YOUR LOGO

Environment: Case Studies in CLMV

FACULTY OF ECONOMICS, THAMMASAT UNIVERSITY

MODULE 12

Case studies

01 Lao PDR: Nam Theun 2 Hydropower

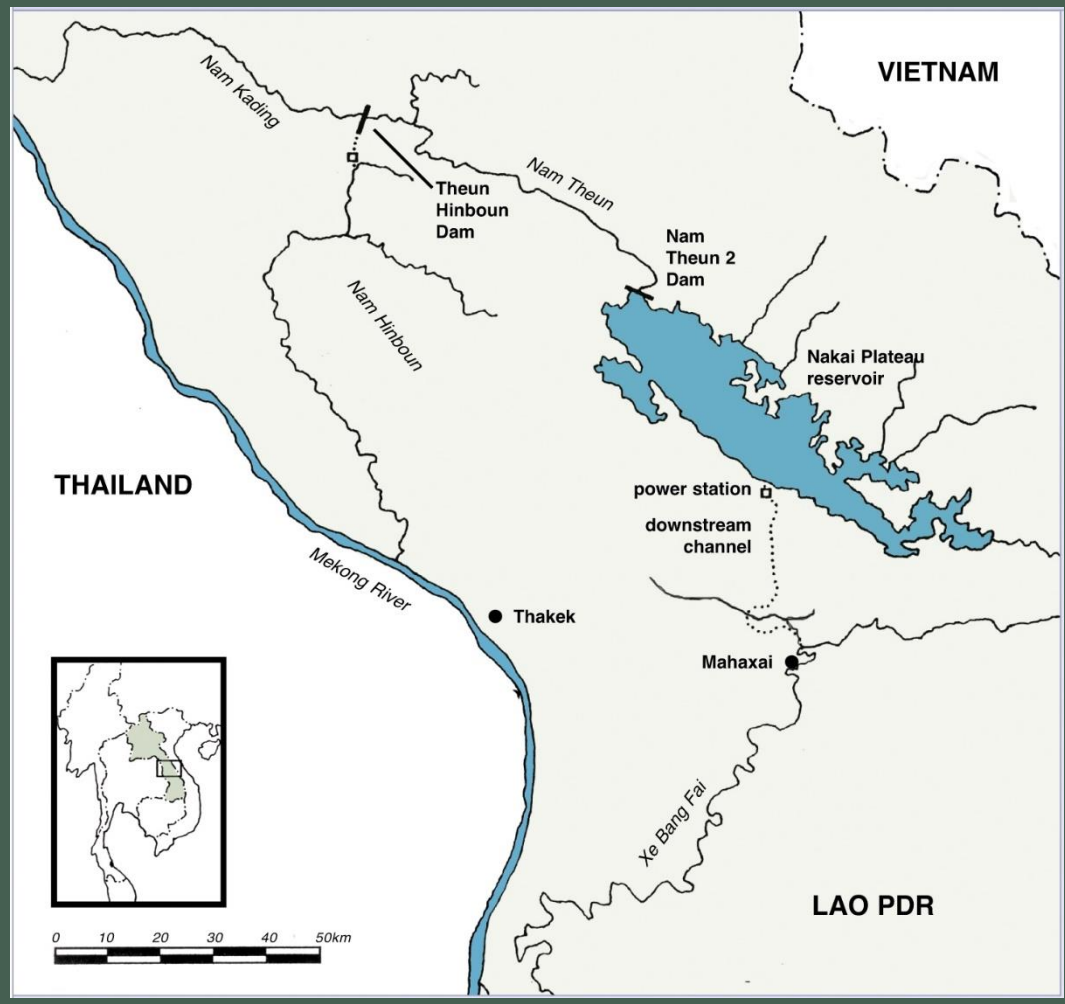
02 Cambodia: Biodiversity Conservation Corridors

03 Vietnam: Forestry and Livelihood Improvements

NAM THEUN 2 HYDROPOWER PROJECT

Background

- Lao PDR has abundant water resources with potential for generating electric power
- Revenues could contribute to road construction as well as rural electrification, and reduce poverty
- Khammouane province was determined to be the location of one of Lao PDR' large hydropower projects

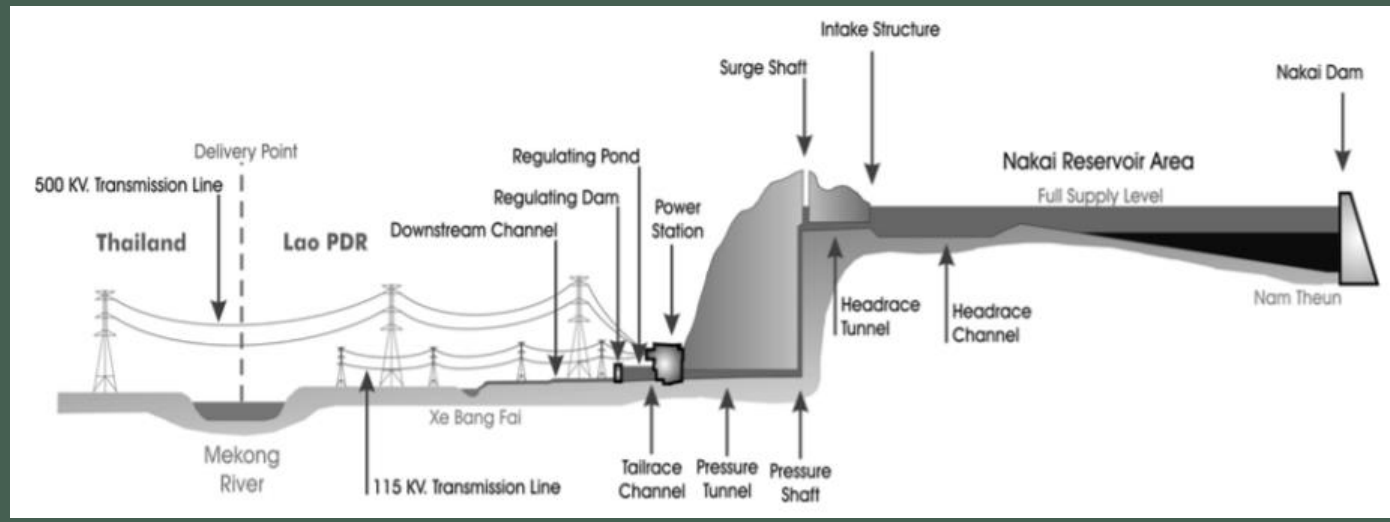


Project design

- Objective: to generate 1,070 MW electric power
- Designed as a build-own-operate-transfer facility (concession period of 31 years); to be transferred to the Lao government free of charge
- Agreement signed in 2003, construction started in 2005 and commercial operations in 2010
- Application of industry-standard technologies and practices

Project design

- Improve livelihoods through community-driven development with a focus on environmental protection
- NT2 Power Company and Lao government to develop, construct, and operate
- Total cost: $1.5 billion funded by various international funding partners and the Lao government



Project outputs

- 1,070 MW trans-basin diversion power plant
- 450-km^2 reservoir on the Nakai Plateau
- 39-meter-high dam, equipped with powerhouse and regulating pond below the powerhouse
- 27 km channel from the regulating pond to the Xe Bang Fai River Basin

Project outcomes

- Over $170 million generated between 2010 and 2017; electricity exported to Thailand (1000 MW) and used domestically (70 MW)
- The project contributed to poverty reduction efforts, environmental management, and improved education and health through various programs (School Block Grants and the Health Equity Fund)

Socioeconomic impacts

- 6,300 people resettled; provided with community infrastructure, agricultural livelihood programs, and food supplements for vulnerable households
- Improved peoples' standard of living and doubled their incomes. 99% households were able to save (21% in 2006).

Socioeconomic impacts

- Improved primary school enrollment; from 31% to 94%; stunting dropped by 9%
- Improved access to markets with paved roads
- Decreased travel time from Nakai to Thakhek, from half day, to only one hour

Environmental impacts

- Supported villages downstream and upstream of the Nakai Reservoir to compensate for changes in river flows on fishing incomes, and consequent changes in income and protein intake
- Mechanisms in place to monitor fish levels and erosion and to support affected households through village development planning

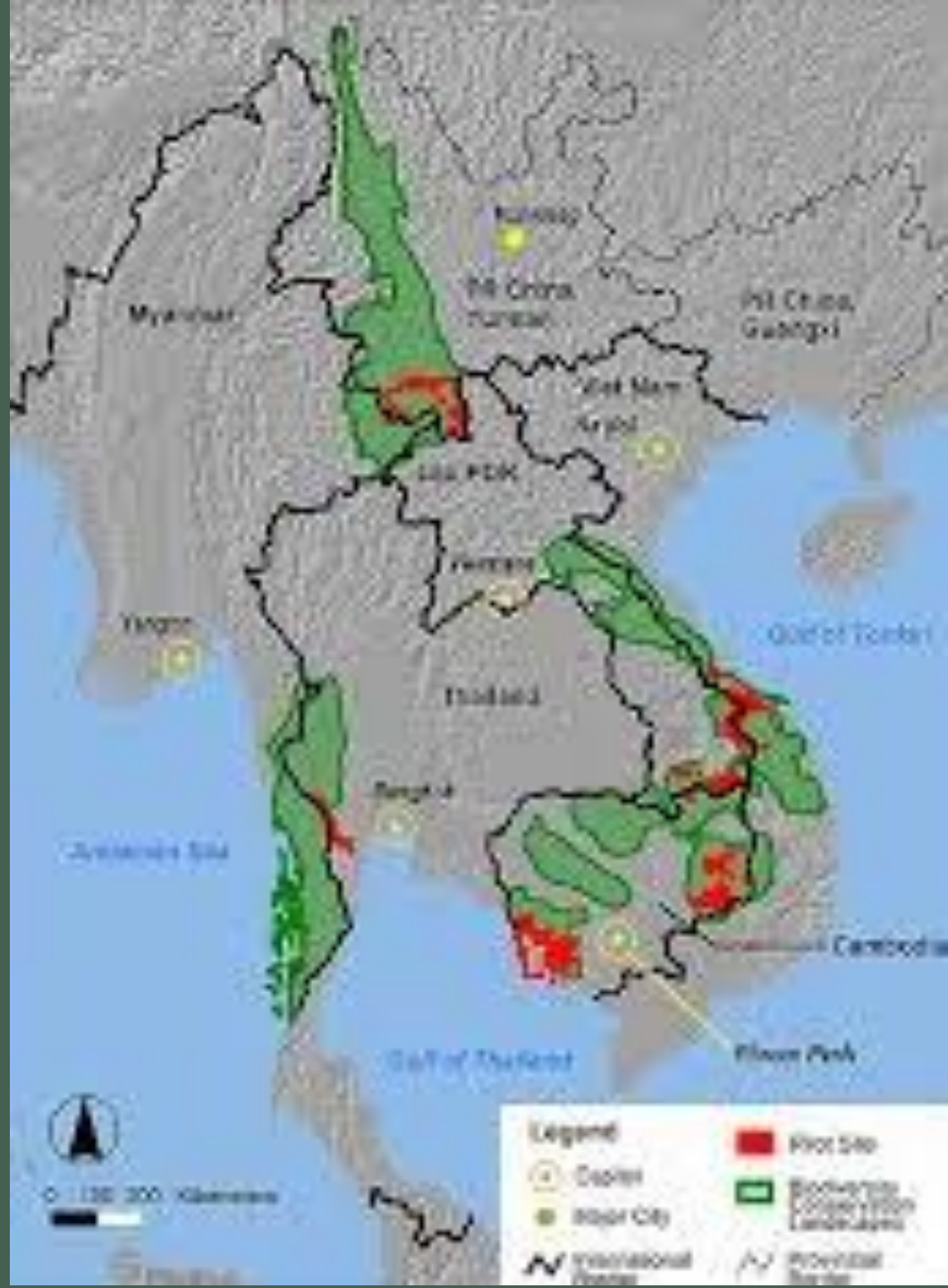
Environmental impacts

- Commercial forestry in the resettled area were less successful; grazing, and non-timber forest products were more successful
- Environmental groups contend that the dam depleted the fish supply and worsened the water quality
- High marks for how its social and environmental impact was managed; considered as a good model to big dam construction

BIODIVERSITY CONSERVATION CORRIDORS

Background

- The Greater Mekong Subregion contains important biodiversity conservation landscapes that are vulnerable to increased development pressures and environmental degradation
- These arise from hydropower and roads construction, large-scale tourism infrastructure, mining, and plantation agriculture



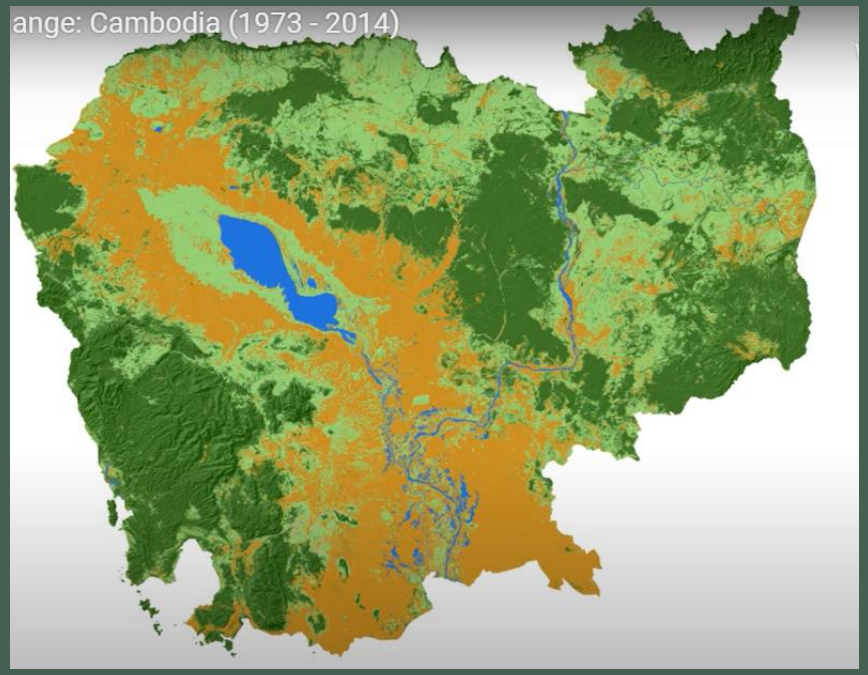
Forest cover change

Cambodia's forest area had experience significant decline since 1965 due to:

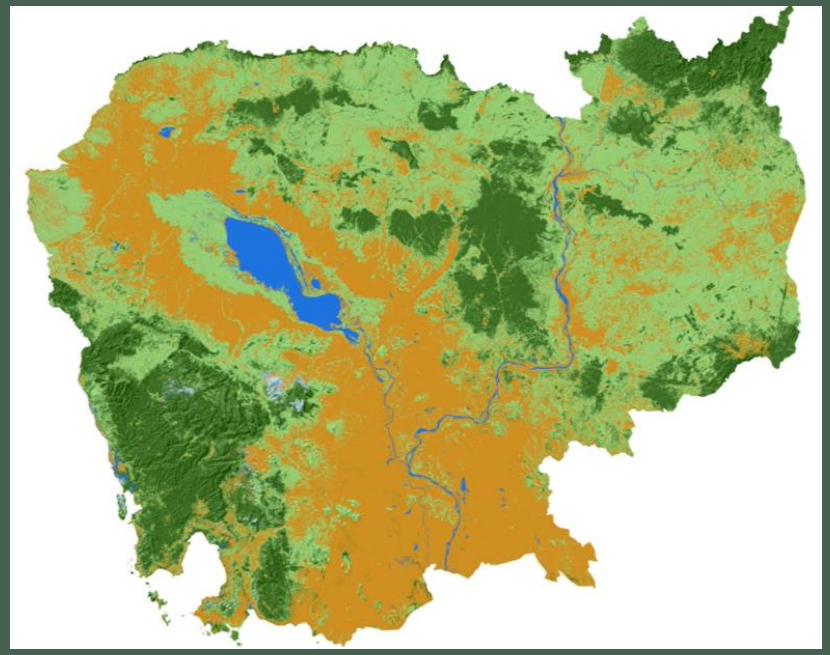
- poor farming practices
- encroachment forest lands, and
- illegal logging

	1965	1992	1996	2002	2005	2010
Coverage	74.0%	59.8%	58.6%	61.2%	59.1%	57.1

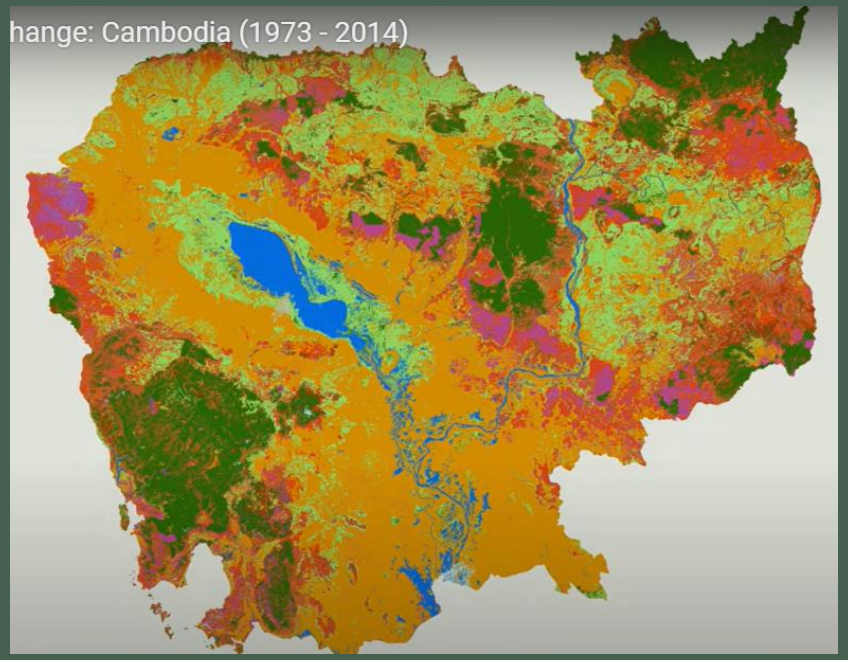
Forest cover change



1973



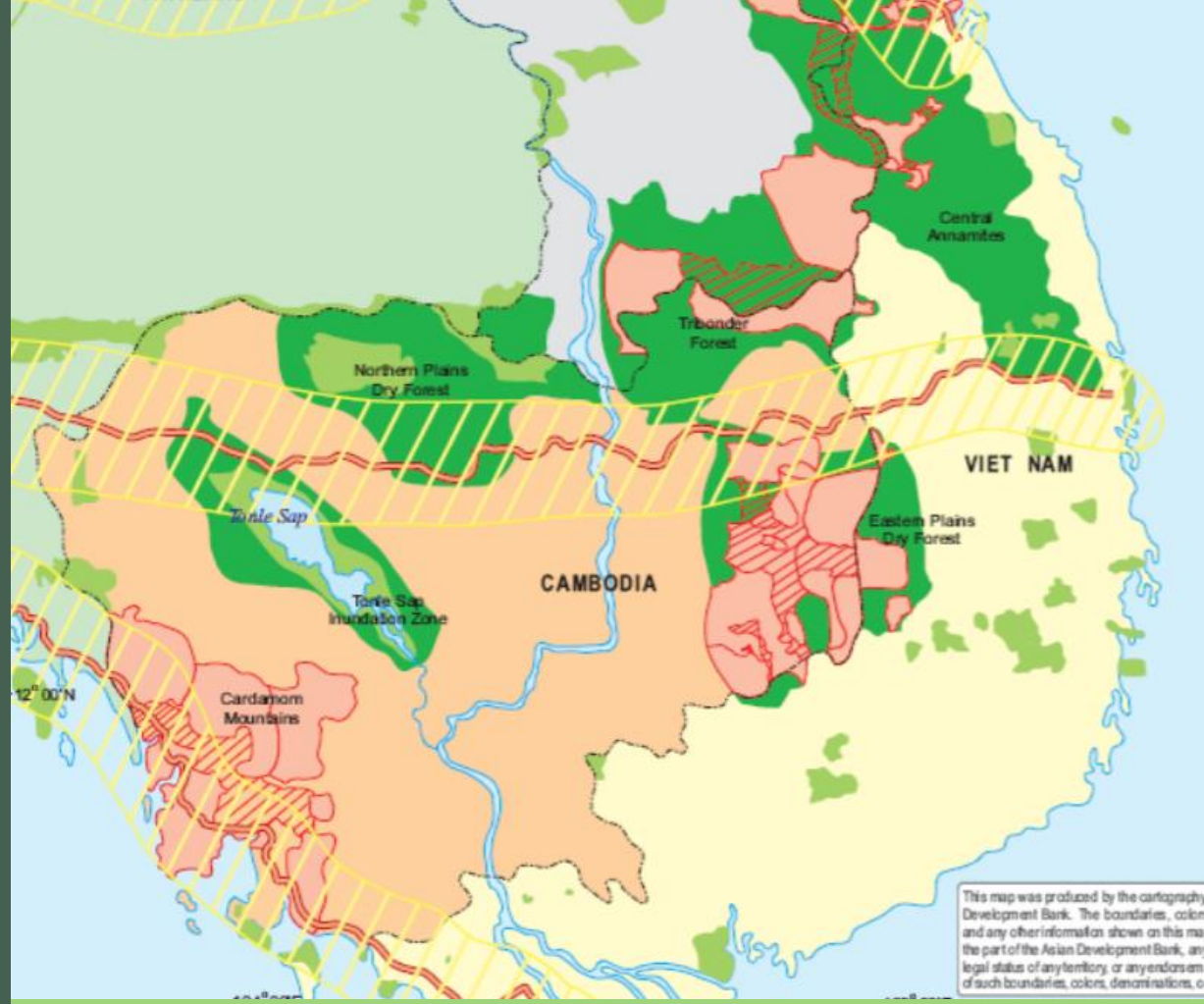
1995



2014

Project design

- Aims to enhance transboundary cooperation for preventing and mitigating fragmentation of biodiversity rich forest landscapes
- Location: Cardamom Mountains in Cambodia, Triborder Forest areas located in southern Lao PDR, and the Central Annamites in Viet Nam
- Covers more than 1.93 million ha; impacting 35,000 ethnic minority and poor households



The high-value area contains important biodiversity conservation landscapes that are vulnerable to increased development pressures and environmental degradation which need to be conserved to safeguard local livelihoods and investments in energy and hydropower, transport, water, and food security enhancing sectors

Project components

Tenurial security to poor households and ethnic minority groups

Restoration of habitat on degraded forestlands with tree planting of native species

Improved livelihoods and income-enhancing small-scale infrastructure

Project outputs

- Institutions and communities strengthened for biodiversity corridor management
- Biodiversity corridors restored, protected, and maintained
- Livelihoods improved and small-scale infrastructure support provided in target villages and communes

Project outcomes

- Climate-resilient sustainable forest ecosystems benefiting local livelihoods
- Sustainably managed biodiversity corridors in Cambodia, the Lao PDR, and Viet Nam

Social impacts

- Direct beneficiaries: poor upland farmers; indigenous communities; and women dependent on the forest ecosystem in 56 communes and 69 villages
- Average annual household incomes increased from $160 to $450
- Investments in forest conservation, livelihood programs, and rural infrastructure improved incomes and food security
- Provision of land use rights increased livelihood assets

Environmental impacts

- Encroachment due to improved access to conservation sites especially by outsiders
- Social exclusion/elite capture; Protocols in a number of ethnic minority communities determine “who gets what”

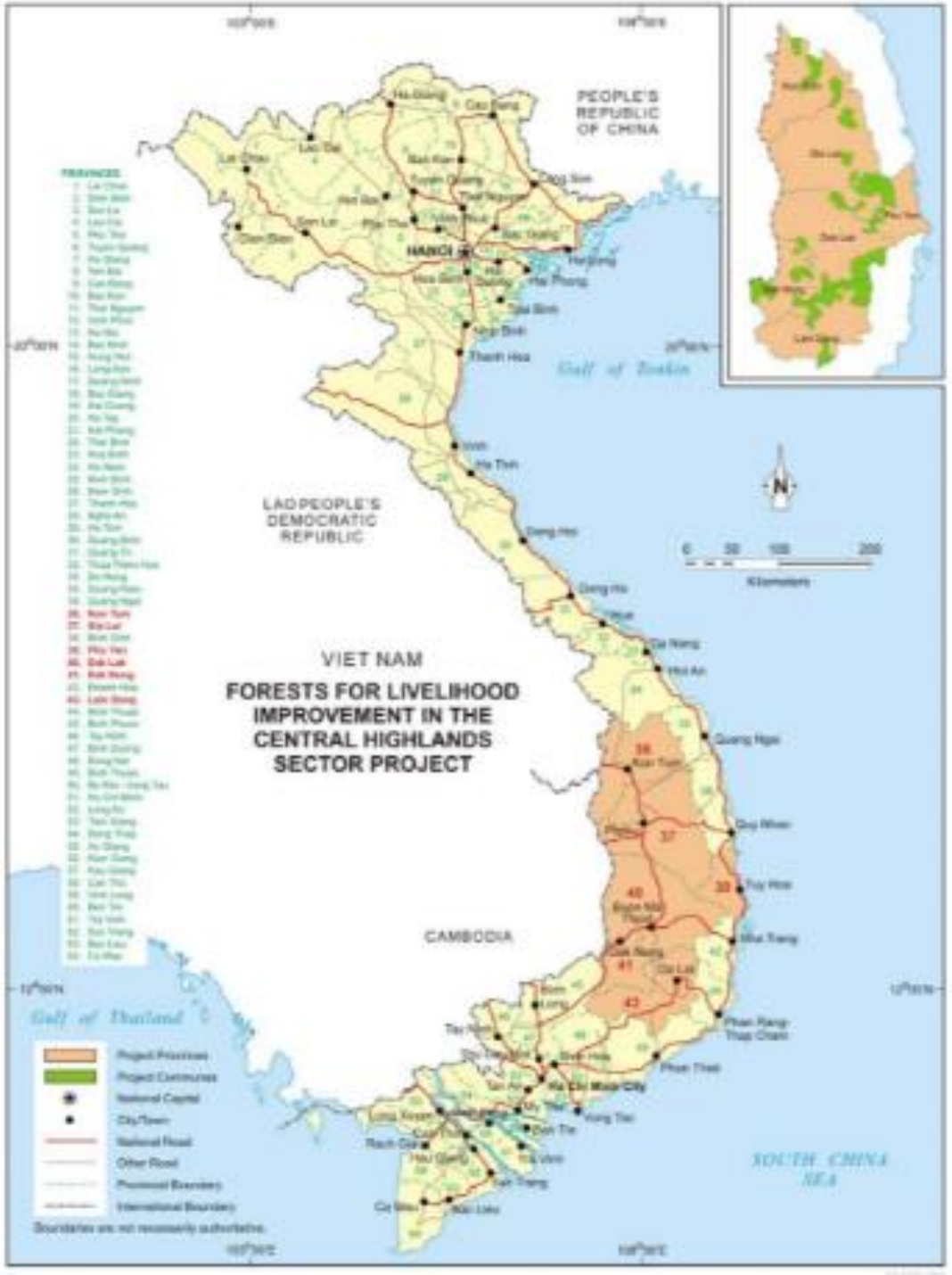
Environmental impacts

- Increased land value of land in project sites leads to land speculation
- May increase selling of ethnic minority land rights to the likes of tree plantation investors

FORESTRY AND LIVELIHOODS IN VIETNAM'S CENTRAL HIGHLANDS

Background

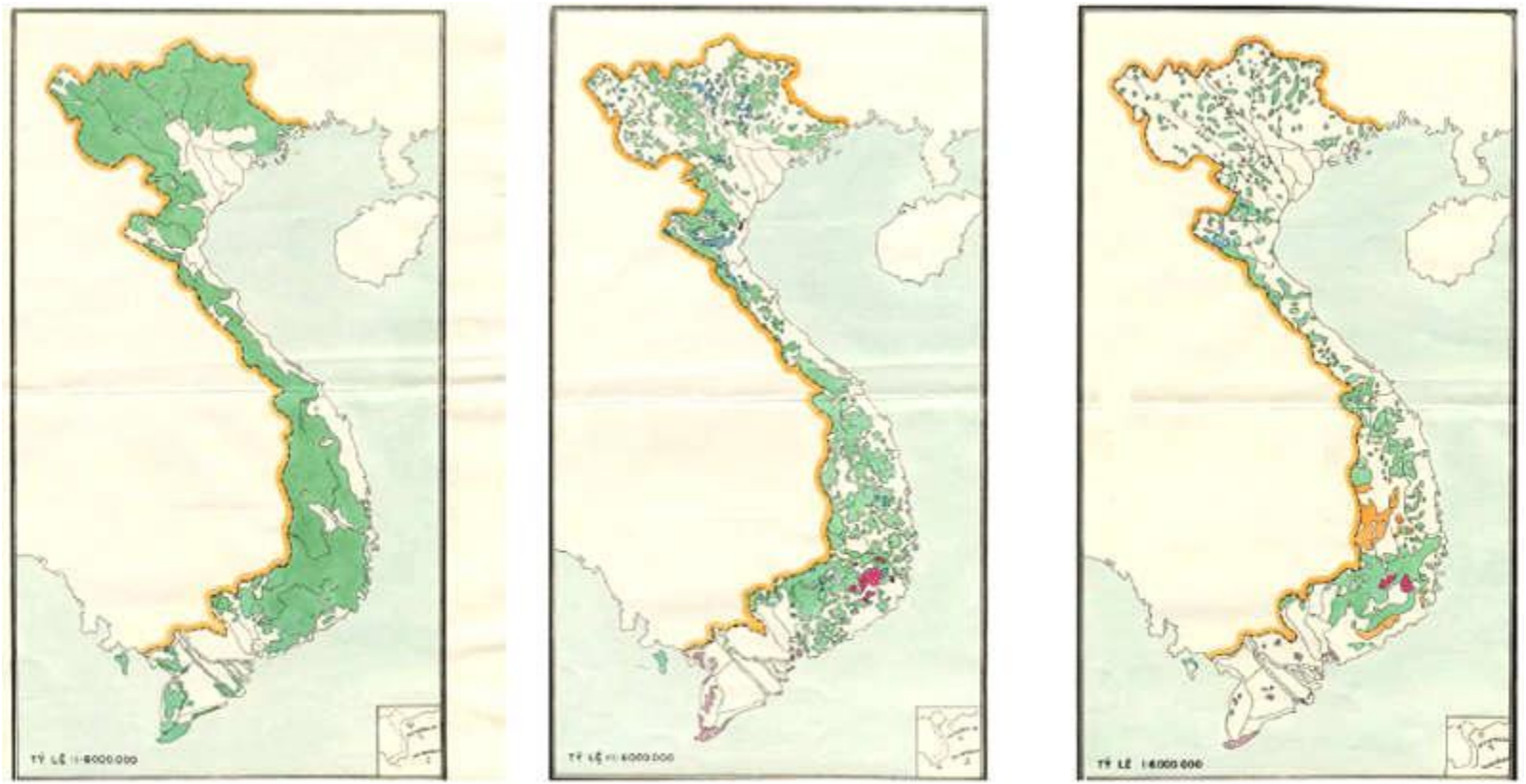
- Forest loss, degradation and rural poverty in the Central Highlands, home to 30% of the country's natural forest area with timber stocks valued at $34.4 billion
- The Central Highlands, covering Phu Yen, Dak Lak, Dak Nong, Gia Lai, Kon Tum and Lam Dong provinces is a biodiversity hotspot and the watershed area of several important rivers
- The region is the second poorest in the country; 57% of ethnic minorities are poor



Key Issues

- From 1943 to 1990, Viet Nam's forest area shrank from 14.3 to 9.3 million ha (35% loss)
- A reforestation program launched in 2000 reverse the trend; however no progress in Central Highlands due to poor roads and limited access to markets
- High unemployment, only 11% earn wages; poverty led to encroachment to forest lands
- Communities have forestry knowledge; engaging them will lead to improved forestry, and livelihoods

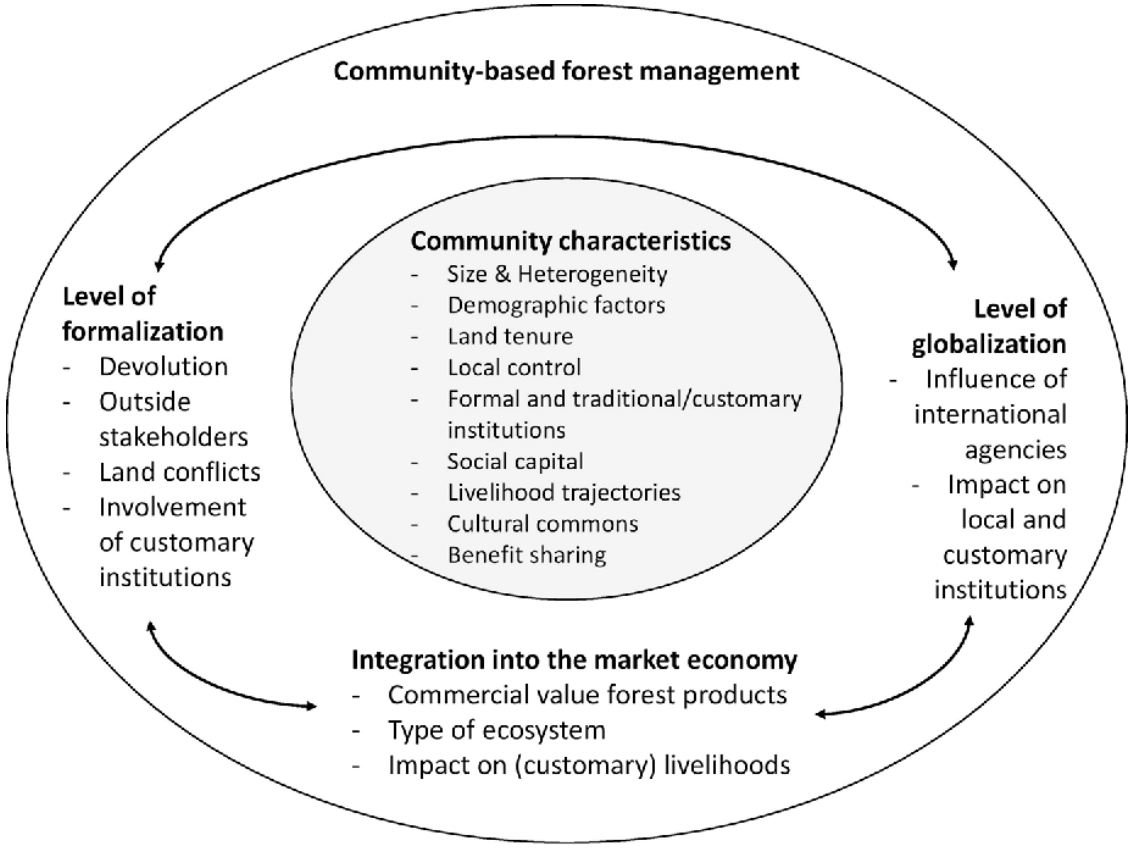
Vietnam's forest cover, 1943 - 1990



1943 1973 1990

Project design

- Objective: improve protection and management of forest resources and reduce poverty in six provinces of the Central Highlands
- Expected impact: improved forest productivity and livelihoods and reduced poverty in the Central Highlands
- Total cost: $25 million



Project outputs

Improved forest management capacity	Improved forestry-based livelihoods	Strengthen supply and market chains	Improved governance
• Forestland management planning • Forest resource development • Training programs	• Livelihood improvement programs • Small scale infrastructure development	• Microfionance credits • Extension services	Training programs for provincial and local forestry staff

Results

Output 1

- Forest loss reversed, and cover increased by at least 3% from pre-project base
- Plantation productivity increased from 5-6 cubic meters per hectare per year to 15-18

Results

Output 1

- Investment plans for protecting all land on slopes >210, and watersheds protected
- Illegal logging incidents reduced by 30%
- Natural forest productivity increased by 30%

Results

Output 2

- Per capita income of at least 5,000 project households doubled
- At least 50% increase in cash benefits for poorest households from commune and village forestry

Output 3

- 54 small and medium and community forestry business established and in operation

Results

Output 4

- 1,628 training courses had been conducted for 59,180 beneficiaries
- Natural forest stocking increased by at least 10%

Conclusion

- Establishing protected areas to safeguard diverse ecosystems has proven to be an effective development strategy
- Biodiversity conservation requires support of local communities; livelihood improvements are reasonable option to reduce pressure on land and forest resources
- Uncertain tenure and resource use rights in the regions surrounding protected areas leads to irresponsible development that degrades the environment
- Encroachment is degrading natural systems and needs to be addressed

THANK YOU!