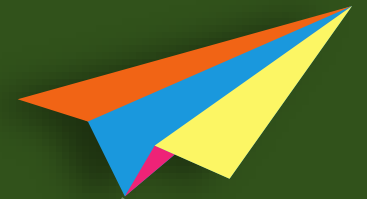




YOUR LOGO

Environment: Case Studies in CLMV

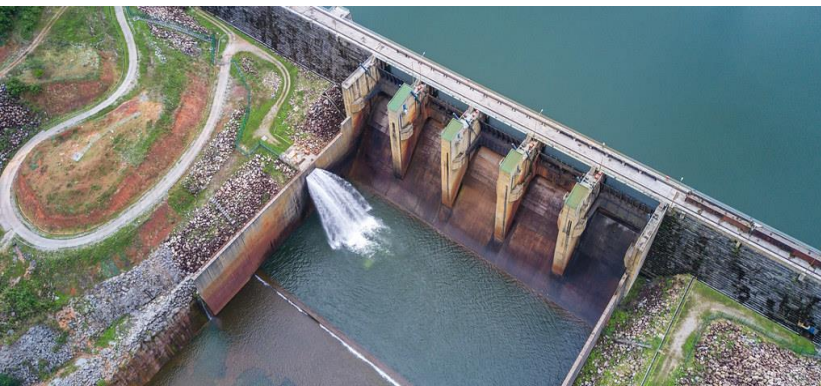
FACULTY OF ECONOMICS
THAMMASAT UNIVERSITY



The three case studies discussed are actual development projects that have environmental dimensions (impacts, outcomes and outputs)

All are located in CLMV countries:

- Nam Theun 2 hydropower project (Lao PDR)
- Biodiversity conservation corridors project (Cambodia)
- Forestry and livelihood improvements project (Vietnam)

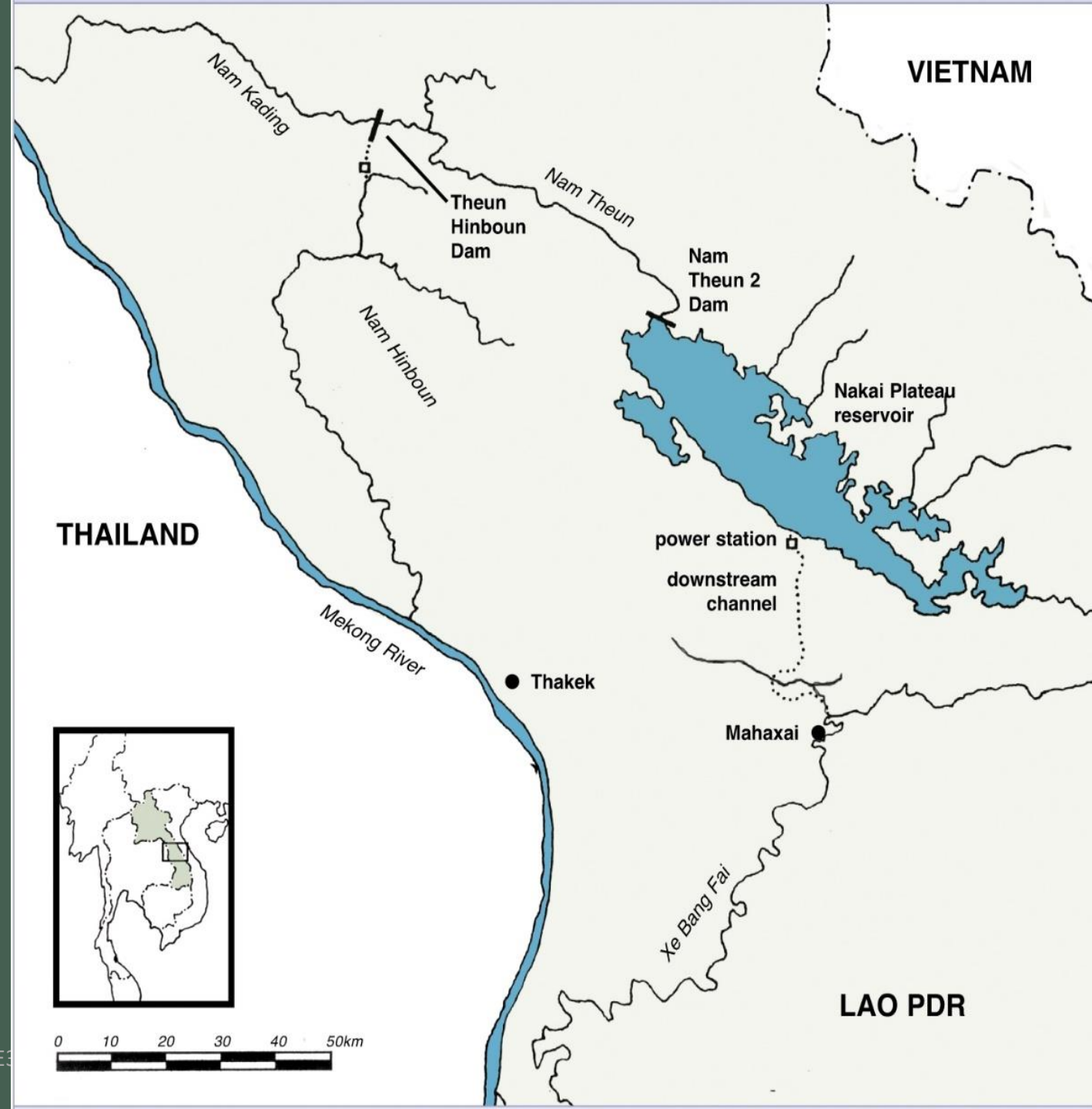


NAM THEUN 2 HYDROPOWER PROJECT



Background

- Lao PDR has abundant water resources to generate electric power
- Revenues could contribute to build infrastructure and reduce poverty
- Located in Khammouane province
- NT2: currently Laos' largest hydropower project



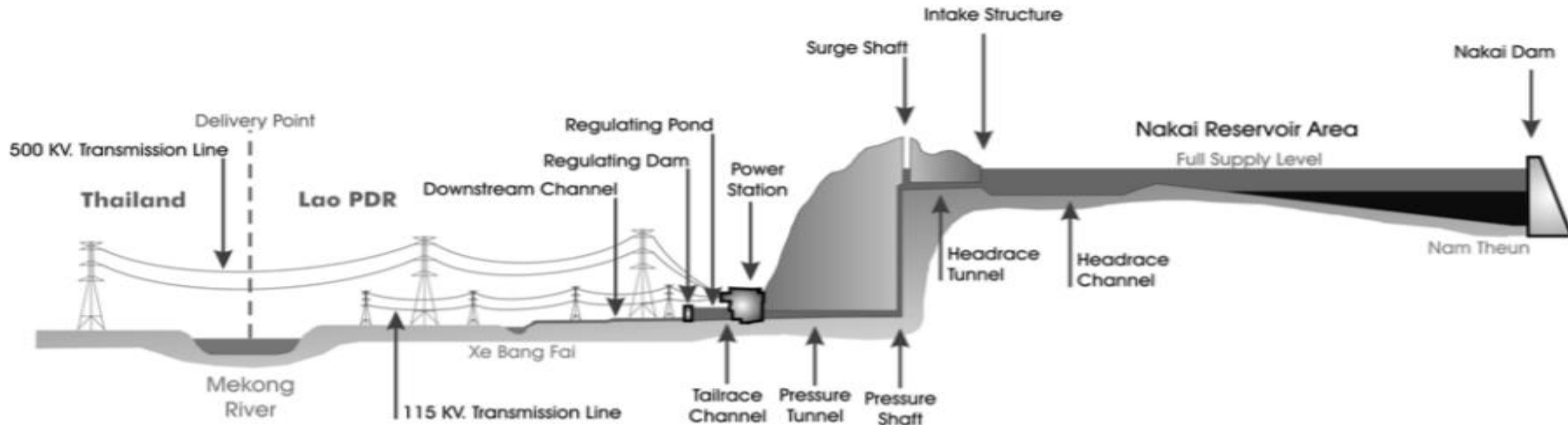
Project design

- Objective: generate 1,070 MW electric power
- A build-own-operate-transfer facility with concession period of 31 years
- 2005: construction started
2010: commercial operation
- Applies industry-standard technologies and practices



Project design

- Community-driven development with a focus on environmental protection
- NT2 Power Co and Lao government partnership to develop, construct, and operate
- Total cost: \$1.5 billion funded by multiple donors and the Lao government



Project outputs

- 1,070 MW trans-basin diversion power plant
- 450-km² reservoir on Nakai Plateau
- 39-meter-high dam with powerhouse and regulating pond
- 27 km channel from 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 reduce poverty, environmental management, and improved education and health
- Social programs: School Block Grants and Health Equity Fund)



Socioeconomic impacts

- Displacement: 6,300 people resettled
- Land acquisition: 120 ha
- Improved access to markets with paved roads
- Decreased travel time from Nakai to Thakhek, from half day, to only one hour



Evaluation of assistance program

- NT2 assistance program: build community infrastructure, support agricultural livelihood, and food supplements for vulnerable households
- Improved primary school enrollment from 31% to 94%
- Improved living standards; doubled people's incomes
- 99% households were able to save (only 21% in 2006).



Environmental impacts

- Changes in river flow patterns worsened water quality
- Depleted fish
- Land clearing



Mitigating environmental impacts

- Support for villages downstream and upstream of the dam
- Monitor fish levels and erosion
- Support affected households through village development planning



Evaluation

- Commercial forestry in the resettled area were less successful
- Grazing, and non-timber forest products were more successful
- NT2 received high marks for managing social and environmental impacts
- NT2 considered as a good model to big dam construction
- However some impacts were not fully addressed

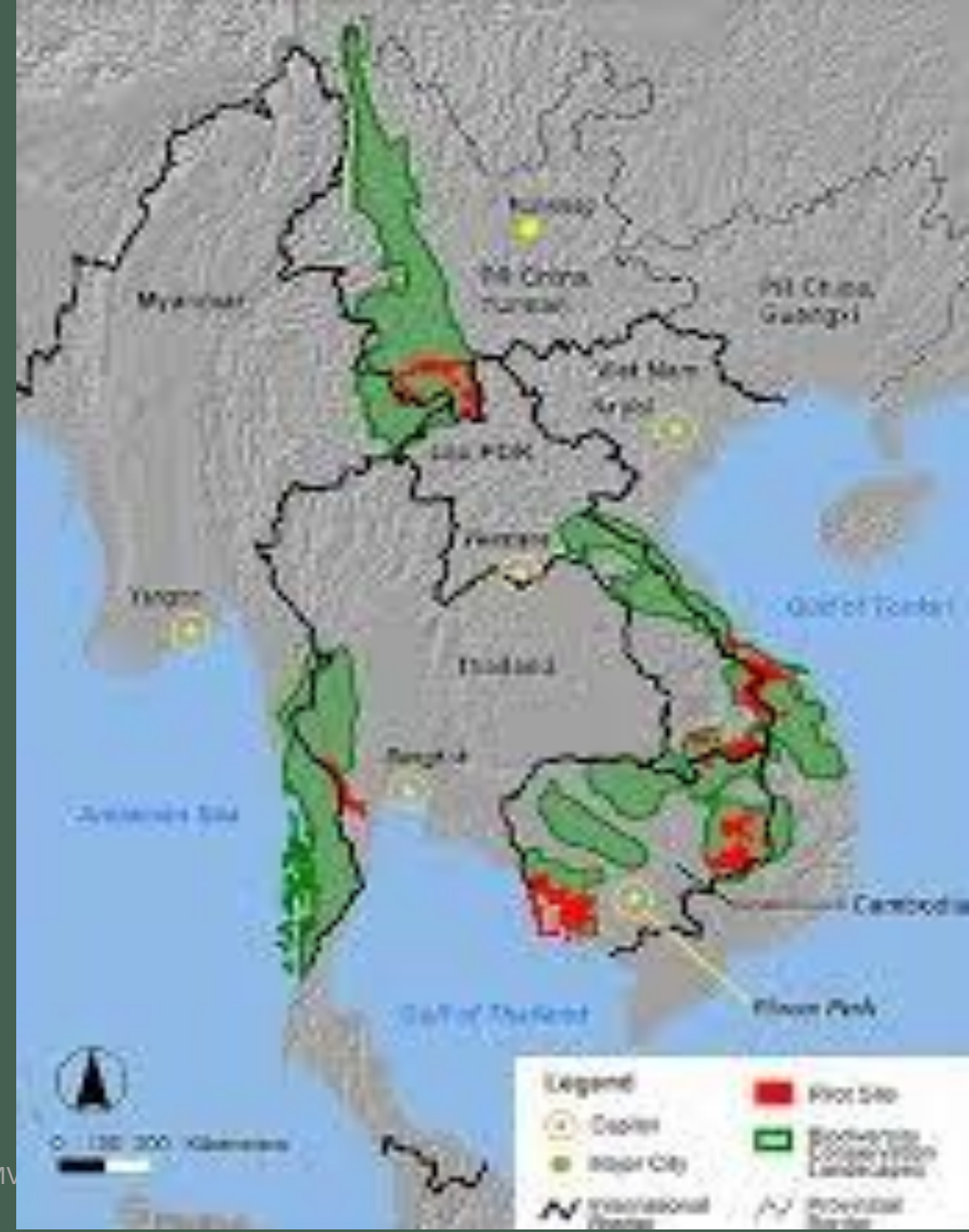


BIODIVERSITY CONSERVATION CORRIDORS



Background

- The GMS contains important biodiversity conservation landscapes
- Increased development pressures and environmental degradation
- Sources: hydropower and roads construction, large-scale tourism, mining, and plantation agriculture



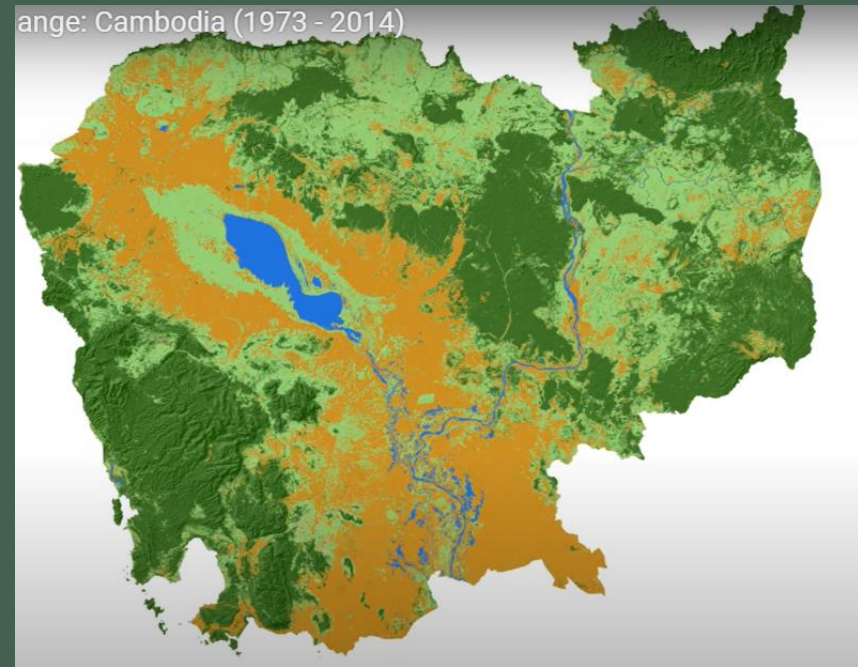
Forest cover change

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

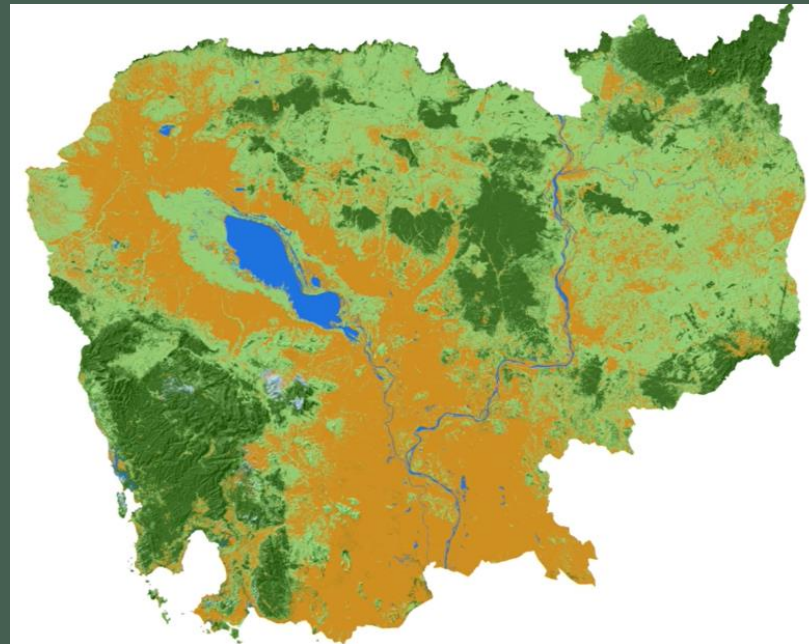
- poor farming practices
- encroachment of forest lands, and
- illegal logging

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

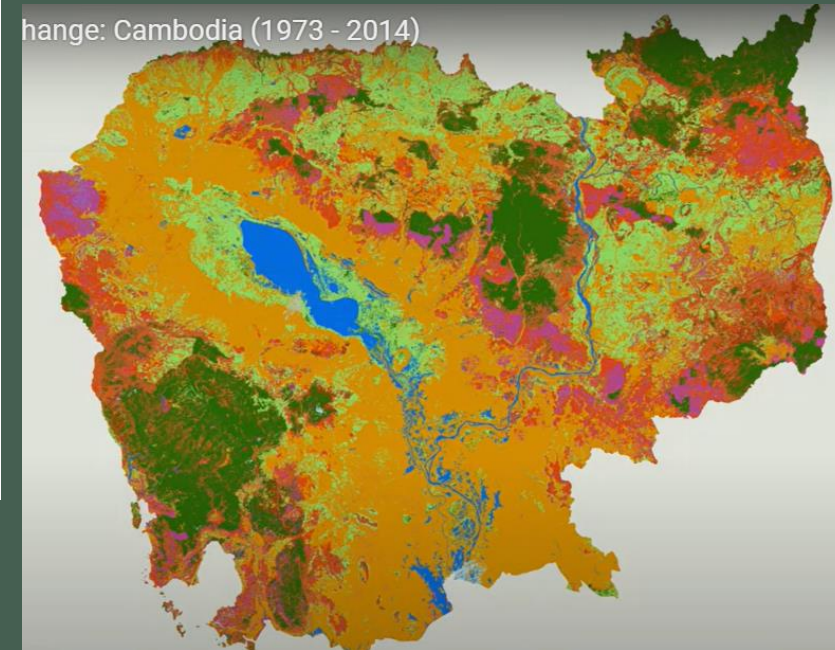
Forest cover change, 1973-2014



1973



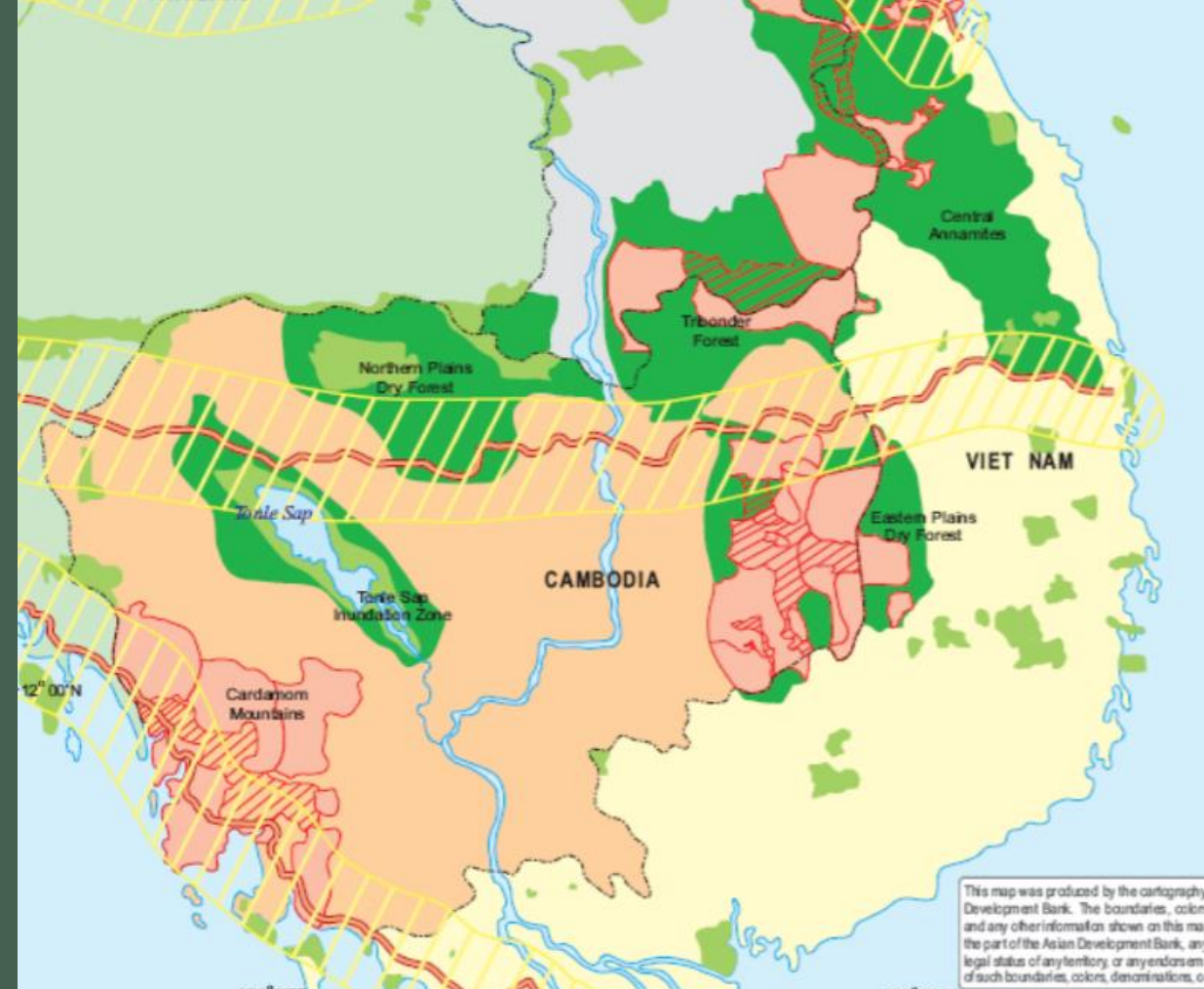
1995



2014

Project design

- Objective: enhance transboundary cooperation to prevent fragmentation of biodiversity-rich forest landscapes
- Northeastern Cambodia
- Southern Laos forest area
- Central highlands, Vietnam
- 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

Tenure 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

- Strengthened biodiversity corridor management
- Biodiversity corridors restored, protected, and maintained
- Improved livelihoods and infrastructure to target villages



Project outcomes

- Climate-resilient sustainable forest ecosystems
- Livelihoods improvements, forest conservation and rural infrastructure
- Sustainably managed biodiversity corridors in Cambodia, the Lao PDR, and Viet Nam



Social impacts

- Benefit to upland farmers dependent on forest ecosystems
- Increased average household incomes from \$160 to \$450/year
- Improved food security
- Provision of land use rights increased livelihood assets



Environmental impacts

- Encroachment by outsiders due to improved access to conservation sites
- Social exclusion; benefits are not distributed equally
- Project benefits are “captured” by local elites



Environmental impacts

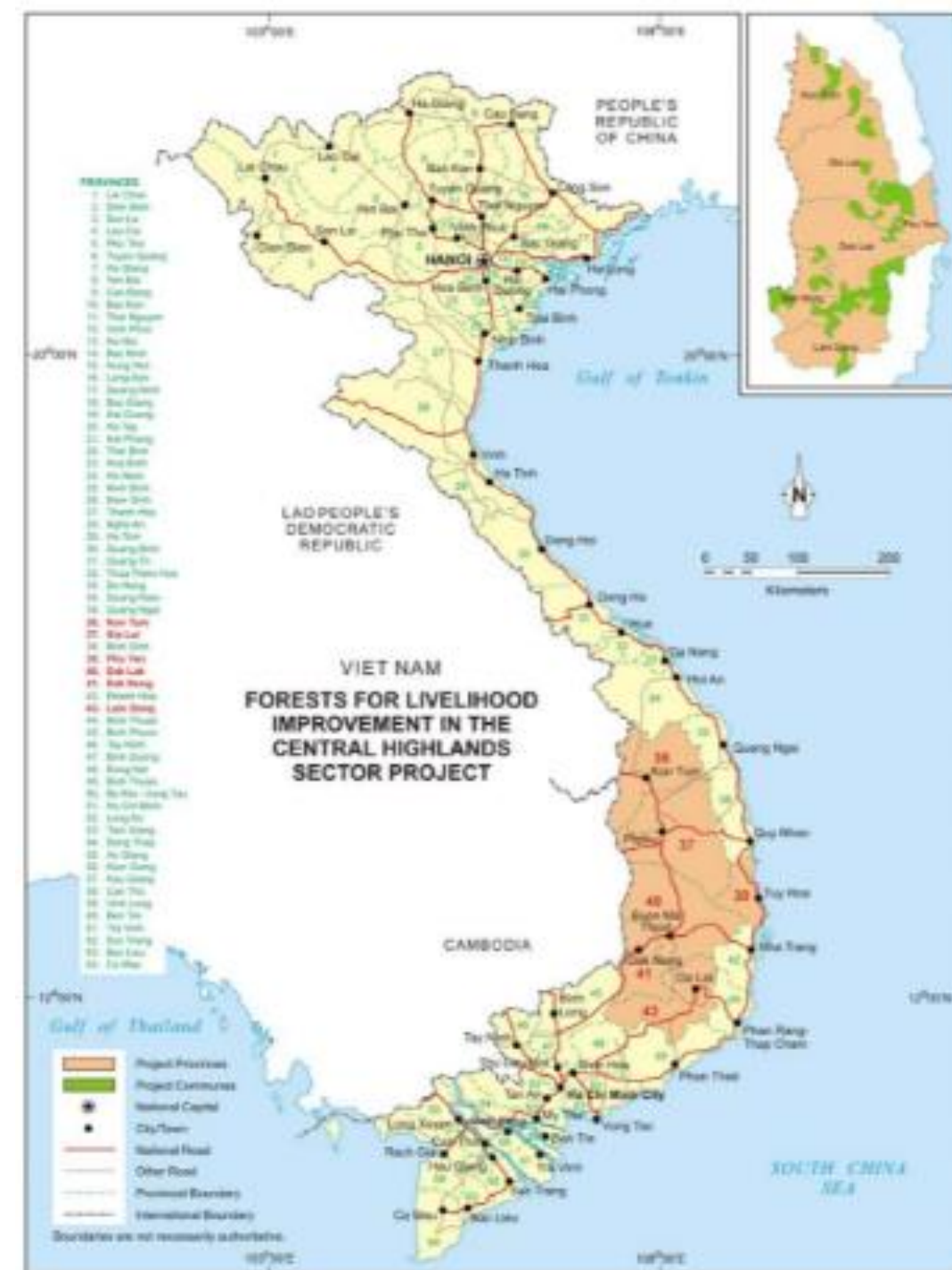
- Increased land value in project sites leads to land speculation
- Selling of ethnic minority land rights to plantation investors



FORESTRY AND LIVELIHOODS IN VIETNAM'S CENTRAL HIGHLANDS

Background

- The central highlands: a biodiversity hotspot and the watershed of several important rivers
- The area is home to 30% of the country's natural forest area with timber stocks valued at \$34.4 billion
- Yet it is the second poorest region in the country; 57% of ethnic minorities are poor
- Characterized by forest loss, environmental degradation and rural poverty



Key Issues

- 1943-1990: Viet Nam's forest area shrank from 14.3 to 9.3 million ha (35% loss)
- 2000: reforestation program launched; 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



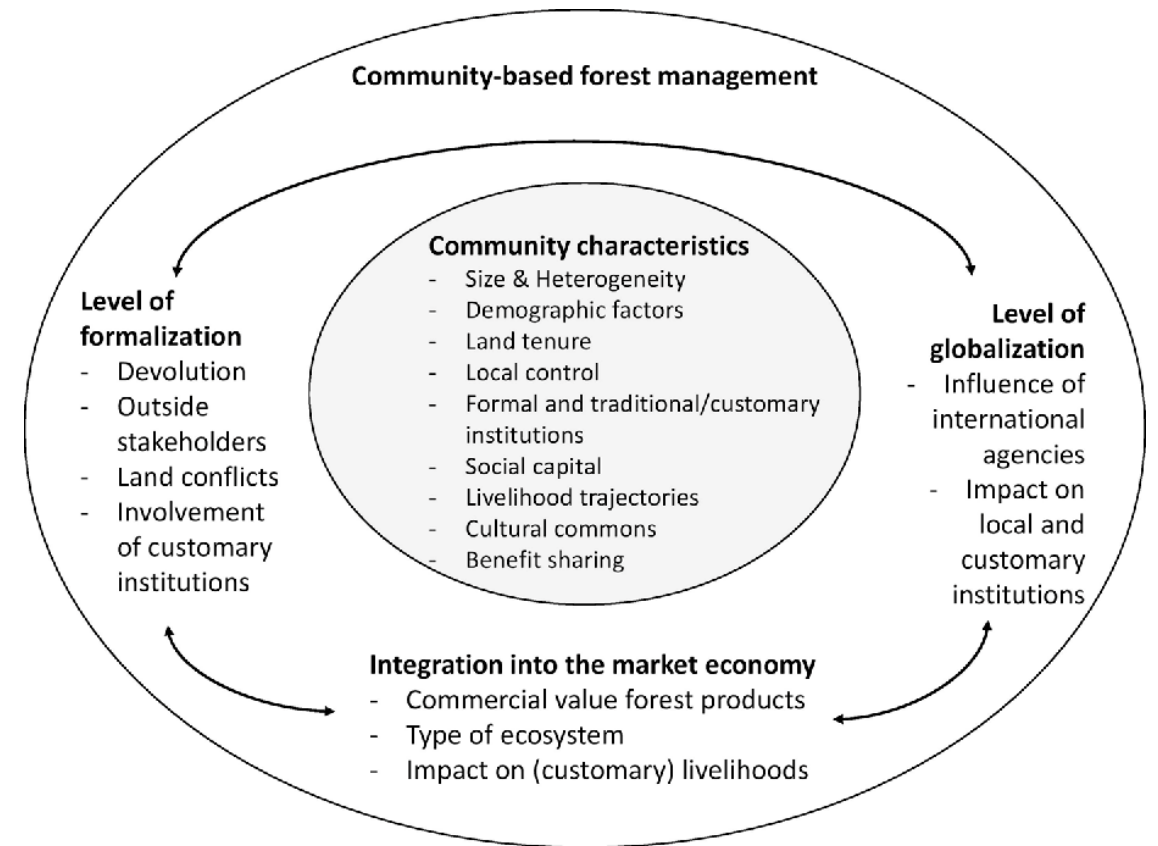
1973



1990

Project design

- Objective: improve 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 project cost: \$25 million



Project outputs

Improved forest
management
capacity

- Forestland management planning
- Forest resource development
- Training programs

Improved forestry-
based livelihoods

- Livelihood improvement programs
- Small scale infrastructure development

Strengthen supply
and market chains

- Microfinance credits
- Extension services

Improved
governance

Training
programs for
provincial and
local forestry
staff

Results

Output 1: Improved forest management capacity

- Forest loss reversed, and cover increased by at least 3% from pre-project base
- Plantation productivity increased from 5-6m³/ha/year to 15-18m³/ha/year



Results

- Investment plans for protecting land on steep slopes and watersheds
- Illegal logging reduced by 30%
- Natural forest productivity increased by 30%



Results

Output 2: Improved forest-based livelihoods

- Income of 5,000 households doubled
- 50% increase in cash benefits for poor households

Output 3: Strengthened supply chains

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



Results

Output 3:

- 1,628 training courses for 59,180 beneficiaries
- Natural forest stocking increased by 10%
- Improved public awareness of the importance of forest resources



Conclusion

- Development projects have targets within a certain budget and time limit. Negative impacts should be avoided or minimized mitigated.
- Establishing protected areas is an effective development strategy to safeguard diverse ecosystems.



Conclusion

- Biodiversity conservation requires local community support; livelihood improvements reduces pressure on land and forest resources.
- Uncertain land use rights near protected areas leads to irresponsible development that degrades the environment.
- Local communities participation is key to successful project implementation.



THANK **Y**OU!