
SUSTAINABLE
FORESTRY
MEKONG RIVER COMMISSION
MRC
FOR SUSTAINABLE DEVELOPMENT

Lesson Learning Goals

At the end of this lesson you should be able to:

- Explain the importance of forest resources in the Mekong River Basin
- Describe at least five unsustainable effects of forestry practices on MRB water resources
- Summarize Agenda 21 recommendations for sustainable forests
- Outline the purpose of and key requirements for international forest certification programs
- Name at least five precautions in forestry activities needed to protect water resources

Why Forests are Important to the MRB

- Healthy forests help to protect water quality and quantity and other resources
  - control soil erosion, landslides
  - lessen flood severity
- Abuse of forest resources directly and indirectly harms water uses in the MRB
  - removal of flooded forests destroys habitat for fish, fish-food organisms
  - siltation reduces reservoir life, damages fish habitat, and affects hydrology

Other Free Services Provided by Forests

- Source of valuable timber
- Biodiversity, wildlife habitat
- Shelter for local and indigenous people
- Storehouse of food, fuel, medicines
- Absorb carbon dioxide, emit oxygen
- Help to stabilize climate
- Aesthetic, spritual, cultural values
- Recreation, tourist attraction

Threats to Forests

- Illegal logging
- Excessive commercial logging
- Environmentally damaging logging practices
- Fuel wood collection
- Deliberately set forest fires
- Conversion to agriculture
- Poaching of animals and rare plants
- Global warming; acid rain

Some Forest Facts

LAO PDR

Only 4.5% commercially valuable forest left

CAMBODIA

Forest loss 250,000 ha/year (1.4% of total)

NORTHEAST THAILAND

13% forest cover; decreased 69% in 30 years

VIETNAM

30% forest cover lost in past 30 years

Unsustainable Effects of Forest Loss

- ➔ Loss of habitat for plants and animals ➜ lower biodiversity
- ➔ Loss of soil fertility from trading short-term agriculture gains for valuable forest species
- ➔ Loss of soil due to erosion, landslides
- ➔ Higher turbidity and siltation in Mekong River, its tributaries, Tonle Sap, and reservoirs
- ➔ Loss of fish spawning and rearing habitat in Great Lake flooded forest
- ➔ Global warming

Unsustainable Effects of Mangrove Forest Removal

- ➔ Reduced protection from coastal erosion
- ➔ Loss of habitat for breeding and feeding coastal marine species ➜ lower biodiversity, loss of traditional fisheries
- ➔ Pollution from aquaculture wastes and chemicals

Unsustainability of Plantation Forests

- Species often have high nutrient demands
- Leaf litter damages soil quality
- Low biodiversity - loss of wildlife, increased risk of disease
- Supply little firewood, no medicines or food
- Not labour intensive
- Subject to land speculation, corrupt practices
- Loss of local community rights

A Bit of History

- Empires have collapsed because of deforestation
- Mesopotamian Empire:
  - excessive logging caused siltation and salinification of Tigris and Euphrates rivers
  - sediment filled irrigation channels
  - crops failed
- Greek, Roman Empires:
  - Large tracts of forest cleared for cities, bronze, silver smelting
  - Land heavily grazed, soil depleted, resources used

Why Worry About Present Day Deforestation?

Those who cannot remember the past are condemned to repeat it

Agenda 21 Solutions

- Harmonize regional and national policy, legislation, institutions, planning for forests
- Local communities, NGO, indigenous peoples, women participate in decisions about forests
- Develop technical skills for forest maintenance
- Educate public about forest values and care
- Research on forest ecology, silviculture
- Integrate, coordinate, decentralize institutions governing forests

Agenda 21 on Indigenous People

National forest policies should:

- Support identity, culture, rights of indigenous people
- Enable them to:
  - participate in economic uses of forests
  - maintain cultural identity and social organization
  - achieve adequate livelihood and well-being
- Provide land tenure for indigenous people to encourage sustainable management of forests

Sustainable Forestry

PURPOSE

- To maintain and increase the ecological, biological, climatic, socio-cultural and economic contributions of forest resources

Sustainable Forestry Certification

International Organization for Standardization (ISO)

Forest Stewardship Council (FSC)

International Tropical Timber Organization (ITTO)

Purpose of Forest Certification

- Driven by customer demand in many countries for:
  - wood products that have been harvested from sustainably managed forests
  - independent proof of sound environmental management
  - operating practices that do not harm forest ecology or local people

ISO 14061

Information to Assist Forestry Organizations in the Use of Environmental Management Systems Standards ISO 14001 and ISO 14004

- Explains how ISO 14001 EMS International Standard (see Course F) applies to forestry operations

ISO 14001 Applied to Forestry Operations

- ISO 14001:
  - specifies management system requirements for sustainable development
  - does not specify performance levels or how to achieve sustainability
  - is compatible with other forest certification schemes
  - is flexible, applies to all types and sizes of forestry operations

ISO 14001
Environmental Aspects

- Features of operations, processes, activities, products, or services that can have an impact (good or bad) on the environment, e.g.
  - use of raw materials
  - use of resources
  - discharges to water, air, or land
  - filling a storage tank with pesticide or fuel
  - noise emissions
  - effects of products when used

Environmental Aspects Specific to Forestry

- Harvesting - changes in 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

Forest Stewardship Council (FSC)

- Founded 1993 by:
  - timber trade organizations
  - Environmental NGOs
  - indigenous peoples' organizations
  - community forest groups
  - certification organizations

  to promote sustainable stewardship of forest resources
- Members in ~40 countries; including Mekong River Commission

FSC Goal

- Promote environmentally responsible, socially beneficial, and economically viable management of the world's forests, by establishing a worldwide standard of recognized and respected Principles of Forest Stewardship
- FSC Principles and Criteria
  - apply to all tropical, temperate, and boreal forests
  - can be adapted to suit regional and local needs

FSC Principles and Criteria

- Forest management must conform with country laws and international treaties
- Define, document, and establish in law long-term tenure and use rights to forest land and resources
- Recognize and respect indigenous peoples' legal and customary rights to own, use, and manage their forest lands

FSC Principles and Criteria (Cont'd)

- Use multiple products from forests efficiently
- Maintain ecological functions and forest integrity by conserving biodiversity, water resources, soils, unique and fragile ecosystems
- Implement written, up-to-date management plan to achieve long-term objectives

FSC Principles and Criteria (Cont'd)

- Monitor forest health, product yields, chain of custody, social and environmental impacts
- Conserve primary and well-developed secondary forests, and sites of social, cultural, environmental significance
- Manage plantation forests in accordance with previous principles

FSC Awareness Needs

- Improving forest management
- Incorporating the full costs of management and production into the price of forest products
- Promoting the highest and best use of forest resources
- Reducing damage and waste
- Avoiding over-consumption and over-harvesting

International Tropical Timber Organization (ITTO)

SUSTAINABLE FOREST CRITERIA

- Secure and protect forest resources from encroachment
- Use best management practices, land-use plans
- Involve local forest-dependent communities

International Tropical Timber Organization (Cont'd)

MORE SUSTAINABLE FOREST CRITERIA

- Provide:
  - financial resources and incentives for sustainable forest management
  - institutional support framework
  - economic, social, and cultural benefits
- Maintain biodiversity
- Protect soil and water

Some Possible First Steps

- Control existing logging:
  - renegotiate all contracts - open, transparent
  - include requirements for logging practices
  - properly value forest resources
  - control exported logs
  - implement community-based forest management
- Protect against illegal logging, poaching, chemical use, exotic plants and animals

Sustainable Forest Management (SFM) Process

VALUES ➜ identified from public input
GOALS ➜ agreed to by public process
INDICATORS ➜ chosen locally
OBJECTIVES ➜ specific, measureable
PRACTICES ➜ to achieve objectives
RESULTS ➜ monitored and measured

Sustainable Development Performance Indicators

- Need to establish indicators to monitor and measure improvement of performance towards sustainable development of forests
- Challenges in setting performance indicators:
  - forests are living, dynamic communities
  - vast geographic scale and diversity of forest resources, uses, and operations
  - complexity: biodiversity, wildlife, soils, water quality
  - length of bio-cycles and planning
  - land ownership and tenure

Water-Related Issues in SFM

- Leave unlogged filter strip in riparian zones
  - reduce sediment, nutrient run-off
  - leave shade trees adjacent to streams, lakes
- To prevent sediment run-off, build forest roads:
  - away from stream banks and wetlands
  - avoiding steep or unstable slopes
  - minimizing the number of stream crossings
  - so that bridges cross at 90° to streams
  - with no drive-through streams or wetlands
  - and collect road runoff in ditches, drain through filter strip before entering stream

Water-Related Issues in SFM (Cont'd)

- Revegetate bare soil immediately to control erosion
- Avoid soil compaction or rutting during logging to minimize run-off
- Handle pesticides, fuel, oil away from streams, lakes, wetlands
- Keep waste, forest debris, and equipment out of streams

Certification

- Conducted by independent third party auditors accredited by National Standards body or Forestry Association
- Certificate awarded if forest management system meets criteria for standard
- Certificate valid for 3 years
- Sustainable forestry labels include:
  - Smart Wood, Green Cross, ISO 14001, FSC Certificate

Concluding Thoughts

Important points to remember are:

- Healthy forests protect MRB water resources from siltation and flooding
- Loss of forests in MRB riparian countries threatens water and its dependent resources
- 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