

Water resources management: experiences from the Mekong River



Water & Development
Research Group

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WHO & WHAT



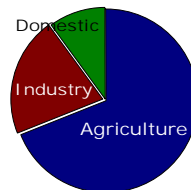
- Researcher at Aalto University's Water & Development Research Group
- Group active in the Mekong since 2001
 - à Water development and its impacts
- Also several other research activities on water and its management, mainly in Asia

water.tkk.fi/global

WATER & DEVELOPMENT – two sides of the coin

1) Competing water uses

- à Most water used for agriculture
- à Other, competing uses:
fisheries, hydropower, industry..



2) Lack of water supply & sanitation

- à 1 billion lack access to water,
- 2,5 billion to sanitation
- à 2,3 billion suffer from water-related diseases

**OUR FOCUS
= NO. 1**

3

1) INTRODUCTION: water & its management

4

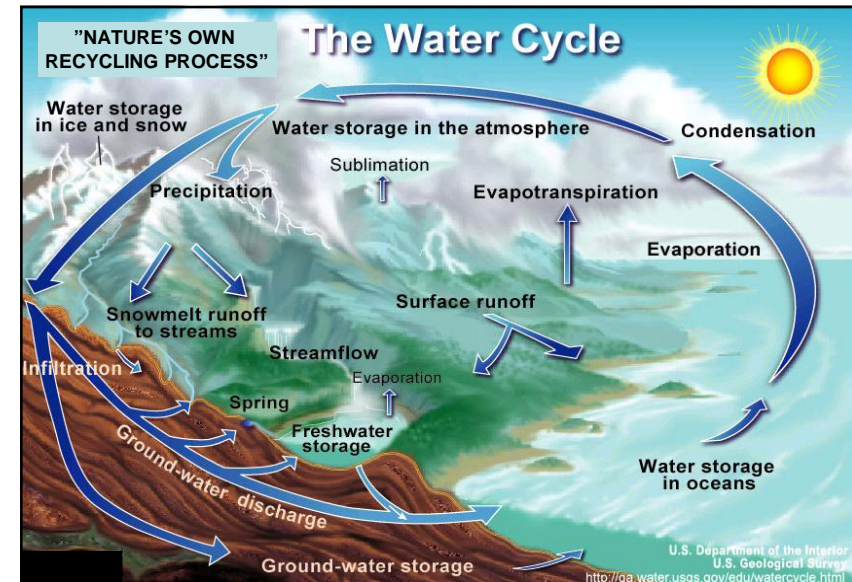
BLUE PLANET – and its blues...

The volume of world's water is fixed:
it doesn't increase or decrease

Finite resource that never finishes
à HYDROLOGICAL CYCLE

1% BUT: less than percent of world's
water available for human use

5



MANAGING WATERS

Volume of water fixed, but use increasing

- *Population growth & urbanisation*
- *Changes in consumption patterns & diet*
- *Climate change*
- + *Water quality decreases*

In 2000 twice as
much water was used
than in 1960

à **Competing water uses & users**

à **Management & cooperation needed...**

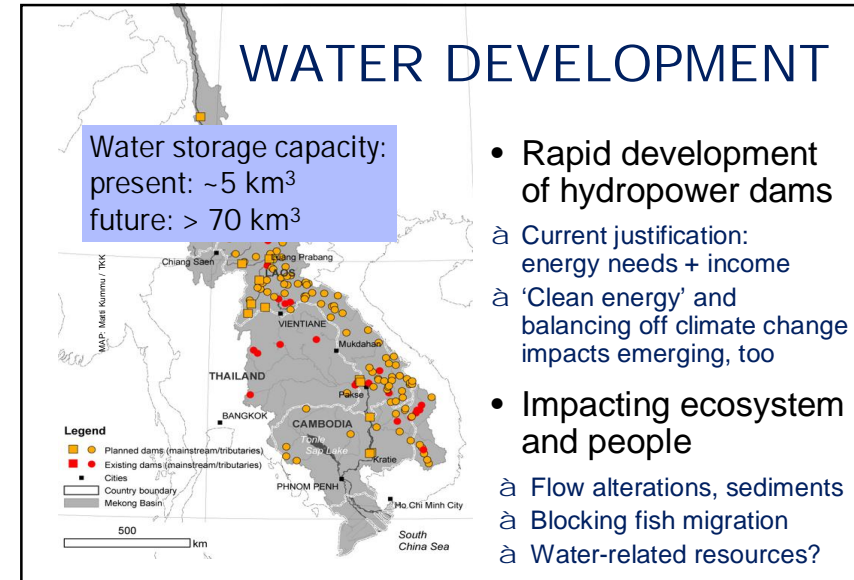
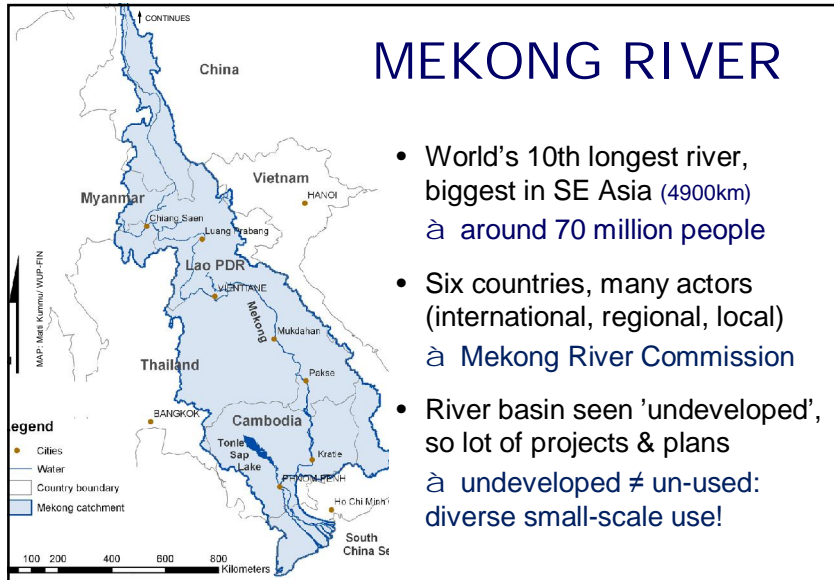
7

2) EXPERIENCES FROM THE MEKONG

- Mekong: the context
- Impacts: case Tonle Sap

Has anybody
been there?

8

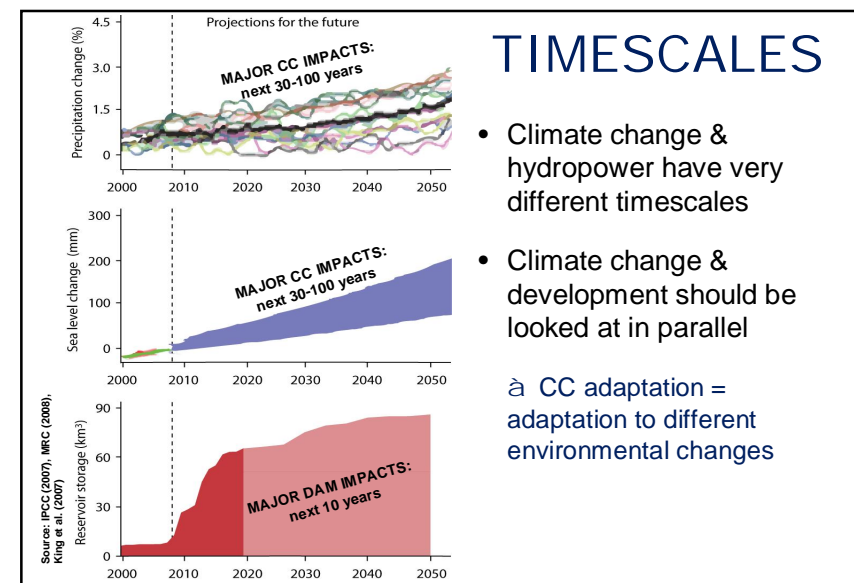


CLIMATE CHANGE, TOO...

Expected impacts in Tonle Sap:

Characteristic	Change due to CC	Description	Change due to development
Average water level (Feb–Jul)	↑	Very likely increases	↑
Average water level (Aug–Jan)	↑	Likely increases	↓
Annual cumulative flooded area	↑	Very likely increases	↓
Maximum water level	↑	Likely increases	↓
Maximum flooded area	↑	Likely increases	↓
Flood start date	←	Very likely occurs earlier	→
Flood peak date	→, ←	Occurs possibly later in the average years and earlier in the driest years	→
Flood end date	→	Likely occurs later	←
Flood duration	↑	Likely increases	↓

à Impacts of hydropower largely opposite to the CC impacts
 à BUT: timescales very different + dry-season changes similar

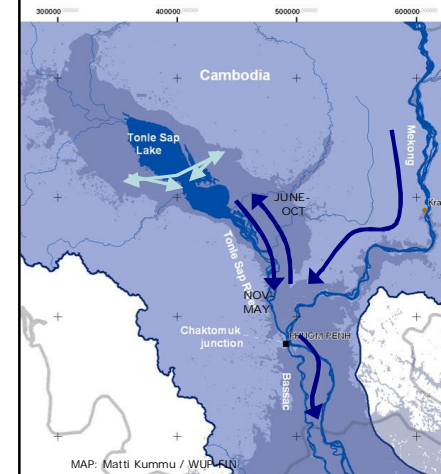


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13

'HEART OF THE MEKONG'



Exceptional water regime caused by Mekong
à 120km-long Tonle Sap River reverses

- Lake area grows 4 times from 2500km² to 12'000 km²
- Water level increases from mere 1m up to 10m

à Water wonder!

UNIQUE TONLE SAP

- High aquatic production
à One of the most productive freshwater fisheries in the world (>200'000 t/year?)
- Supporting livelihoods
à Over 1,2 M people in lake & floodplains
à Adapted & dependent on flood pulse

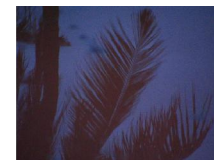


à The flood pulse system key for livelihoods, income & food security

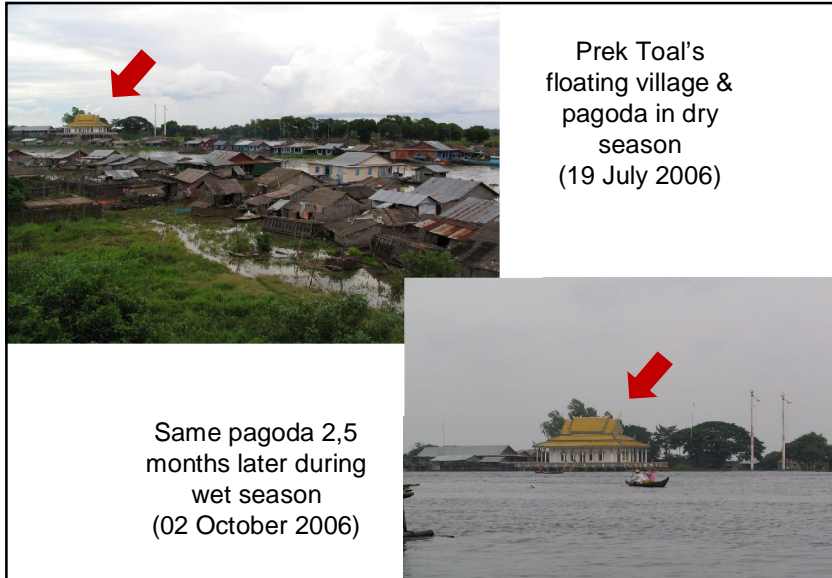
15

PEOPLE & LIVELIHOODS

- Despite abundant resources, Tonle Sap among the Mekong's poorest areas (in monetary terms)
- Socio-economic setting closely linked to lake & floods
à Livelihoods, poverty, land-owning, health, education, ethnicity, market access: **VULNERABILITY**
- Strong dependency on water and natural resources



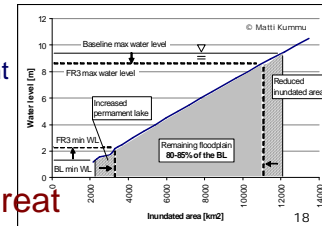
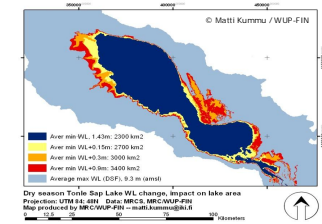
16



IMPACTS TO TONLE SAP

Possible transboundary impacts

- Changes in flow
 - à Flood patterns changing
 - à Reduction in floodplain areas
- Changes in water quality
 - à Dams trapping nutrient-rich sediment
- Cumulative impacts?



à Aquatic productivity under threat

IMPACTS TO TONLE SAP

- Local changes & challenges, too
 - à Corruption (the poor often paying most)
 - à Unequal access to resources
 - à 'Privatisation' of resources (fish, forests, land)
- Regional vs. local
 - à Information about negative impacts do exist, yet not really addressed at regional level discussions
 - à Political elites vs. local people...

19

PARIPORINA / DOUBLE BUBBLE

What will be the Mekong's future like?

What should be done?

20

3) SOME THOUGHTS & CONCLUSIONS

21

MEKONG'S FUTURE...

- Mekong seeing increasing number of water development projects within next decades
 - à Largely building on 'traditional' i.e. large-scale, centralised planning
 - à Bringing many benefits for the countries/governments (energy, income...)

- à But many negative impacts, too
 - Water-related resources (particularly fish) likely to be severely impacted

22

DIFFERING VIEWS

- Water development = highly contested topic

Water for energy & irrigation

Negative impacts to fish & ecosystems

Income from energy export

Increasingly centralised resource use

More control of water (cc)

Costs and benefits unequally distributed

à FACILITATING DEVELOPMENT vs. DEVELOPMENT BENEFITING JUST SOME

à Need to find a balance

à Understanding potential benefits & costs:
impact assessment critical

23

DIFFERENT SCALES

- SPATIAL: regional development, local impacts
 - à e.g. Tonle Sap vs. MRC
- TEMPORAL: short- and long term view needed
 - à e.g. water development vs. climate change
- Regional water management is a long process
 - Cooperation must build on countries' real commitment & ownership (MRC only getting there)
 - Finding the right focus (e.g. economy vs. environment)

24

WATER = POLITICS, TOO

- Water development & management = economic & political battlefield
 - à Sometimes quite little to do with water per se...
 - à Whose voice? Whose knowledge?

CHALLENGES:

Conflicting views & interests (no open dialogue)
Hidden agendas (rhetorics vs. reality)
Top-down approach (true participation lacking)
Problems with governance (corruption, lack of cooperation, limited resources...)

25

LESSONS LEARNED

- Water management = more than managing water
 - à Need for more comprehensive views (e.g. IWRM)
 - à No silver bullets, though: each case is different
 - à Politics related to water still underestimated, technical & physical aspects overemphasised
- Although water linked to many things, water is not always the key: context!
 - à e.g. agriculture: land title, markets, irrigation systems...

26

