

A photograph of a person in a small boat on a river, with a large stilt house in the background. The house has a corrugated metal roof and a wooden structure. The person is wearing a red shirt and is using a long pole to navigate the boat. The water is calm, and there are some plants in the foreground.

PHYSICAL, DEMOGRAPHIC, AND ECOLOGICAL CHARACTERISTICS OF THE MEKONG RIVER BASIN



Course Learning Objectives

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

- Define 'environment' and identify its components
- Specify environmental problems and issues in Mekong River Basin riparian countries
- List types of economic development in the MRB and their principle environmental effects
- Give examples of the interdependence between environment and sustainable development
- Debate competing issues in economic growth and sustainability

Course Learning Objectives (Cont'd)

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

- Describe two specific sustainable development issues in each MRB riparian country
- Name at least six significant threats to environmental health and sustainability in the MRB
- Identify broad policy and implementation strategies to assist sustainable development
- Outline some practical tools and techniques to implement sustainable development policy

Lesson Learning Goals

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

- Define a river basin, and list the principle components of the MRB
- Describe the major physical characteristics of the Mekong River, such as hydrology and landforms
- Discuss the significance of the Mekong River to the countries through which it flows
- Identify principle natural resources in the MRB

MOTHER OF ALL WATERS

NINE DRAGONS RIVER

RIVER OF ROCKS

THE GREAT RIVER

LANCANG RIVER

MEKONG RIVER

Listen to the water running through chasms
and rocks.

Minor streams make a great noise.
The great waters flow silently. This is the
sound of wisdom.

Buddha

“The Mekong Basin has arguably the most diverse biotic and cultural landscape in the world today”

Asian Development Bank

Mekong River Basin Facts

Some Facts	World Rank
Catchment area 795,000 km ²	21
Annual total flow 475,000,000,000 m ³	8
Length 4,880 km – longest in SE Asia	12
Approximately 130 tributary river basins	-

Mekong River Basin Facts (Cont'd)

Country	MRB Population (millions)	% of MRB	
		Area	Flow
Yunnan, PRC	10	22	16
Myanmar	2	3	2
Lao PDR	5	25	35
Thailand	~25	23	18
Cambodia	10	19	18
Vietnam	~20	8	11

Mekong River Basin Facts (Cont'd)

Country	% within MRB
Yunnan, PRC	38
Myanmar	4
Lao PDR	97
Thailand	36
Cambodia	86
Vietnam	20

Population and Livelihood

- Population of the MRB is an estimated 60 million
- Approximately 80% basin wide are engaged in agriculture (i.e., depend directly on natural resources for livelihood and well-being)
- Lives of 300 million people in Southeast Asia depend on products from MRB

Mekong River Flow Rates

Location	Flow (m ³ /sec)	
	Annual Mean	Highest Month
Chiang Saen (Thailand)	2,720	6,000
Kratie (Cambodia)	13,700	38,000
Tan Chau (Vietnam)	14,200	33,000

Major Basin Landforms

- **Lancang River Basin** (Yunnan, PRC)
- **Northern Highlands** (Lao PDR; Myanmar; Yunnan, PRC; Thailand)
- **Korat Plateau and Sakon Plateau** (Thailand)
- **Eastern Highlands** (Lao PDR; Vietnam)
- **Lowlands** (Cambodia; Lao PDR; Vietnam)
- **Southern Uplands** (Cambodia)
- **Coastal Area** (Vietnam; Cambodia)

Other Basin Features

- Tonle Sap (Cambodia)
- Mekong River Delta
- Plain of Reeds
- Dams
 - » Manwan (Yunnan, PRC)
 - » Nam Ngum, Theun Hinboun (Lao PDR)
 - » Yali (Vietnam)

Tonle Sap Significance

- Great Lake area increases ~ 7 fold during rainy season
 - » Dry season: 2,500 sq km; 0.5-1 m depth
 - » Wet season: 16,000 sq km; 7-10 m depth
- Flooded forest habitats become nurseries and feeding grounds for fish - productivity 138 - 175 kg/ha
- Supplies 15-20% of total fish caught in MRB

Mekong Delta Significance

- Occupies almost 50,000 sq km, 12% of Vietnam land area; population ~ 20 million
- Contains 37% of Vietnam's cultivated area
- 2,600,000 ha (66% of Delta) used for farming and aquaculture
- Produces more than half of Vietnam's food
 - » 50% of Vietnam fishery
 - » 60% of country's fruit
 - » ~ 300,000 tonnes aquacultural products (mostly shrimp)

Biodiversity

CAMBODIA

- ~ 2,300 species of plants classified - 40% have traditional uses as food and for medicine
- 130 mammals
- 500 bird species
- 300 fish species (215 in Tonle Sap)

Biodiversity (Cont'd)

LAO PDR

- ~10,000 species of mammals, reptiles, birds, fish, butterflies, vascular plants in forest areas
- Endangered species: kouprey, Javan rhinoceros, Siamese crocodile, Sarus crane

Biodiversity (Cont'd)

THAILAND

- ~ 13,000 plant species -
100 endangered, 600 rare, 300 vulnerable
- 86,000 animal species; 5,000 vertebrates
- 39 bird species and 39 mammals endangered
- 20 freshwater fish species, 10 reptiles, 2 amphibians endangered

Biodiversity (Cont'd)

VIETNAM

- 12,000 plant species (40% endemic)
- 5,000 plant species have commercial uses
- 23,000 terrestrial and aquatic species of animals
- 28% mammals, 10% birds, 21% reptiles and amphibians endangered

Fisheries Facts

Where there is water, there are fish (Khmer saying)

- MRB flood plains are among the most productive areas for fish in the world
- At least 1,300 species of fish live in the MRB
 - » 50% endemic to MRB
 - » 120 species commercially important
 - » 125 species of catfish
- Estimated at least 1,000,000 tonnes fish caught per year + 200,000 tonnes cultured fish (total retail value US\$1 billion)

Further Fisheries Facts

- Average fish consumption in lower MRB 20 kg/person/year (Cambodia 60-70 kg/y)
- Seasonal changes in water flows and flooded areas vital for life cycle of migration and spawning
- Some fish migrate ~1,000 km in Mekong River system
- Adult Giant Mekong Catfish and Giant Mekong Barb populations not sustainable

Forest Facts

CAMBODIA

- Estimated 49-63% forest cover
- ~2,500 truck loads of logs per day crossing border points
- Forest loss 250,000 ha/year (1.4% of total)

LAO PDR

- 11.2 million ha. total forest cover (58% cover in south, 36% in north)
- 19% of land area is high-density forest
- Only 4.5% commercially valuable forest

Further Forest Facts

NORTHEAST THAILAND

- 13% forest cover; decreased 69% in 30 years
- Annual loss ~0.3% per annum (not much left)

VIETNAM

- Forest cover in Mekong Delta reduced from 23% to 9% between 1943 and 1991
- Total of 30% forest cover lost in past 30 years
- Annual deforestation rate now 0.8%
- 11% of forested area is good quality timber

Concluding Thoughts

Important points to remember are:

- Mekong River is vital to lower MRB countries
- Its features and vast biodiversity make it unique
- Approximately 50 million people in the MRB depend directly on the river for their livelihood
- There is a delicate interdependence between land, forest, river flow, and productivity
- Already serious depletion of some resources