



Achieving Poverty Alleviation through Biodiversity Conservation

JICA's Initiatives and Approach

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— FOREWORD —

The lives of us humans depend on ecosystems which offer essential services such as climate regulation, and the provision of items including food, water, and air (“ecosystem services”). Loss of biodiversity will, therefore, lead to the degradation of ecosystem services, and will have a significant impact on the life of people. The poor are particularly vulnerable to such impacts, due to their high dependence on biological resources. The degradation of ecosystem services and further deterioration of the livelihood of the poor exemplifies a vicious cycle observed in many developing countries. Effective management and conservation of ecosystems are therefore key to poverty reduction.

Recognizing the crucial role of biodiversity conservation, the international community adopted the Convention on Biological Diversity (CBD) in 1992. The Parties to the Convention then adopted in 2002 the 2010 biodiversity targets, with a goal to “achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth”. Various measures have been pursued in different countries and regions ever since, while targets continue to remain unattained and the loss of biodiversity accelerates its pace.

The Secretariat of Convention on Biological Diversity (SCBD) states that international actions taken over the next decade or two will determine whether or not we humans can maintain the ecosystem in a condition stable enough to pass on to future generations. The 10th Conference of the Parties to the Convention on Biological Diversity (COP10) to be held at Nagoya -Aichi in October, 2010, will be launched at this opportune moment, where the wisdom and cooperation of the international community is required more than ever to address biodiversity loss. The conference will cover future international actions and adopt new targets for after 2010.

The Japan International Cooperation Agency (JICA) is an independent administrative institution responsible for the implementation of bilateral components of Japan’s Official Development Assistance (ODA). With a view to achieving human security, JICA contributes to socioeconomic development, recovery, and economic stability of developing countries. Biodiversity conservation serves to protect the life of vulnerable people in developing countries, and ensures stable and sustainable growth of the international society.

As a member of the international community, Japan has a responsibility to address global issues. In fulfilling these, JICA will assist biodiversity conservation efforts in developing countries as a priority of its cooperation. This booklet was created in time for the holding of COP10, to present JICA’s biodiversity-related activities to date, and manifest its policies on how its future conservation efforts will support the well-being of the poor in developing countries.

Director General of Global Environment Department

Shinya Ejima

Chapter 1 JICA'S POLICY FOR COOPERATION ON BIODIVERSITY CONSERVATION

1.1 JICA's cooperation policy: Vision and Missions

Ever since Japan joined the Colombo Plan in 1954, it has provided financial and technical assistance to developing countries as part of its Official Development Assistance (ODA) programme. Out of diverse ODA programmes administered by Japan, the Japan International Cooperation Agency (JICA) is in charge of administrating all ODA such as technical cooperation, ODA loans, and grant aid in an integrated manner, except contributions to international organizations.

JICA is committed to realizing its stated vision of “Inclusive and Dynamic Development” by carrying out the following four Missions:

- Mission 1: Addressing global agenda**
- Mission 2: Reducing poverty through equitable growth**
- Mission 3: Improving governance**
- Mission 4: Achieving human security**

Each of these four missions has a fundamental implication to biodiversity conservation. The issue of biodiversity loss is more global than national, to which a concerted response by both developing- and developed countries are necessary (Mission 1). The loss of biodiversity has serious consequences for societies,

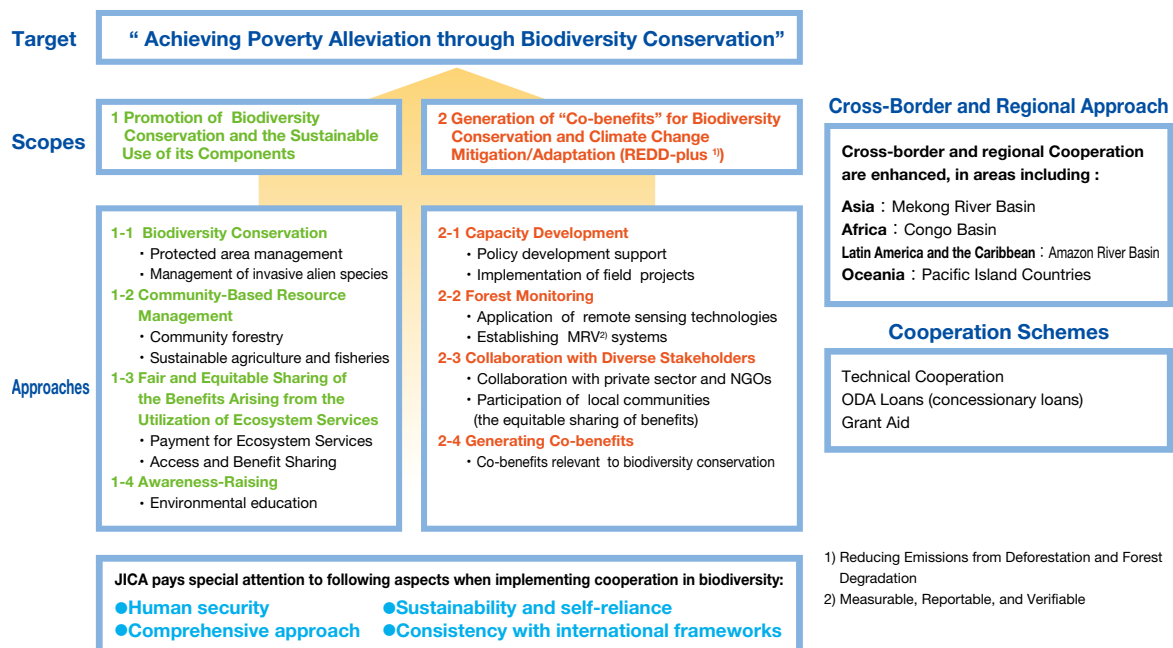
economies, and even the future of humankind itself. The poor are said to be the first and the hardest hit by those negative impacts because 70 percent of the world's poor live in rural areas and depend directly on biodiversity for their day to day survival, and are generally not in a position to afford substitutes (SCBD 2009). Considerations and contributions to ensuring human security is an integral part of JICA's activities in promoting international cooperation. Many people in developing countries face the threat of a humanitarian crises, partially due to the destruction of ecosystems and disasters. Continuous efforts are required to protect people from these threats (Mission 2 and Mission 4).

For the conservation of biodiversity, major roles and responsibilities stay with the governments of respective nations, where capacity is required for policy makers and executive bodies to make sound judgments and implement policies. Many developing countries are therefore in need of assistance related to the improvement of their institutions and capacities (Mission 3).

1.2 JICA's cooperation policy in biodiversity conservation: Guiding Principles

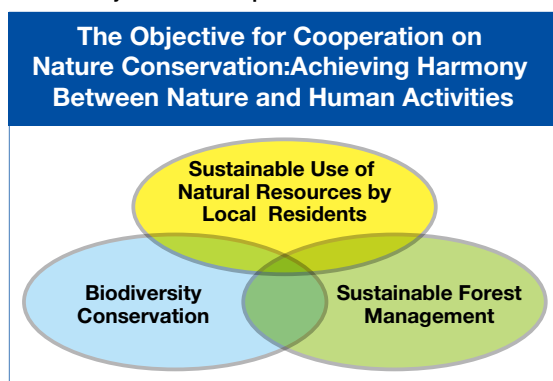
JICA formulated its basic policies in 2008 to guide its

■ Figure 1.1 JICA's cooperation policy in biodiversity conservation



cooperation activities in the area of nature conservation. In that document, JICA defines its goal of cooperation as “achieving harmony between the natural environment and human activities”, and sets further three strategic objectives: the sustainable use of natural resources by the community, the conservation of biodiversity, and sustainable forest management (Figure 1.2). Of these strategic objectives, this paper refers to and serves as guidelines for JICA’s ‘conservation of biodiversity’. Figure 1.1 shows how JICA’s cooperation in this field is implemented, and the descriptions hereafter follow the concepts shown in the diagram.

■ **Figure 1.2**
JICA's objectives for cooperation on nature conservation



Target

JICA supports biodiversity conservation efforts in developing countries, in accordance with its overarching target of “Achieving poverty alleviation through biodiversity conservation”.

There is a high risk of dramatic biodiversity loss and accompanying degradation of a broad range of ecosystem

services (BOX.1) if the Earth system is pushed beyond certain thresholds or tipping points (SCBD 2010). The loss of such services is likely to affect poor people the most, as they are highly dependent on ecosystem services. For example, deforestation and forest degradation will increase natural disasters such as floods and land slides, cause the depletion of drinking water or water contamination, and it will decrease available food, traditional medicines, and sources of energy. Available food, traditional medicines, and sources of energy. The loss of biodiversity could also lower agricultural production levels, induce the spread of the infections, and reduce the adaptability to climate change. Any of these scenarios, as some concern, will affect the poor most directly, bringing about a vicious cycle where they are driven into even further poverty.

Achieving human security¹ by eliminating “threats” such as environmental destruction and disasters, as well as “destitution” that manifest themselves in poverty is JICA’s mission. Cooperation must be carried out in such a manner that its benefits unfailingly reach the socioeconomically disadvantaged. JICA is dedicated to biodiversity conservation with the goal of reducing poverty, by strengthening the safety net for the poor, including.

Scopes and Approaches

JICA designates two areas as being priority: “Promoting of biodiversity conservation and the sustainable use of its components” and “Generation of “co-benefits” for biodiversity conservation and climate change/adaptation (REDD-plus)”. JICA aims to bring about these two scopes by addressing four priority approaches for each of these areas.

BOX.1 Ecosystem services

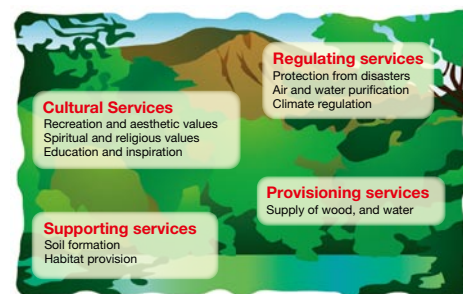
Ecosystem services: Ecosystem services refer to the benefits that people receive from ecosystems. The Millennium Ecosystem Assessment² divides such services into four categories.

Provisioning services: These are the products obtained from ecosystems such as food, water, timber, fiber and energy sources.

Regulating services: These are benefits obtained from the regulation of ecosystem processes, which include the purification of air and water, the stabilization of climates, the prevention of soil erosion and disasters, the control of pests and diseases.

Cultural services: these are the nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences.

Supporting services: these services are those that are necessary for the production of all other ecosystem services. They involve the formation and sustenance of environments essential to all species of life, including humans. Water and nutrient cycling, soil formation and processes of plant growth are examples of supporting services.



1) Human security: The Final Report of Human Security Now (2003) drawn up by Commission on Human Security, which is co-chaired by Sadako Ogata (current JICA president) and Amartya Sen (currently a professor at Harvard University), defines “human security” as meaning “to protect the vital core of all human lives in ways that enhance human freedoms and human fulfillment.” This concept means that human security is the essence of what is needed to protect the dignity and well-being of each and every human life. This idea places humans at the focus and emphasizes the importance of people steadily gaining the power of independence and self-determination.

2) Millennium Ecosystem Assessment: A comprehensive assessment of ecosystems on a global scale put together between 2001 and 2005 at the urging of the United Nations. Focusing on the services provided by ecosystems, the report clarifies how ecosystem services affect people’s ability to lead rich lives as well as the consequences of the loss of ecosystems. (2009 Environmental White Paper, Ministry of the Environment)

Scope 1

Promotion of biodiversity conservation and the sustainable use of its components

Biodiversity and the lives of people are closely linked. The lives of people depend on the blessings of biodiversity that they receive in the form of ecosystem services, while at the same time the five direct drivers of biodiversity loss (BOX.3) can be attributed to daily human activities. The Convention on Biological Diversity (CBD; BOX.2) seeks a fundamental solution to the problem of biodiversity loss, through the pursuit of the three objectives of “the conservation of biological diversity”, “sustainable use of the components of biological diversity”, and “the fair and equitable sharing of the benefits arising from the utilization of genetic resources”.

Under the Scope, JICA aims to realize the three objectives of the Convention in a balanced manner. Specifically, in Approach 1-1, JICA dedicates itself to the conservation of diverse ecosystems, and in Approach 1-2, JICA promotes the sustainable use of biodiversity components through participatory resource management. In Approach 1-3, JICA works towards the fair and equitable sharing of the benefits from the utilization of genetic resources and ecosystem services, while for Approach 1-4, JICA raises people’s levels of knowledge and awareness of biodiversity conservation through environmental education and other methods, thereby realizing “mainstreaming biodiversity”.

Approach 1-1

Biodiversity conservation

Secretariat of the Convention on Biological Diversity (SCBD), states that biodiversity includes diversity within species, between species and of ecosystems. Through its focus on conservation of the ecosystem diversity, JICA also contributes to biodiversity conservation at the species and genetic levels. JICA cooperates on matters such as the management of protected areas and the control of invasive alien species for diverse ecosystems, including forest, marine, inland water, and wetland ecosystems. To note, the conservation of the ecosystems, which was formed as a result of interaction between human and nature (such as *Satoyama* ecosystems) will be touched upon in Approach 1-2.

● Protected area management

The importance of protected areas in biodiversity conservation is widely acknowledged and therefore steps have been taken to increase and expand protected areas. The current coverage of

terrestrial protected areas is more than double that of 1980 figures (SCBD 2010). The same data also indicates that protected areas occupy more than 12 percent of land, totaling over 120,000 in number. On the other hand, of the world’s 595 sites whose protection is deemed critical for the survival of hundreds of endangered species³, a mere 36 percent are fully contained within gazette protected areas, and of the world’s 825 terrestrial ecoregions⁴, for which a sub-target towards achieving the 2010 biodiversity target is to have 10 percent or more of the area of all ecoregions included in protected areas, only 56 percent have met that sub-target. Furthermore, a recent global assessment of management effectiveness has found that, of 3,080 protected areas surveyed, 13 percent were “clearly inadequate,” leading to concerns over the increase of nominal designation of unmanaged “paper protected areas”. Accordingly, actions are called for the effective expansion and adequate management of protected areas.

There is a growing consensus that, when designating as a national park an area embracing both human settlements and valuable ecosystems, management of the area should gain the understanding and cooperation of the inhabitants, be rule-based and participated by those inhabitants rather than excluding them from the area. Japan’s national parks have a history of cooperative management between the government and residents or land owners in parks, the very reason why many consider that Japan has much to offer in the institutional design and in the actual management of protected areas in a manner that suits the different circumstances of respective developing countries.

JICA has assisted with protected area management via various schemes including project implementation to date. Applying a participatory approach, JICA has a long record of assisting diverse stakeholders in developing and improving the various capabilities needed to manage protected areas, such as techniques of various surveys, policy development and environmental education (See p. 18). JICA continues to offer assistance in a manner that meets the unique circumstances of the target areas.

[Areas of cooperation]

- Assistance in developing appropriate systems for protected areas at the national and regional levels
- Ecosystem and socioeconomic surveys in protected areas
- Assistance related to ecotourism or environmental education linked to protected areas
- Assistance in developing appropriate systems for community based protected area and enhancing management capacities
- Assistance in creating systems to ensure fair and equitable sharing of benefits through mechanisms such as PES and REDD-plus in protected areas

3) These sites were designated by the Alliance for Zero Extinction, an international organization devoted to stopping the extinction of species, as important areas for 794 endangered species

4) Earth’s 825 terrestrial ecoregions: The WWF divided the world’s ecological regions into 825 terrestrial ecoregions and 450 freshwater ecoregions.

- Assistance in organizing and conducting conservation programmes for rare species in protected areas
- Assistance for ecological restoration in protected areas

● Management of invasive alien species

The issue of invasive alien species is recognized as one of the five main direct drivers of the loss of biodiversity (BOX.3) by SCBD. The introduction of some invasive alien species was a policy decision to benefit from the species' fertility and/or utility, while others have been introduced, whether intentionally or unintentionally, by visitors or through trade. Although many countries are trying to manage invasive alien species, effective countermeasures are often yet to be taken even in developed countries. The worldwide situation regarding invasive alien species constitutes one of the 15 indicators for CBD's 2010 biodiversity targets (BOX.2), but the problem is becoming even more serious (SCBD 2010).

[Areas of cooperation]

- Ecological and socioeconomic surveys related to invasive alien species
- Assistance in institutional framework for managing invasive alien species at the national and regional levels
- Assistance in technology transfers and facility construction related to quarantining
- Implementation of demonstration projects

Approach 1-2

Community-based resource management

The sustainable use of natural resources is one of the fields JICA has worked on most over the years. In the fields of agricultural and rural development, one of JICA's three strategic objectives⁵ for cooperation is "sustainable agricultural production," which stipulates due consideration to the environment. Furthermore, JICA sets out "conservation and

BOX.2 The Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was adopted in Rio de Janeiro in 1992 at the United Nations Conference on Environment and Development ("Earth Summit") and became effective the following year. In May of 1993, Japan became the 18th party to the Convention. There are currently 193 countries and organizations, including the EU, that are parties to the Convention (as of August 2010). The purpose of the Convention is threefold: 1) "the conservation of biological diversity", 2) "the sustainable use of the components of biological diversity", and 3) "the fair and equitable sharing of the benefits arising out of the utilization of genetic resources".

The First Conference of the Parties to the Convention was held in 1994 in Havana. Conferences of the Parties (COP) have been held every other year since the third. At COP6 (convened in Hague in 2002), 2010 biodiversity targets were adopted. The stated goal of the targets was "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth", and 21 individual targets were set. However, with the release in May of 2010 of the third edition of the Global Biodiversity Outlook (GBO-3; SCBD 2010), which assessed progress made towards the targets, it became clear that there were no prospects for any of the 21 individual targets to be met on a global scale.

At COP10, which is to be held in Nagoya in October of 2010, progress towards meeting the 2010 targets will be examined, and new biodiversity targets (post 2010 targets) will be studied. Furthermore, a more robust international framework will be discussed along the lines of the Bonn Guidelines on access to genetic resources and fair and equitable sharing of the benefits arising out of their utilization adopted at COP6.

BOX.3 The five principal pressures directly driving biodiversity loss

GBO-3 identifies the following five direct drivers of biodiversity loss (SCBD 2010).

Habitat loss and degradation: Habitat loss and degradation create the biggest single source of pressure on biodiversity worldwide. For terrestrial ecosystems, habitat loss is largely accounted for by conversion of wild lands to agriculture. For inland water ecosystems, habitat loss and degradation is largely accounted for by unsustainable water use and drainage for conversion to other land uses, such as agriculture and settlements. In coastal ecosystems, habitat loss is driven by a range of factors including some forms of mariculture, especially shrimp farms in the tropics where they have often replaced mangroves.

Climate change: The Intergovernmental Panel on Climate Change (IPCC) predicts that a rise in mean global temperatures of 1.5 to 2.5°C (compared with 1980 to 1999 levels) would mean that roughly 20 to 30 percent of the species they assessed would become threatened, and if those rises exceeded 3.5°C, massive global extinctions would occur (around 40% to 70% of species assessed).

Excessive nutrient load and other forms of pollution: The enormous amounts of nitrogen and phosphorus used in agricultural fertilizers not only alter the species composition of plants that grow on the land, but also runoff from soil into rivers, lakes, marshes, and coastal areas and stimulates the growth of algae and some forms of bacteria, threatening valuable ecosystem services. It also creates "dead zones" in oceans. Decomposing algae use up oxygen in the water and leave large areas virtually devoid of marine life.

Overexploitation and unsustainable use: Overcultivation, overgrazing, and other resource-depriving production practices stemming from population increases and the lifestyles of mass-consumption seen chiefly in developed countries have caused land to degrade, and overfishing has led to the depletion of aquatic resources.

Invasive alien species: Direct or indirect human action has caused the introduction of species of flora and fauna into areas where they did not occur before. Unable to survive competition with these alien species, endemic species become extinct.

5) 1. Sustainable agricultural production, 2. Stable food supply, 3. Promoting of rural development

BOX.4 The three types of biodiversity and their loss

[Diversity of ecosystems]

Although tropical forests cover only about 7 percent of the Earth, when one considers that the species that live there make up for more than half of all species of life, it is clear that these ecosystems are key to biodiversity conservation. The FAO's Global Forest Resources Assessment indicates that loss rates since the year 2000 (13 million hectares per year) have declined from the 1990s (16 million hectares per year), in regions such as South America and Africa, 7.4 million hectares of forest (equivalent to one fifth the area of Japan) a year have been lost in the 10 years leading up to 2010. Furthermore, since 1980, 20 percent of the world's coral reefs have been lost, as have one quarter of the world's mangrove forests. As a result, their capacity to protect shorelines from severe storms and waves has diminished (SCBD 2010). A commonly-held belief is that ecosystems are naturally equipped with certain buffering capacities so that their balance is not destroyed by pressures that do not exceed a certain level. However, the capacity for ecosystems to continue to provide many of their services is approaching crisis levels.

[Species diversity]

Many species are presently facing crises of extinction. The Red List (2009 edition) published by the International Union for Conservation of Nature (IUCN 2009) shows 8,782 species of animals and 8,509 species of plants as threatened. The third edition of Global Biodiversity Outlook (GBO3) (SCBD 2010) released in May of 2010 reports that situation surrounding endangered species are particularly serious for amphibians, corals, and plants.

[Genetic diversity]

The area of genetic diversity conservation has seen great progress with the advent of seed banks used for preserving the genetic diversity of plants ex situ, but standardized, high-output animal husbandry systems used today have lowered the genetic diversity of livestock, and at least one-fifth of livestock breeds are at risk of extinction. The drop in genetic diversity may compromise our ability to breed new varieties better able to withstand climate change and new epidemics in the future.

management of aquatic resources,” as one of its three strategic development objectives⁶ in the field of fisheries. Under this objective, JICA works to keep sustainable catch levels by preventing overfishing through raising awareness of resource management, in addition to efforts to increase resource levels through aquaculture. In the 2000- 2009 period, JICA implemented over 250 projects related to the sustainable use of natural resources, including projects promoting sustainable forest management, sustainable agriculture (agroforestry and environmentally sound agriculture), and sustainable marine, coastal, and inland fisheries. Many of these projects applied participatory approach involving local communities.

One of the three objectives of CBD is “the sustainable use of the components of biological diversity.” Achieving this objective addresses three of the five direct pressures on biodiversity, namely “habitat loss and degradation”, “excessive nutrient load and other forms of pollution”, and “over-exploitation and unsustainable use”. For example, one of the major causes of habitat loss is the conversion of forests into farmland. While it is true that the issue is intricate and entangled with interests of large businesses and market mechanisms, JICA works towards the sustainable use of resources by cooperating at the grassroots level and through such projects whose fruits directly reach the poor as “community forestry projects” and “sustainable agriculture and fisheries projects” applying a participatory approach.

● Community forestry

Community forestry is a system through which forests are

managed by local residents and the benefits arising from the activity is then distributed among them. Conceptually it has much in common with the *Satoyama* Initiative (BOX.5) proposed by the government of Japan.

JICA has long incorporated participatory forest resource management projects in many developing countries, under such terms as “social forestry” and “village forestry”. One of the most noteworthy examples is the social forestry cooperation project in Kenya commenced in the 1980s and has continued intermittently since. The appropriate form that community forestry should take differs largely from region to region depending on natural and social environments. Hence, sufficient studies and careful actions are necessary for the project implementation. JICA carries out multi-targeted cooperation projects according to local needs, addressing issues such as zoning for protection and use, setting out regulations, improving livelihood, and assisting the improvement of local administration.

[Areas of cooperation]

- Support in forming community organizations
- Ecological and socioeconomic surveys
- Assistance in creating forest tenure systems
- Assistance in creating community forestry systems suited to local circumstances
- Identification and application of traditional knowledge and technologies
- Assistance in the development and commercialization of non-timber forest products

6) 1. Promoting of rural development , 2. Stable food supply,3. Maintenance management of living aquatic resources

- Assistance in the introduction of forest certification systems
- Assistance in improving livelihoods in local communities
- Capacity development of local government regarding community forestry

● Sustainable agriculture and fisheries

Traditional slash-and-burn agriculture was a sustainable system, consisting of regular cycles of cultivation and fallowing for regenerating soil fertility. However, sustainable mechanisms have collapsed in many places due to population growth and development of large scale plantations. Forests increasingly came to be converted to agricultural land. The excessive use of pesticides and chemical fertilizers not only poses an economic burden on farmers, but also leads to ecosystem destruction as a result of the excessive load of nutrients such as nitrogen and phosphorus, and water pollution through their run off into nearby rivers, lakes and marshes. Meanwhile, overfishing poses a considerable threat to marine ecosystems.

Fishing villages are facing serious economic and food supply problems arising from decrease in catch levels. In addition, the use of dynamite and other destructive fishing practices are dealing a critical blow to ecosystems. JICA continues to promote sustainable agriculture and fisheries through participatory approaches.

[Areas of cooperation]

- Ecological and socioeconomic surveys in farming and fishing villages
- Awareness raising programs related to sustainable agriculture and fisheries
- Support to residents in setting out rules for sustainable farming and fisheries
- Dissemination of agroforestry, and economically and ecologically superior agricultural techniques which reduce the use of pesticides and chemical fertilizers
- Creation of added values by improving preservation and process techniques of agricultural and fisheries products
- Support to improving the livelihood of local communities
- The conservation and sustainable use of mangrove ecosystems

Approach 1-3

Fair and equitable sharing of the benefits arising from the utilization of ecosystem services

Human society could not exist without the benefits of ecosystem services (BOX.1). Economic activities by business also depend on ecosystem services. However, the payment by users of the clear financial values is not yet established widely

for such ecosystem services as clean air or pure water, disaster prevention, or climate stabilization. The idea of clarifying the financial values of these ecosystem services, of having users pay those financial values to offset the costs of protecting ecosystems, and of providing incentives for people who live in a way that contributes to the conservation of ecosystems, is called “Payment for Ecosystem Services (PES)”.

For example, the practice of charging visitors an entrance fee to a nature reserve which goes to the reserve’s management, and the trade in carbon emissions credits through the Clean Development Mechanism (CDM)⁷ established in the United Nations Framework Convention on Climate Change (UNFCCC) are kinds of PES, which have been introduced worldwide. Programs to realize “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources” (Access and Benefit Sharing; ABS), is one of the three objective of the CBD and will also become an important part of PES.

When introducing PES and ABS, it is very important to ensure that benefits generated from the system must reach people in local communities who conserve and manage biodiversity resources in sustainable manner. JICA considers that PES and ABS are important tools for promoting the conservation of biodiversity and the sustainable use of its components.

● Payment for Ecosystem Services (PES)

PES schemes can encompass a wide range of systems including trading in the market and collection in the form of taxes, and are being introduced by more developing countries. Whichever PES system is chosen, the authorities concerned are required to have a high degree of technical skills and competence for accurate monitoring, the management and proper use of funds, transparency and fairness, and all other such responsibilities. Related capacity-building in developing countries is essential for this reason.

More and more municipalities in Japan are introducing a “forest environment tax” or a “watershed tax”, where the local residents are required to bear some of the cost of maintaining forests, for the sake of maintaining functions of forests that serve the public good, in terms of watershed protection and disaster prevention. JICA utilizes this expertise developed in Japan to assist developing countries implement PES systems as an important means of conserving biodiversity in a sustainable manner.

[Areas of cooperation]

- Research related to PES
- Assisting relevant authorities in improving their capacities
- Assistance in creating PES-related systems

⁷ Clean Development mechanism: One of the Kyoto (or “flexibility”) mechanisms, which are tools for utilizing market mechanisms in global warming mitigation efforts, adopted at the time of the Kyoto Protocol (COP3, 1997). This international mechanism allows developed countries to implement projects that reduce emissions (or increase removals by sinks) in developing countries, for which they are issued credits commensurate with reduced emissions (or increased removal) that are shared among project participants.

● Access and Benefit Sharing (ABS)

Article 15 of the Convention on Biological Diversity stipulates that “each Contracting Party shall endeavor to create conditions to facilitate access to genetic resources for environmentally sound uses”, and that “each Contracting Party shall take legislative, administrative or policy measures, as appropriate with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources.” The “genetic resources” referred to above may include traditional knowledge concerning its use. It is often the case that a developing country has limited knowledge and information about its own genetic resources, thereby failing to take advantage of – or unintentionally losing even – its valuable resources in the course of rapid development. For these reasons, it is necessary to improve the capacity of governments to develop and manage their own genetic resources, as well as to create a necessary institutional framework.

[Areas of cooperation]

- Basic research/joint research on genetic resources in resource countries
- Technical assistance in the use and application of traditional knowledge for sustainable development
- Establishment and management of a seed bank, preservation of endemic microorganisms, and the preservation of traditional breeds
- Collecting and collating basic data (assessing genetic resources, creating inventories, data management)

Approach 1-4

Awareness-raising

In order to successfully conserve biodiversity, it is necessary to

mainstream biodiversity conservation in every aspect of human activities including development. Achieving this end will require all stakeholders - from grassroots to private sector and political leaders - to understand and raise awareness on the importance of biodiversity, its relationship to their lives and actions to take.

Environmental education and awareness raising activities for the communities have been a key component for almost all of JICA’s biodiversity conservation projects. Countless volunteers were dispatched to conduct environmental education. Training for environmental education in Japan is held every year. Other JICA training programmes related to environment also includes educational- and awareness-raising components. Through these efforts, JICA has established a long record of cooperation in the promotion of environmental education, and will continue its assistance in raising public awareness at all levels, promoting environmental education, and developing capacities of relevant stakeholders.

[Areas of cooperation]

- Assistance in environmental education and awareness raising activities for governments or private sector organizations
- Capacity development for governmental, educational, and private sector organizations regarding environmental education

Scope 2

Generation of “Co-benefits” for biodiversity conservation and climate change mitigation / adaptation (REDD-plus)

Climate change is considered to be one of the five principal pressures directly driving biodiversity loss, whose consequence is

BOX.5 The Satoyama Initiative

Satoyama landscapes collectively refer to the socio-ecological production systems in Japan that have been handed down through many generations. These landscapes represent the dynamic use of land through agricultural practices and natural resource management techniques that maximize the benefits that local ecosystems offer. The food and fuel generated by these landscapes help protect those in the community from poverty. On the other hand, the land, water and other resources are used in a sustainable manner while the landscapes provide habitats for wildlife.

Satoyama landscapes are found in all parts of the world. These landscapes, which rely on traditional wisdom and cooperation among local residents, comprise dynamic mosaics of habitats and land uses and have long been maintained by people engaged in farming, forestry, animal husbandry, and fishery throughout the world. *Satoyama*-like landscapes have provided support for living of countless numbers of people for thousands of years.

Modernization and urbanization, however, have led to a gradual shift away from and abandonment of these practices. As a result, many of these ecosystems are degrading, and the community ties within these landscapes are weakening.

The *Satoyama* Initiative is based upon recognition of the potential of socio-ecological production landscapes. The initiative aims to assist in evaluating these landscapes and restoring and improving management mechanisms to maximize ecosystem services (ecosystem functions) and human well-being through sustainable use while conserving biodiversity. In an effort to maximize the effects of the *Satoyama* Initiative on a global scale, the initiative is to be officially proposed at the 10th Conference of the Parties to the Convention on Biological Diversity (COP10) in 2010.

(Excerpt from the Japanese Ministry of Environment website:<http://satoyama-initiative.org/jp/about/>)

likely to affect biodiversity in different ways (BOX.3). Likewise, the loss of biodiversity represented by deforestation and forest degradation is one of the major causes of climate change. The negative effects between the two have resulted in both climate change and biodiversity loss to accelerate the pace of each other. JICA promotes a “co-benefit approach”, the application of effective measures for both climate change mitigation and biodiversity conservation, by way of promoting positive synergy between the two and also improving the capacity for climate change adaptation and the livelihood of communities. More specifically, JICA directs its focus of cooperation on the promoting of the REDD-plus (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (BOX.6)) for the creation a framework which is ongoing in the international community, and fulfills this objective through tackling four scopes, - capacity development, forest monitoring, collaboration with stakeholders, and enhancing co-benefits.

Approach 2-1

Capacity development

For developing countries to implement REDD-plus, capacity development is necessary to gain accurate information on forests based on which to develop and implement REDD-plus framework. The forest information that developing countries are required to compile for the implementation of the REDD-plus includes the changes in forest areas and carbon stocks; the existence of stakeholders and their roles; the main causes of deforestation; the trend in land use; existing forest policies and governance; the measures taken to prevent deforestation, their progress, successes and lessons learnt, as well as the factors which produced these. In analyzing this information, countries are required to forecast the consequence of the REDD-plus implementation on their communities and environments, and to develop institutional framework to ensure and implement fair and equitable share of the economic benefits arising from the implementation of REDD-plus.

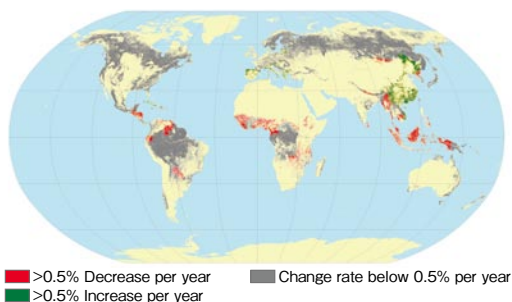
BOX.6 REDD-plus (Reducing Emissions from Deforestation and Forest Degradation)

The FAO reports that the annual decrease in land covered by forest is about 13 million hectares (2000—2005 average; FAO 2006), with particularly large losses in forest coverage in the tropical regions of Africa, South America, and South and Southeast Asia (Figure 1.3). Deforestation accounts for about 17 percent of total emissions of greenhouse gases, which is more than the share of total emissions from automobiles, aircraft, and other vehicles in the world combined (13 percent; IPCC 2007). A measure to mitigate global warming by controlling deforestation in developing countries and thereby reducing greenhouse gas emissions was first proposed at the 11th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP11) in 2005. Later at COP13 in 2007, the decision was formally made to consider Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) as a new measure to mitigate climate change (the Bali Action Plan, 1(b)(iii)). In order to examine the feasibility of the REDD, developed countries were encouraged to provide assistance to developing countries in improving the capacity to implement REDD strategies and to pursue pilot activities. REDD is later changed to REDD-plus after inclusion of some additional activities. The basic concept behind REDD-plus is for developed countries to provide economic assistance (including funding) to developing countries to reduce greenhouse gas emissions (or maintain/enhance carbon stocks) by curbing deforestation/forest degradation or through forest conservation. The amount of the assistance by developed countries decided in accordance with the volume of reduced emissions (or maintained/enhanced carbon stocks) achieved by the developing countries. At the same time, a developed country that has provided assistance to a developing country may receive credits whose value is again in accordance with the volume of reduced emissions (or maintained/enhanced carbon stocks) achieved. The assisting country may expect to incorporate these credits into its own emissions reduction efforts. The basic mechanism is as follows. First, a “reference level” which represents the volume of emissions expected to occur in the absence of steps taken to control deforestation and forest degradation (Figure 1.4, dotted line) is established. The reference level is estimated from past trends in deforestation and their associated emission volumes. Economic incentives are provided with respect to the difference between this reference level and emissions in cases where deforestation and forest degradation have actually been curbed (i.e. when REDD-plus projects have been implemented; Figure 1.4, solid line).

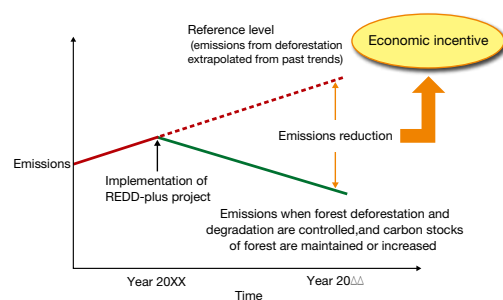
It is hoped that the provision of economic incentives for tropical forest conservation will contribute to a reversal of the tropical deforestation trend that has continued for many years, and as a result make substantial contributions to biodiversity conservation.

(Excerpt from “REDD-plus (JICA 2010: <http://www.jica.go.jp/publication/pamph/pdf/redd.pdf>)

■ Figure 1.3 Changes in the world's forest area(2000-2005)(Source FAO FRA2005.)



■ Figure 1.4 Conceptual graph of reference level



JICA, with years of experiences in assisting forestry sectors in developing countries under various environments, supports developing countries to build capacity needed to accomplish the above mentioned programs through “assistance in policy development”, “implementation of field projects”, and other endeavors.

[Policy development support]

- Enhancing knowledge of the governments and relevant authorities, including through workshops
- Studies on the causes of deforestation, effective measures, and land- and forest administration
- Review of past forest conservation activities
- Assistance in establishing reference levels
- Assistance in establishing safeguards that take into account both the livelihoods of local communities and biodiversity
- Assistance for governments in developing REDD-plus policies

[Implementation of field projects]

- Basic surveys in demonstration sites (including on forest carbon stocks, forest resource utilization, land use, biodiversity, rural socioeconomic systems)
- Developing plans for demonstration projects
- Forest management including afforestation and reforestation
- Monitoring and identification of issues
- Information sharing

Approach 2-2

Forest monitoring

The implementation of REDD-plus requires regular and accurate monitoring of forests and the carbon stocks at the national level. Such monitoring then necessitates a coherent system where data is measurable, reportable, and verifiable (“MRV system”). Monitoring is carried out by combining remote sensing with satellite imagery and field surveys. The optimal methodologies using the most advanced technologies that suite the specific circumstances of respective countries (such as coverage areas, past data, and existing monitoring system) need to be identified. In this process, it is important to establish a methodology, which can be independently operated by the implementing countries in sustainable manner in terms of both technologically and financially. In providing assistance, therefore, JICA attaches as much importance to the sustainability issue as to capacity development in monitoring. More specifically, JICA “assists forest monitoring using remote sensing”, and the “development of MRV systems”, through the combination of equipment provision (including the installation of the latest equipment for satellite image analyses), system development, and capacity development.

[Areas of cooperation for application of remote sensing technologies]

- Reviews of existing forest data
- Examinations of optimum remote sensing technologies
- Examinations of optimum techniques for carbon stock estimation
- The design and implementation of optimum forest monitoring systems
- Testing of the above monitoring systems through demonstration projects

[Areas of cooperation for assistance in establishing MRV systems]

- Assistance for governments in developing a system to report to such international carbon- and forest-monitoring bodies as UNFCCC and the FAO, and in building relevant capacities
- Supporting governments to contribute to carbon monitoring and accounting systems

Priority Issue 2-3

Collaboration with diverse stakeholders

Many view that an international carbon-trading system supported by REDD-plus, still requires some time to gain international consensus for its launch. Meanwhile, some voluntary REDD-plus projects by NGOs and companies as part of their corporate social responsibility activities have already been implemented. It is expected that the experiences of overcoming the challenges identified in these pilot projects will improve technologies and lead to the stock-taking of the knowledge, which will all ultimately feed into the REDD-plus in molding its own shape. Private sector organizations are expected to continue playing important roles. REDD-plus-related activities, therefore, should not only seek to engage the governments of the target countries, but also involve interested companies, NGOs and other private-sector organizations. Once REDD-plus starts generating economic benefits from forest conservation, there is a risk that people who have lived in the forests are evicted. Anticipated is also a concern that such economic benefits do not reach the locals living in and with forests. It is crucial to establish a system where those benefits are equitably shared, and where governments and residents can cooperate for the conservation of forests.

[Areas of cooperation for collaborations with the private sector and NGOs]

- Information campaigns to generate interests by companies and NGOs on REDD-plus and co-benefit
- Collaborative demonstration projects with companies and NGOs

[Areas of cooperation for participation of local community (the equitable sharing of benefits)]

- Development of a mechanism where the opinions of local communities and stakeholders are sufficiently reflected in the design of REDD-plus framework (including ensuring access to resources by local communities as well as their rights to use those resources)
- Development of participatory- and sustainable forest management plans pertaining to REDD-plus; establishment of forest management systems; and related capacity development activities
- Implementation of participatory forest management demonstration projects that incorporate REDD-plus

Priority Issue 2-4

Generating co-benefits

When mangroves and other forests are successfully conserved or restored through REDD-plus, multiple benefits (i.e. co-benefits) are likely to be delivered in addition to mitigating effect on climate change through sequestering greenhouse gases in the forests. The following co-benefits are expected upon successful implementation of REDD-plus: Biodiversity conservation may be enhanced as a result of preserving forest ecosystem. The protective role for watersheds that forests fulfill would prevent flooding, and mangrove forests would mitigate damage from storm surges; these effects contribute to climate change adaptation by offsetting the increased damage from floods and severe storms that are predicted to occur as a result of climate change. Also, the livelihoods of local communities may be enhanced; in addition to shared economic benefits from REDD-plus, incomes of the residents may be increased due to higher catch levels of fish from preserved mangrove forests. Overall, protection against natural disasters and positive effects from biodiversity conservation work as a safety net and contribute to poverty reduction in local communities.

Thus, REDD-plus systems and projects must be designed in a way that maximizes these co-benefits. JICA assists in institutional design and the implementation of REDD-plus systems where the co-benefits of biodiversity conservation, climate change adaptation and poverty reduction are sufficiently generated.

[Areas of cooperation for co-benefits relevant to biodiversity conservation]

- Assistance in designing REDD-Plus frameworks that maximize the positive effects of biodiversity conservation

- Inclusion of biodiversity components to forest monitoring and provision of related technical assistance
- Monitoring of the effects of demonstration projects on biodiversity and the incorporation of the obtained information into the system design
- Assistance in designing REDD-Plus framework effective in preventing natural disasters and reducing poverty

Cooperation schemes

In order to offer comprehensive assistance on a broad scope of issues in different regions, and to provide continuous assistance that flexibly meets the needs of different countries in different phases of development, a range of cooperation schemes are used. JICA provides international cooperation through three schemes: technical cooperation, ODA loans, and grant aid. Technical cooperation means expanding the capacity of counterpart countries at various levels from the grassroots level to governments. ODA loans and grant aid are two forms of economic assistance that assist developing countries to carry out their own development projects. Technical cooperation involves the implementation of projects, and the dispatching of experts and volunteers to the counterpart country, conducting training programs, among others. In addition, JICA commenced in fiscal year 2008, the Science and Technology Research Partnership for Sustainable Development program, which focuses on cooperation in cutting-edge research to resolve global issues including biodiversity conservation.

Issues for consideration

For the implementation of assistance in biodiversity conservation through the schemes described above, consideration should be given on the following issues:

(1) Human security

Cooperation projects involving the conservation of biodiversity should first and foremost focus on the well-being of humans, including those who are dependent on the benefits of biodiversity and who are affected by the changes in the natural environment. The provision of assistance that enhances the welfare of humans in their relationship to biodiversity is where JICA finds its development mission. The goal for JICA is to ensure a positive interaction where biodiversity conservation contributes to safeguarding and improving the lives of people dependent on natural environment, and where the betterment of livelihood conversely promotes biodiversity conservation.

(2) The comprehensive approach

JICA considers that environmental conservation activities should not focus exclusively on the natural environment, but also on local communities surrounding that environment and the people living in the environment. In implementing its cooperation, JICA adopts a comprehensive approach covering multiple sectors, where cooperation is provided not only in the areas that relate directly to the environment. In other words, not only activities such as the restoration, conservation and sustainable use of natural resources conservation or environmental education, but also including broader cooperation such as agriculture, animal husbandry, fishery, rural handicrafts, or literacy education, taking into consideration local contexts and feasibility of cooperation.

(3) Sustainability and self-reliance

Cooperation projects involving the conservation of biodiversity often take their time to produce tangible results. A long-term perspective is necessary to ensure the development of mechanisms that can be sustained even after the completion of JICA assistance. To that end, JICA assists with improving administrative systems, promote collaboration with NGOs and private companies, and study the possibility of using funding from international organizations. Furthermore, JICA assists in developing the capacities of stakeholders, including the individuals from relevant organizations, the locals from communities, and other individuals involved in JICA projects.

(4) Consistency with international frameworks

Biodiversity conservation is an international effort, and as such projects will be implemented so as to conform to relevant international conventions, frameworks, and trends. Due consideration is given (1) through (3) above, so as to ensure that its cooperation are in line with JICA's objectives of biodiversity conservation.

Cross-border and regional approach

JICA focuses its cooperation in biodiversity conservation on tropical regions with a high degree of biodiversity which at the same time are experiencing a rapid loss of forest and ecosystem degradation. Special priority should be given to regions with valuable but endangered ecosystems. Such regions includes “biodiversity hot spots”⁸⁾ designated by Conservation International and those shown in WWF’s “Global 200 ecoregions”⁹⁾. Importance is also rendered to regions where the destruction of biodiversity is seriously affecting the lives of the poor, and the regions with higher forest carbon-stock in view of REDD-plus implementation. Decisions on the selection of countries or regions to receive JICA’s assistance will be based on comprehensive assessment on other factors, such as the relationship of human activities with the natural environment, the commitment from governments, and the availability of cooperation from other donors and international organizations.

(1) Importance of cross-border regional cooperation

The issue of biodiversity conservation being a cross-border concern, it is necessary to ensure a regional response to its conservation rather than the individual efforts of respective countries. For example, a forest conservation project carried out in one country can have the unintended effect of accelerating logging activities in a neighboring country. There are cases where one country introduces a species and encourages its use, yet the species migrate to a neighboring country to negatively affect its ecosystems. For inland water ecosystems, the benefits of conservation projects are rather limited when implemented only in upstream- or downstream- countries. The necessity for the cross-border management of rare ecosystems is such, and also due to the high degree of affinity between ecosystems in one region, it makes a common regional initiatives and approaches effective, efficient, and essential. The need for regional approaches also underscores the importance to foster regional leaders for the promotion of South-South Cooperation. Recognition of these situations makes a regional perspective a key to JICA’s biodiversity conservation efforts.

BOX.7 Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) adopted at the United Nations Millennium Summit in September 2000, enumerate goals for the international community to achieve in the 21st century. They include eight goals related to peace and security, development and poverty, the environment, human rights, and good governance, to be achieved by the target year of 2015. Notably, the purpose of Goal 7 is to ensure environmental sustainability, and Target 7B under Goal 7 calls for a significant reduction in the rate of biodiversity loss by 2010, as well as for continued efforts to reduce the rate of loss thereafter. The MDGs recognize the link between biodiversity and poverty reduction, and biodiversity is being monitored in connection with progress made toward 2010 biodiversity targets.

8) Biodiversity hotspots: Areas where, despite having a high degree of biodiversity on a global scale, biodiversity reservoirs are being threatened. In 2005, Conservation International reassessed the areas in need of urgent and strategic conservation, and published a list of 34 “Biodiversity Hotspots” in the world.

9) Global 200 ecoregions: A list of ecoregions identified by the WWF as regions that should be given priority designations that would protect them. A total of 238 ecoregions (terrestrial, freshwater, and marine) have been selected based on criteria such as species diversity, endemism, and distinctness.