

Based on these perceptions, the idea of sustainable development has now become accepted as a key concept in addressing global environmental issues. As indicated above, there are still arguments about definition of sustainable development but

it generally means utilizing all kinds of stocks of the world's wealth, including both the environment and human resources, in such a way that their fruits can be enjoyed by the present generation and be passed over to future generations in a condition that is equivalent to or better than its current condition. However, conservation measures to achieve these goals have not been agreed by the international community because of the economic imbalance and environmental perception gap between the North and the South.

In the case of tropical forests, even the level of desirable sustainable development has not been identified.

Topical forests are an important source of national development. Tropical forests provide a variety of services, ranging from living space and food to climate regulation and genetic resources. Forests supply materials for domestic industry, for export and for import substitution in the form of wood, fiber, processed products, energy and a wide variety of medical, ornamental and other forest products. Forested tropical countries are interested in how their forests contribute to national development. Tropical timber has been an important source of capital for forested nations, through the trade of wood for currency. This tendencies are conspicuous among the least developing countries. Tropical forests also attract tourists and provide other recreational values as well. Further, rural populations much depend on the products of forests as well as on their environmental services. Forests contribute to food security in many ways. Tropical forests are a primary source of energy, medicines and staple foods for the rural population. Thus, tropical forests are also important sources of income support.

The above mentioned values are primarily for rural populations but tropical forests also provide various global values. The world's forests are both laboratories for the natural selection of genetic resources of plants and animals and dynamic storage banks for these genes. Tropical forests are considered to contain more than 50 percent of all the living species on the planet, including a great proportion of higher plants and mammals. [Stiling, p259]

Tropical forests also substitute for fossil fuels as a source of energy. They also store CO₂ to reduce global warming.

2.2 Problems Causing Sustainable Management of Forests

Unfortunately, the above mentioned global values are not often compatible with values for rural population of developing countries. Nebel et al argue that 'deforestation cause....come(s).....down to the fact that the countries involved are in need of greater economic development and have rapid population growth.' [Nebel et al, p484] The most important value that forest land provide for the most of the rural population; therefore, is considered its conversion into agricultural and habitual area. The crops harvested from agriculture generally produce much more cash earnings to the local people in the developing countries. Therefore, as long as the value of transformation of tropical forests into to agricultural and habitual land is higher than the above mentioned other global economic values, tropical forests depletion would not be stopped.

Thus, in order to achieve sustainable development and tropical forests conservation, this economic incentive in the developing countries has to be averted. It should be noted that market mechanisms may not be able to induce desirable outcome in this regard. As Field argues, from the view point of economic theories, environmental problems are rooted in the existence of economic externalities (external costs). [Field, p70] Up to now, the environment has been treated as a free resource, and the expenditures required for environmental conservation have not been included in the costs and prices of economic transactions. In other words, the environment has not been recognized as an input factor in economic decisions. A solution to environmental problems lies in incorporating environmental conservation into economic calculations.

2.3 How Does A Fund Lead to Conservation

(1) International Negotiation on Environmental Conservation

The most distinctive characteristic of international environmental problems is the lack of effective enforcement institutions. When each and all countries in the world have sovereignty in their decision for environmental conservation or pollution discharge, it is very difficult for the global community to enforce environmental conservation actions against countries that do not support them.

Under such circumstances, efforts by the global community on environmental conservation are likely to fail. This is often explained with the application of 'game theory'. Barry Field argues that, when two countries are negotiating the level of industrial emissions, '...although both countries would be better off if they both reduced emissions, compared to both emitting at the high level, each should be still better off if they could be in a situation where the other country controls emissions while they do not.....with each country trying to free ride on the other's control efforts, neither country will end up reducing emissions, so we end up..... with everybody worse off.' [Field 1993, p459]

Then, Field concludes that 'the main job of any environmental agreement is to get countries to agree to reduce their emissions and to resist the temptation to try and garner even larger net benefits by free riding on the control efforts of others.' [-ditto-]

Ostrom also suggests an important role that could be taken by international agreements to overcome the game theory paradox.

Ostrom argues that 'if an external authority accurately determines the capacity of a common-pool resources, unambiguously assigns this capacity, monitors actions, and unfailingly sanctions noncompliance, then a centralized agency can transform the.....game to generate an optimally efficient equilibrium.' [Ostrom 1990, p10] He further discusses that a game in which '(the game players) themselves can make a binding contract to commit themselves to a cooperative strategy that they themselves will work out' would lead the game players to 'share equally the sustainable yield levels.' [Ostrom 1990, p15]

The 'external authority' hereby mentioned can be interpreted as an international organization and the 'binding contract' as an international agreement. Therefore, this Ostrom's view suggests that an international agreement adopted by its member countries can provide an efficient level of environmental conservation without falling into the prisoners dilemma.

(2) Fund Raising under the Existing International Agreements

International organizations are usually supported by contribution from their respective member countries. Generally, the accounts of international organizations are classified into two categories; i.e., the administration account and the project account. The administrative account is for the basic requirements of the organization and generally includes such budget lines as salaries, rent, office expenses and so on. This account is normally supported by the obligatory contribution which is often allocated by prorate basis to its member countries. The project account is for operation of various projects to realize the objectives of the organization. This account is often supported by the voluntary contribution from member countries.

As for environmental organizations, the Global Environmental Facilities (GEF) provides an example. GEF was established among the World Bank, UNEP and UNDP in 1991 to promote global environmental conservation activities. Therefore, its administration cost is covered by these three organizations administrative account which is funded by UN member countries on prorate basis. For projects under UNDP/GEF, 640 million US dollars are reported to have been contributed to this fund from 1991 to 1998 as a form of voluntary contribution. [UNDP 1998, p1] This amount was distributed to several environmental conservation areas such as biodiversity, climate change, international waters and ozone layers. Also through UNEP, 750 projects with US\$50,000 grants each have been implemented in 46 countries. [UNEP 1998, p1]

As for ITTO, the administrative account is supported by obligatory contributions from member countries by prorate basis of their forest resources and

volume of trade. The special (project) account and the Bali Partnership Fund are supported by voluntary contributions from member countries. Each member country is entitled to submit project proposals to the Council and other member countries can make contribution voluntarily to the proposed projects. [ITTO 1994, Cp20-21] Although financial rules were setup on 5 December 1997 for the Bali Partnership Fund, no agreement has been made on the level of sustainable management and the total amount required to maintain the level.

2.4 Tropical Timber Trade and Forest Conservation

As for the relations between tropical timber trade and forest conservation, Barbier et al produced an exhaustive research report in 'Tropical Timber Trade,' while ITTO provides the best fact trade figures.

The impacts of international trade on environment are the most divisive policy issues being discussed both by national and international level. A number of international consultation bodies such as UNEP, WTO, APEC, ASEM are seriously studying the issues. Some groups insist that further trade liberalization will increase the demand for tropical timber and increase benefits for both costumers and producers. Other groups believe that restrictive trade measures would reduce excessive forest depletion, encourage sustainable timber management.

Countries with forest industries would apply restrictive trade policies to protect their own forest-based industries, to stimulate value-added processing or to reduce the log content of timber product exports. Various measures including tariffs, production quotas, subsidies, product standard rules taxes and bans on log exports can be introduced by these countries. [ITTO 1997a, p48]

International trade negotiations, such as those by GATT, have generally attempted to reduce trade restrictions on a wide range of goods and services including forest products. It should be noted that trade liberalization raises important questions regarding social distribution of wealth, resources and income.

Notwithstanding the above, trade measures are often not considered as the most effective means for addressing concerns about deforestation and degradation, for several reasons. For example, the environmental impacts of trade is not clearly identified and interventions to achieve environmental objectives may create unintended and undesirable effects. Further, it is not trade but market and policy failures that are generally considered to have a significant impact on forest management. Domestic environmental policies can have substantial direct effects on timber production, but trade interventions

address these problems only indirectly. Also, trade measures imposed unilaterally by importing countries could cause little impact on domestic policies within producing countries.

However, trade policies can play a role in encouraging trade-related incentives for sustainable forest management. [Barbier et al, p16] ITTO and other international organizations are studying these trade-related impacts and ways to implement such measures. Such policies should be used to complement domestic forest policies and regulations within producing countries and their efforts in improving forest management.