

# Re-evaluating the Environmental Impacts of Dams in Southeast Asia

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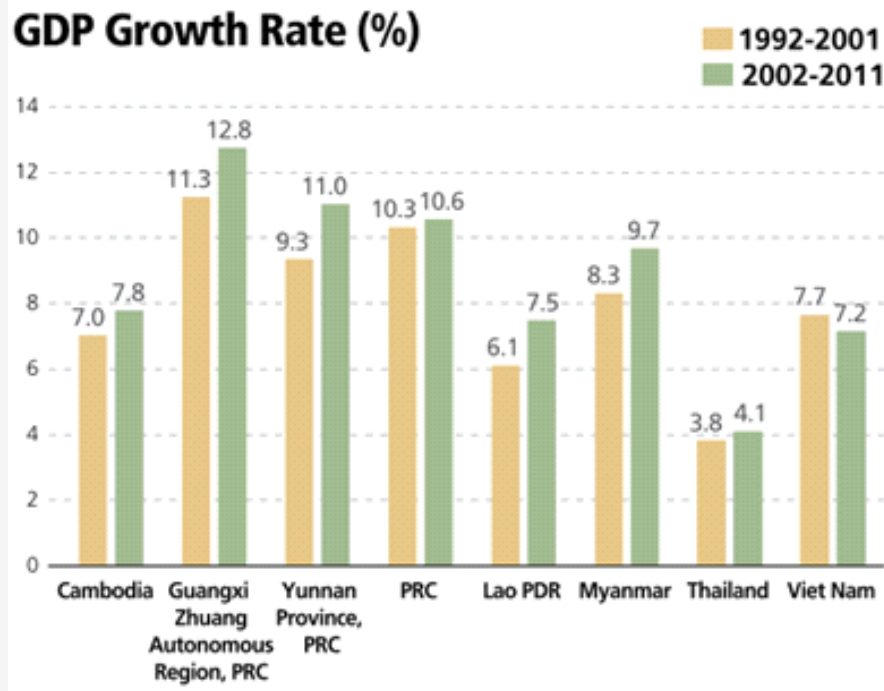
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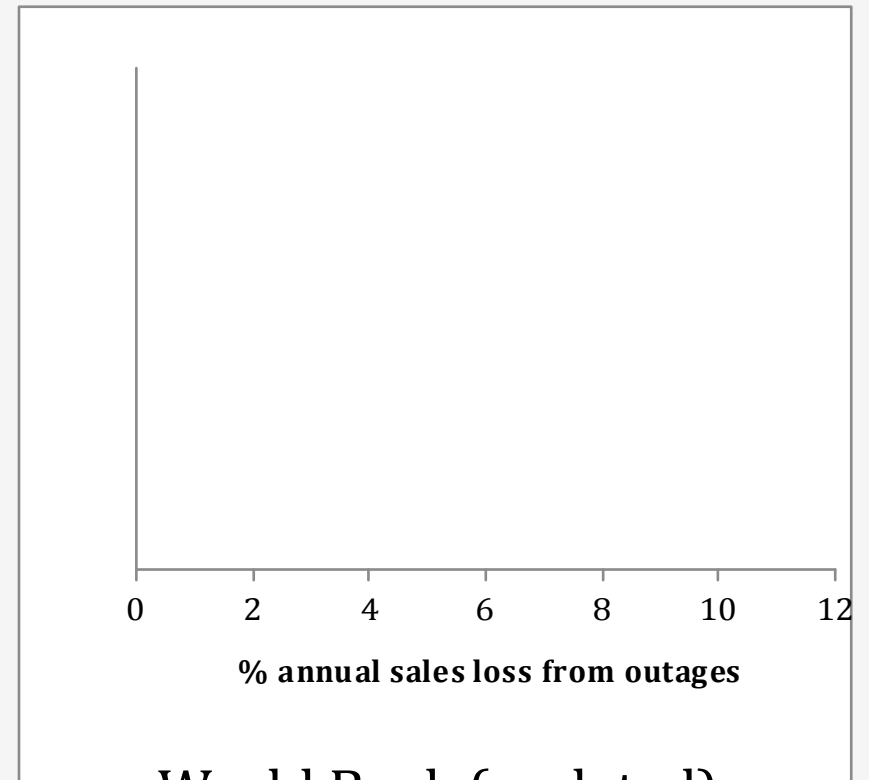
# Outline:

- 1) Mekong hydropower boom & the need for better assessment
- 1) Indirect/unforeseen environmental impacts from my research

# Southeast Asia's Need for Power:



ADB (2012)



World Bank (undated)

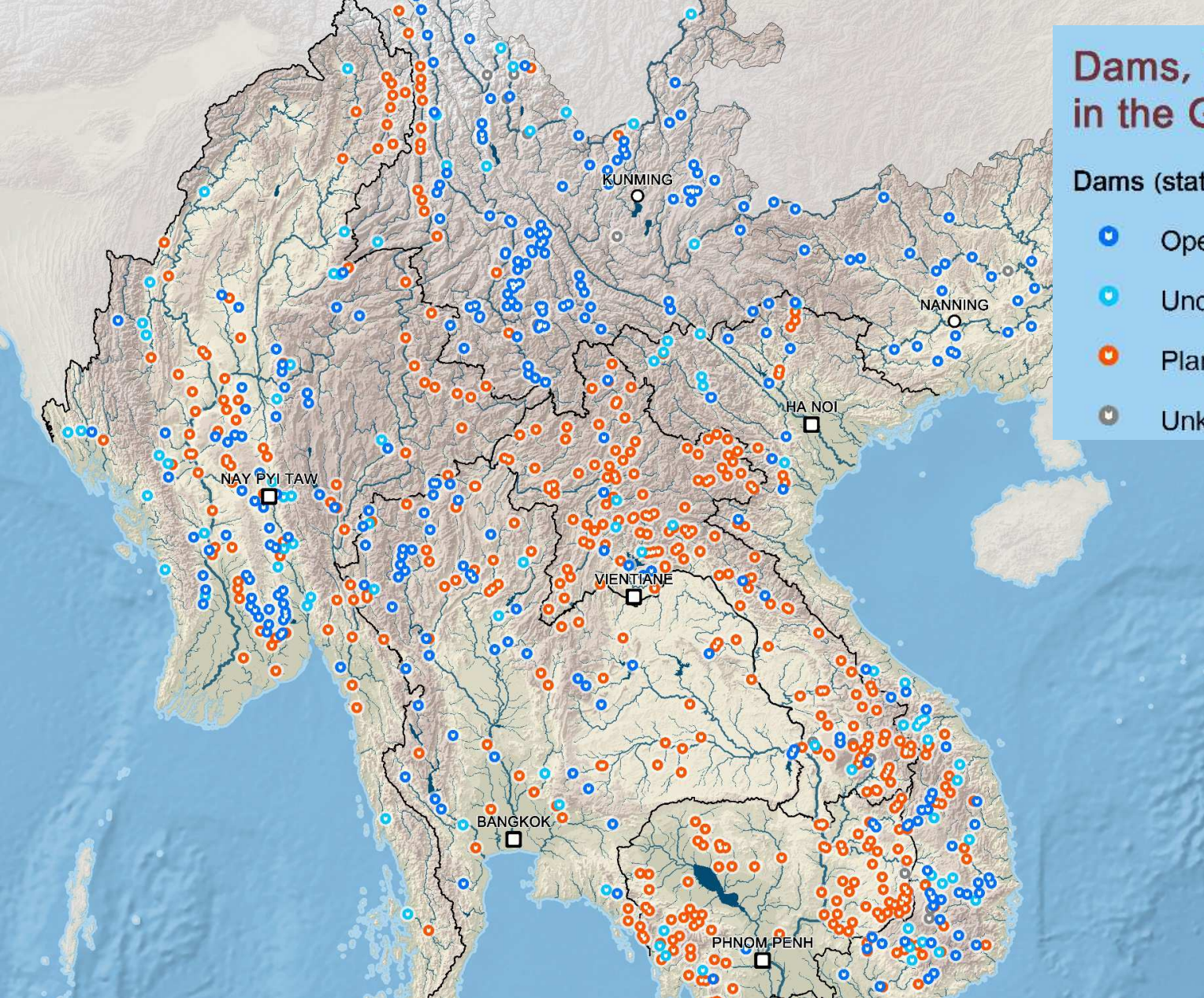


## Dams, Present and Projected, in the Greater Mekong Subregion

### Dams (status)

- Operating
- Under construction
- Planned or feasibility study
- Unknown

- Major river
- Major lake



• 82 exist, 179 proposed

- 11 mainstream dams planned on the LMB

- 13 planned on Salween River

- High dependence on

# Current Environmental Assessment:

- EIAs are principal instrument used to predict environmental impacts
- Requirements differ depending on country, donor and scale/location
- EIAs are project specific and often occur towards the end of the planning process

## Issues:

- Inadequate baselines
- Perception as stalling the process
- Timing (often not done until after construction has started)

“EIAs are a potentially crucial step in project-level decision-making.

Unfortunately they have often been exercises in rationalising pre-determined outcomes, or carried out after the decision is made”

- Dore *et al.* (2010: 38)

CPWF Project report: Improving Mekong Water Resources Investment and Allocation Choices

# Thesis Research aim:

- To evaluate the impact of three recent hydroelectric dams in the Greater Mekong Subregion

## Case Studies:

- Pak Mun (Thailand), Nam Theun 2 (Lao PDR), Lower Paunglaung (Myanmar)

## Methods:

- Landsat satellites (1972-present day)
- Interviews with people in communities local to the dams



# Disruption to livelihoods:

Before electricity generation




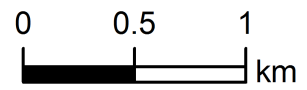
1hr after





# Dry season 1989

 River boundary from MNDWI



**Dry season 2014**



Start of dry season



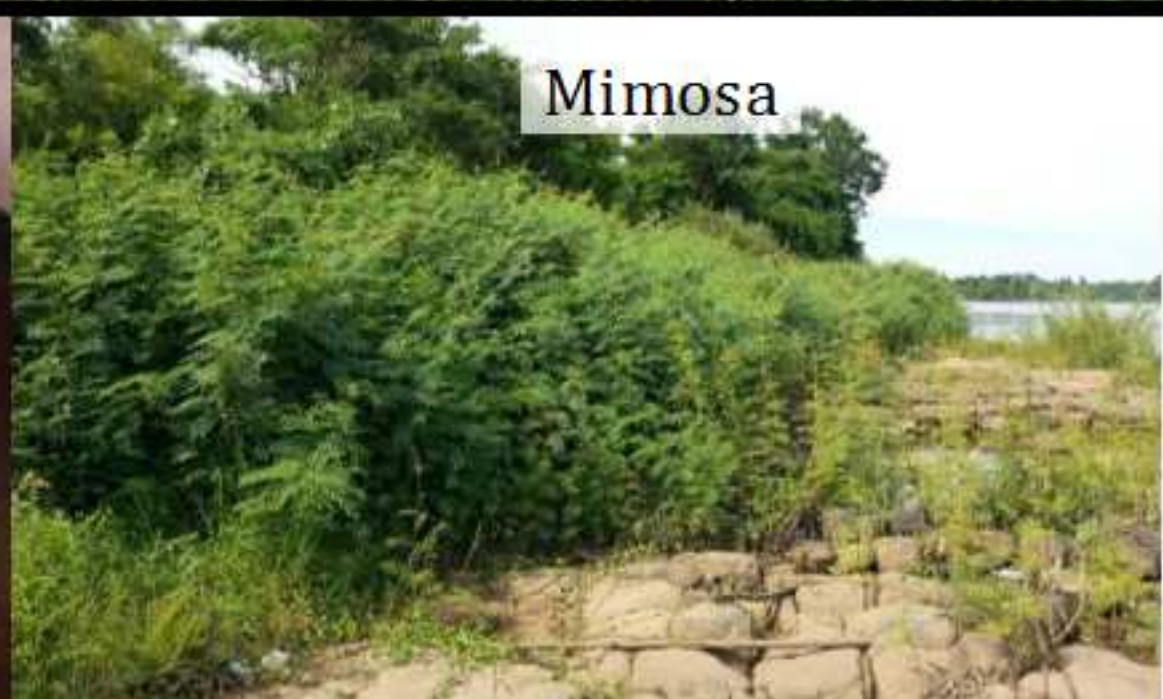
End of dry season



schistosomiasis



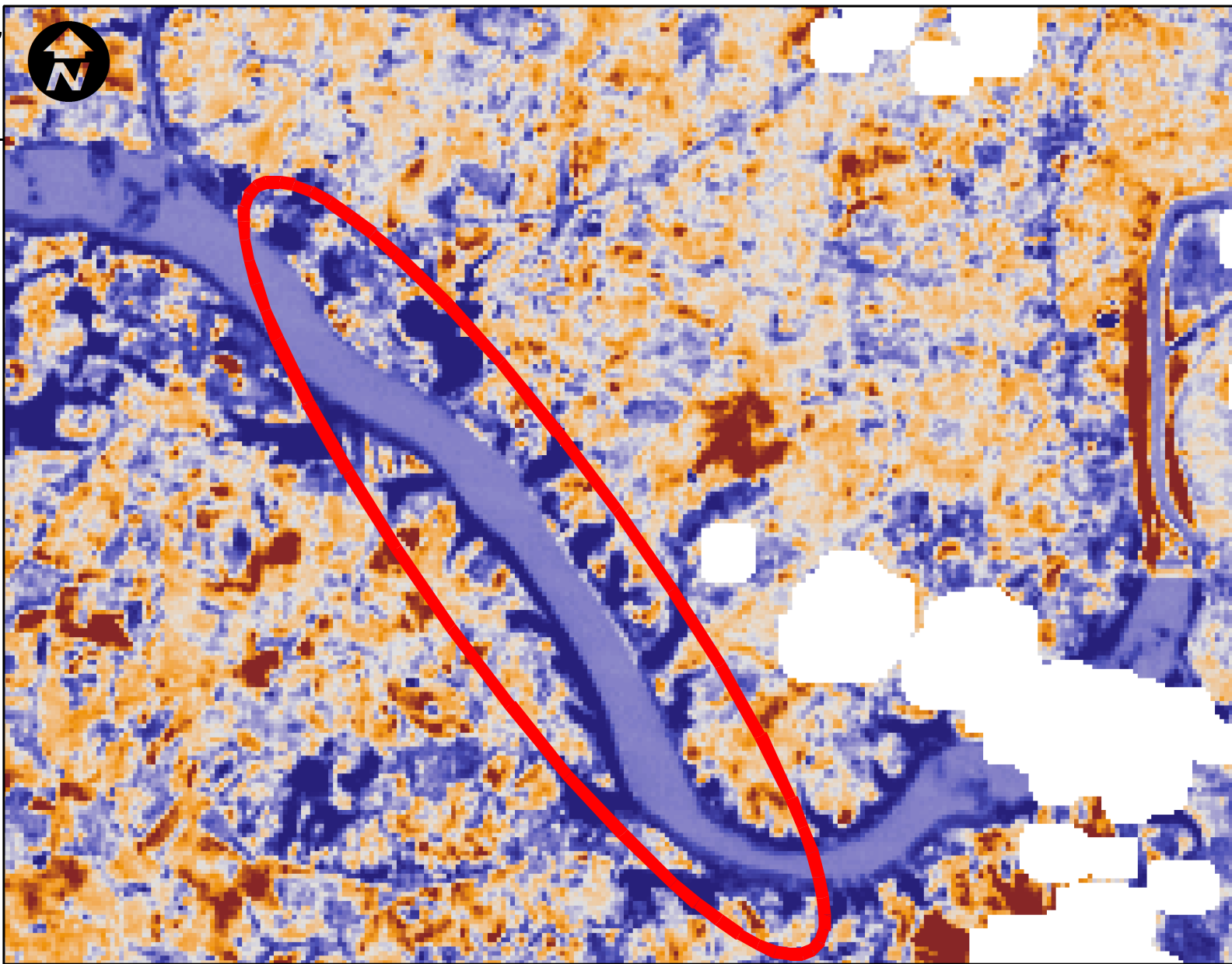
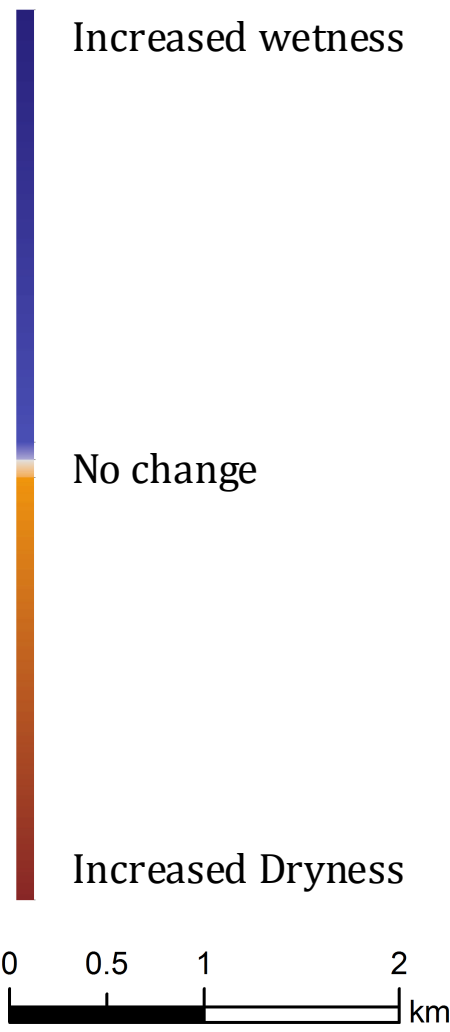
Mimosa





# Tasseled Cap 'Wetness'

Dry season change before/after:



# River Bank Gardening

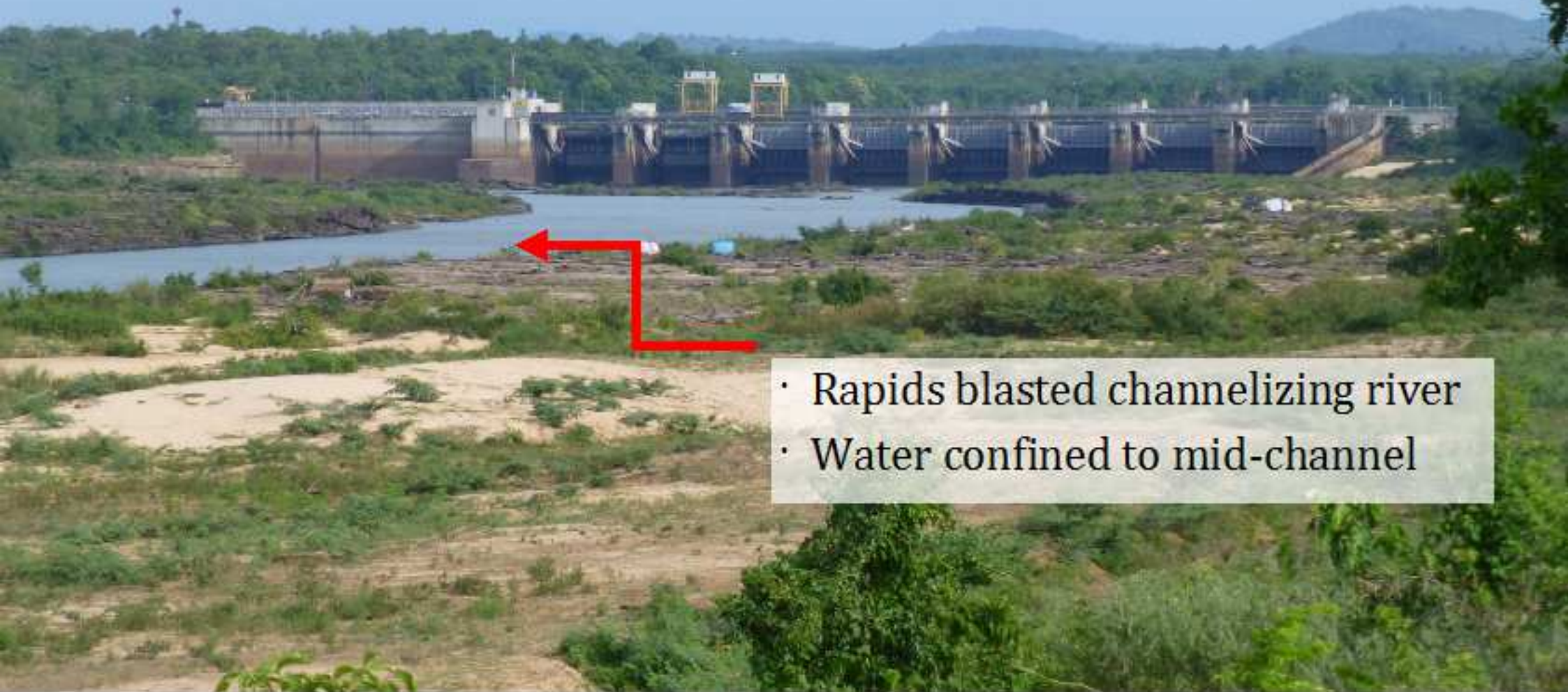


- Relies on dry season low water level
- Dam inhibits gardening:
  - Inadequate fluctuation
  - Increased erosion from 'flashy' flooding

(Hamric 2011)



# View of Pak Mun from Downstream



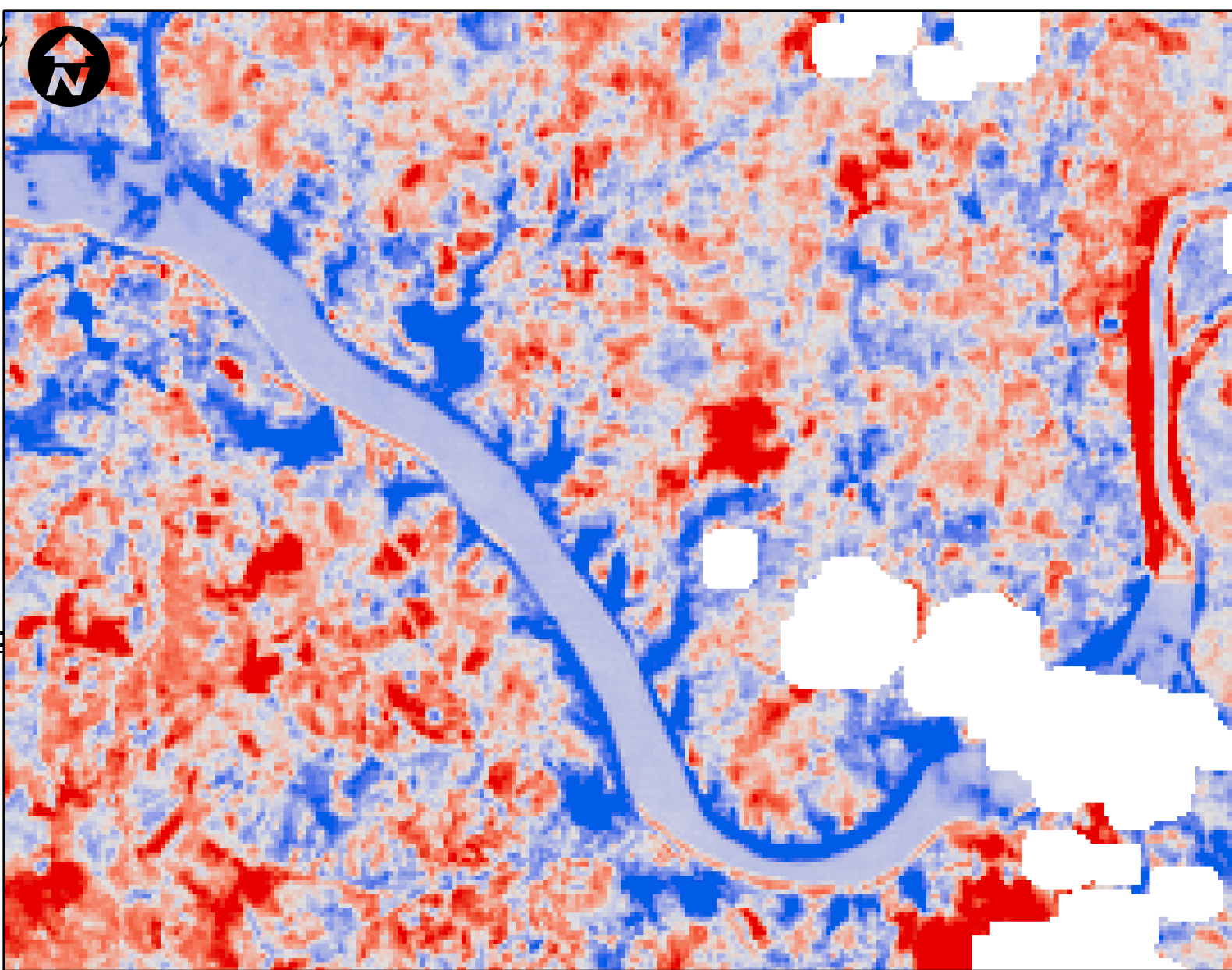
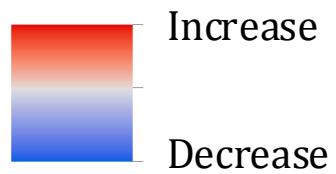
- Rapids blasted channelizing river
- Water confined to mid-channel



# Tasseled Cap 'Brightness' (a proxy for clearance)

- Bank: flooding
- Further inland:  
clearance/replacement  
with crop

Dry season change before/after:



# Kaeng Tana National Park clearance





# Deforestation for charcoal





# Replacement with cash crops





# **Industrial Scale Deforestation Near Nam Theun 2**





# Dam Construction

Resettlement

Environmental Damage

Disruption/destruction of existing livelihood

Enablement of damaging activities  
(e.g. better access/reduced risk/corruption)

Compensation/proposal of alternatives

Altered perception of the environment

Adequate to needs

inadequate to needs

Search for alternative livelihoods

Alternative with no environmental impact

Livelihoods with impact

No further unanticipated environmental impacts

Further unanticipated environmental impacts