

THE IMPORTANCE OF FORESTS TO THE MRB

Healthy forests, and the ecosystems of which they are part, help to preserve water quality and protect water sources from contamination. Forests are integral to the hydrology of the Mekong River Basin (MRB), sustaining streams and rivers with run-off water, nutrients, and suspended solids that shape river courses and profiles. The cover and root systems provided by forest vegetation stabilise the soil, protecting it against erosion during storms, and in mountainous areas helping to prevent landslides. By retaining water and releasing it gradually to streams, forests reduce the intensity of floods during the rainy season.

Obviously, when forests are removed, the protections they offer are taken away, resulting in changes to streams and rivers, increased erosion and loss of soil, landslides, and floods. Large areas of Thailand and Vietnam have suffered great losses from landslides and floods caused by deforestation. Removal of trees from the flooded forests and wetlands of Cambodia and Vietnam has destroyed habitat for fish, birds, and the organisms on which they feed.

Forests in the MRB provide many other services free of charge. They supply valuable timber, food, fuel, and natural medicines; shelter for local communities, and habitat for an extraordinary diversity of animal and plant life. Forests are natural air conditioning and purification systems, absorbing the sun's heat and carbon dioxide, which would otherwise contribute to global warming; forest vegetation also absorbs air contaminants and emits oxygen.

For indigenous people, forests are spiritual places of profound cultural importance and traditional ways of life. And, although not yet well developed, forests in the MRB have potential as tourist attractions and places of recreational and aesthetic value.

All these benefits are provided without help or effort from humans; the natural forests of the MRB need no active maintenance, but merely to be protected from abuse.

THREATS TO FORESTS IN THE MRB

What are the abuses to which forests in the MRB are being subjected?

The most significant harm comes from illegal logging, excessive commercial logging, and poor logging practices. Throughout the MRB there have been insufficient human resources, know-how, and infrastructure to control illegal, excessive, and destructive removal of forest trees. In Cambodia, it has been estimated that 2,500 logging trucks leave the country every day, resulting in the loss of 250,000 ha of forest each year. Only 4.5% of forests in Lao PDR are considered to be commercially valuable. The area of Thailand that is within the MRB has only 13% forest cover, a decrease of 69% in the past 30 years. And in Vietnam, 30% of the forests have disappeared in the past 30 years; the Mekong River Delta forest had only 9% cover in 1991 (ADB, 2000; MRC, 1997).

Fuelwood collection by local people also contributes significantly to loss of forests in the MRB, though the overall impact compared with commercial and

illegal logging is not clear. Burning forests to clear land for agriculture and pasture is another substantial cause of loss, and removal of rare plants valued by collectors also results in destruction of forest habitat.

There is a downward spiral of threats to forests in the MRB; their removal accelerates the rate of global warming, which generates additional pressure on remaining forests through climate change and increased incidence of forest fires.

Effects of Forest Losses in the MRB

In addition to the effects on MRB water resources in the form of increased erosion, siltation, turbidity, landslides, and loss of fish rearing and feeding habitat in the Tonle Sap, removal of forests reduces biodiversity, destroys the habitats of terrestrial animals, and lowers soil fertility, since most of the nutrients in forest ecosystems are stored in the vegetation, not in the soil. In the Mekong Delta, removal of mangrove forests has exposed the coastline to accelerated erosion from wave action, allowed increased saltwater incursion into fertile delta lands, and destroyed breeding and feeding habitat essential for aquatic life.

Plantation Forests

Unsustainable effects of plantation forests were presented in Lesson 2, so will be reviewed only briefly here. Plantations usually consist of exotic species of trees (i.e., not native to the MRB), which grow rapidly, provide specific fibre qualities, and can be managed as an agricultural crop. These species often require high levels of fertilization, and their fallen leaves may

damage soil pH. Because plantations are most often monocultures, in which understory vegetation is controlled, biodiversity is low, and the risk of devastation by disease is high. Plantation forests provide much less protection against soil erosion than a complex, diverse natural forest.

RESPONSES TO THE LOSS OF FORESTS IN THE MRB

We have learned how important forests are to water quality, hydrology, biodiversity, and economic development in the MRB, and how their very existence is under severe threat. Now we must examine what must be done about these serious problems.

Agenda 21, the policies and principles agreed to at the 1992 Earth Summit, contain the following recommendations specifically for forests:

- Harmonize regional and national policy, legislation, institutions, and planning for forests to eliminate overlap and inconsistencies between them
- Integrate, coordinate, and decentralize institutions governing forests to increase administrative and management efficiency, and remove competitive and conflicting mandates
- Enable local communities, non government organizations (NGO), indigenous peoples, and women to participate in decisions about forests in their living area
- Develop the technical skills needed for forest maintenance through education programs

- Educate the general public about forest values and ways to care for the resource
- Conduct research on forest ecology, silviculture, and harvesting.

Because local communities and indigenous people have a special connection with, and dependence on, forest resources, Agenda 21 has the following specific recommendations for them:

- Governments should support the distinct identity, culture, and rights of indigenous people, and enable them to:
 - participate in economic uses of forests;
 - maintain cultural identity and social organization; and
 - achieve adequate livelihood and well-being.
- Governments should confer land tenure on indigenous people to encourage them to manage forests sustainably.

Development of the strategies, programs, and plans needed to implement the policies and principles of Agenda 21 in the MRB are the responsibility of governments, the Mekong River Commission (MRC), and implementing organizations in each riparian country. Forest certification schemes being introduced in some parts of the world may offer an avenue to the sustainable use of forest resources.

SUSTAINABLE FORESTRY CERTIFICATION

Forests have such a vital role in the health of MRB ecosystems that sustainable development cannot be achieved without a comprehensive program of sustainable forestry.

Because of alarm over the loss of tropical and temperate rainforests, for several years there have been increasingly strong demands in Western Europe and North America for assurance that lumber and wood products sold to the public have been harvested in sustainable and ecologically-sound ways. Some of the largest distributors and retailers are requiring their suppliers to provide proof that their wood products are from sustainably managed forests. Several international certification systems have been developed in attempts to provide the required monitoring and verification that wood products have been obtained using sustainable forest practices. Three of the most prominent certification bodies are:

- International Organisation for Standardisation (ISO)
- Forest Stewardship Council (FSC)
- International Tropical Timber Organisation (ITTO).

In addition to helping to gain access to markets in Europe and North America, sustainable forestry certification could be a pathway to conserving the forest resources of the MRB. The MRC is an advocate of sustainable forestry certification and a member of the Forest Stewardship Council.

ISO 14001

The International Organization for Standardisation (ISO) is made up of the National Standards bodies of almost 140 countries, and has developed more than 13,000 standards for manufacturing and services industries and organizations. The ISO 14001 Environmental Management Systems (EMS) Standard is designed to be implemented by any kind of organization that manufactures a product or provides a service. Details are covered in Course F.

ISO 14001 specifies requirements for planning, implementing, monitoring, and auditing an EMS. Because ISO is a broadly-based organization, ISO 14001 is not designed specifically for forestry and logging operations. However, a special supplementary Standard, ISO 14061, contains guidance on the application ISO 14001 requirements to forestry. To obtain certification, organizations must develop an EMS that conforms with all ISO 14001 specifications and, as with other certification schemes, must undergo periodic assessments by an independent accreditation agency.

One of the first tasks required under ISO 14001 is the identification of all significant environmental aspects (which are activities, products, or services that can interact with the environment causing significant negative or positive impacts). In forestry and logging operations, some typical environmental aspects are:

- Harvesting – changes in the extent of forest species composition, and wildlife habitat
- Site preparation – changes in soil conditions and soil conservation
- Road construction – changes in water flows, fish habitat, drainage
- Reforestation – changes in species composition and genetic diversity.

ISO 14001 requires that objectives, targets, and plans be implemented to prevent or mitigate significant environmental impacts. The goals are prevention of pollution and continual improvement in environmental performance leading to sustainable development.

Forest Stewardship Council

Stewardship is the care, maintenance, and improvement of property or resources. The FSC was founded in 1993 and is made up of timber trade organizations, environmental NGO, indigenous peoples' organizations, community forest groups, and certification organizations. MRC is a member of the FSC.

The FSC has developed principles and criteria that are designed to guide the development of national and regional standards. The principles and criteria, which are summarised below, apply to all tropical, temperate, and boreal forests, and can be adapted to suit local and regional conditions. They are:

- Long-term tenure and use rights to forest land and resources must be defined, documented, and established in law.
- Indigenous peoples' legal and customary rights to own, use, and manage their forest lands must be recognized and respected.

- A forestry/logging organization must:
 - conduct forest management in conformance with the laws of the country and with international treaties
 - develop procedures to use multiple products from forests efficiently
 - maintain ecological functions and forest integrity by conserving biodiversity, water resources, soils, unique and fragile ecosystems
 - implement a written, up-to-date management plan to achieve long-term objectives for sustainable forestry
 - monitor forest health, product yields, chain of custody, social and environmental impacts
 - conserve primary and well-developed secondary forests, and sites of social, cultural, and environmental significance
 - manage plantation forests in accordance with all the previous principles.

To accomplish these goals, the FSC recognises a need for improved awareness and implementation by personnel involved in forestry operations, by governments, and the general public in the following areas:

- Improving forest management
- Incorporating the full costs of management and production into the price of forest products (i.e., include what are now externalised costs).
- Promoting the highest and best use of forest resources

- Reducing damage and waste
- Avoiding over-consumption and over-harvesting.

Companies receiving the FSC certification are eligible to mark their products with the SmartWood designation, which signifies to purchasers that the wood has been harvested in an environmentally-friendly manner from sustainably managed forests.

International Tropical Timber Organization

Based in Japan, the ITTO has members in 56 countries and is dedicated to the sustainable development and conservation of the world's tropical forests. Selected ITTO criteria for sustainable forestry are:

- Secure and protect forest resources from encroachment.
- Use best management practices and land-use plans.
- Involve local forest-dependent communities in decisions and activities.
- Provide:
 - financial resources and incentives for sustainable forest management;
 - institutional support frameworks;
 - economic, social, and cultural benefits.
- Maintain biodiversity.
- Protect soil and water.

ITTO is also involved in capacity building and the training of personnel in developing countries in the practices

of sustainable forest management and value-added processing of primary wood products.

SUSTAINABLE FOREST MANAGEMENT PRACTICES

Examples of some practices that can help to achieve sustainable forest management in the MRB will be summarised in this section. None will be easy to implement, but it is essential that they be identified here. Some first steps include increasing controls on existing logging activities by renegotiating all current logging contracts in an open, transparent manner. New contracts should properly value the forest resources, and specify requirements for logging practices and precautions to conserve the various ecosystem resources.

There must be stringent control of logs exported from each riparian country to ensure that only legally obtained logs are removed, revenues and taxes are credited properly and fully, and that volumes of logs do not threaten sustainable forest yields. The Cambodia Forest Crime Monitoring Project, funded and coordinated by UNEP, DANIDA and other agencies, is an example of the kind of responses needed to combat illegal logging. Policies to implement local community management and tenancy of forest resources may result in more sustained yield operations than renting the land to non-residents to 'mine' the forest.

In addition, forests must be protected against illegal logging and poaching of animals and plants, and excessive use of pesticides, herbicides, and other chemicals.

Water-Related Issues in Sustainable Forest Management

Following are some logging practices that can help to protect water quality, hydrology and the aquatic ecology of forest streams:

- In riparian zones, an unlogged filter strip of up to 30 metres should be left to reduce sediment and nutrient run-off from logged areas into streams, and to leave shade trees and other vegetation at stream and lake edges for aquatic habitat purposes.
- Similarly, to prevent sediment run-off into streams, logging roads should be built:
 - away from stream banks and wetlands;
 - avoiding steep or unstable slopes;
 - so as to minimize the number of stream crossings;
 - so that bridges cross perpendicularly to streams;
 - with no drive-through streams or wetlands;
 - so that run-off from roads is collected in ditches and drained through a filter strip before entering a stream.
- During logging, precautions must be taken to avoid soil compaction and rutting, which will reduce fertility and increase water run-off. Chemicals, pesticides, fuel, and oil should be handled well away from surface waters and prevented from seeping into groundwater. Waste, forest debris, and logging equipment should not be allowed to enter streams, except for limited

and designated large woody debris suitable for aquatic habitat.

- After logging, bare soil should be revegetated immediately to reduce erosion.

SUMMARY OF KEY POINTS

- Healthy forests protect MRB water resources from siltation and flooding.
- Loss of forests in riparian countries threatens water and its dependent resources in the MRB.
- Sustainable forests require enhancement and integration of legal, institutional, technical, social, and economic factors.
- Several international certification schemes acknowledge and reward practices that meet specified criteria for sustainable forestry.
- Logging practices must be conducted in ways that prevent contamination of water resources and damage to aquatic habitats.