



Overview of Hydropower Development in the Mekong

and

Opportunity space for dialogue on financing sustainable hydropower

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MRC Initiative on Sustainable Hydropower (ISH)

Sustainable Hydropower Financing in the Mekong River Basin

Centara Grand, Bangkok, 24 September 2010

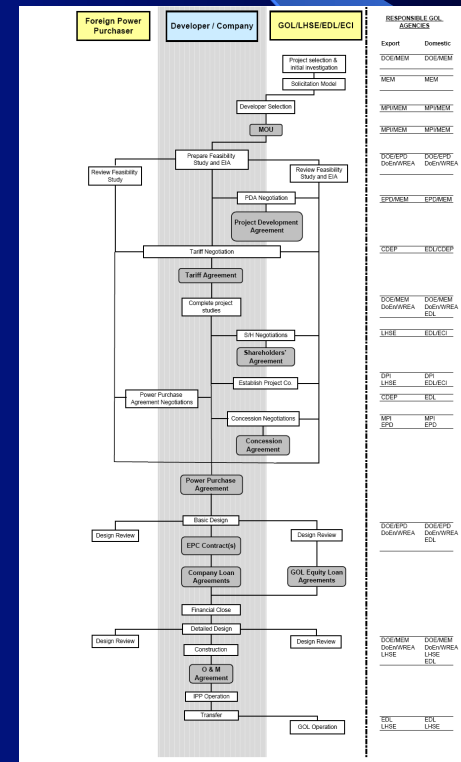
Wider Challenge: in Practice

Mechanisms to better integrate “two world”
planning / regulation, procedural and decision frameworks



For River Basin Cooperation

For Power Sector Regulation



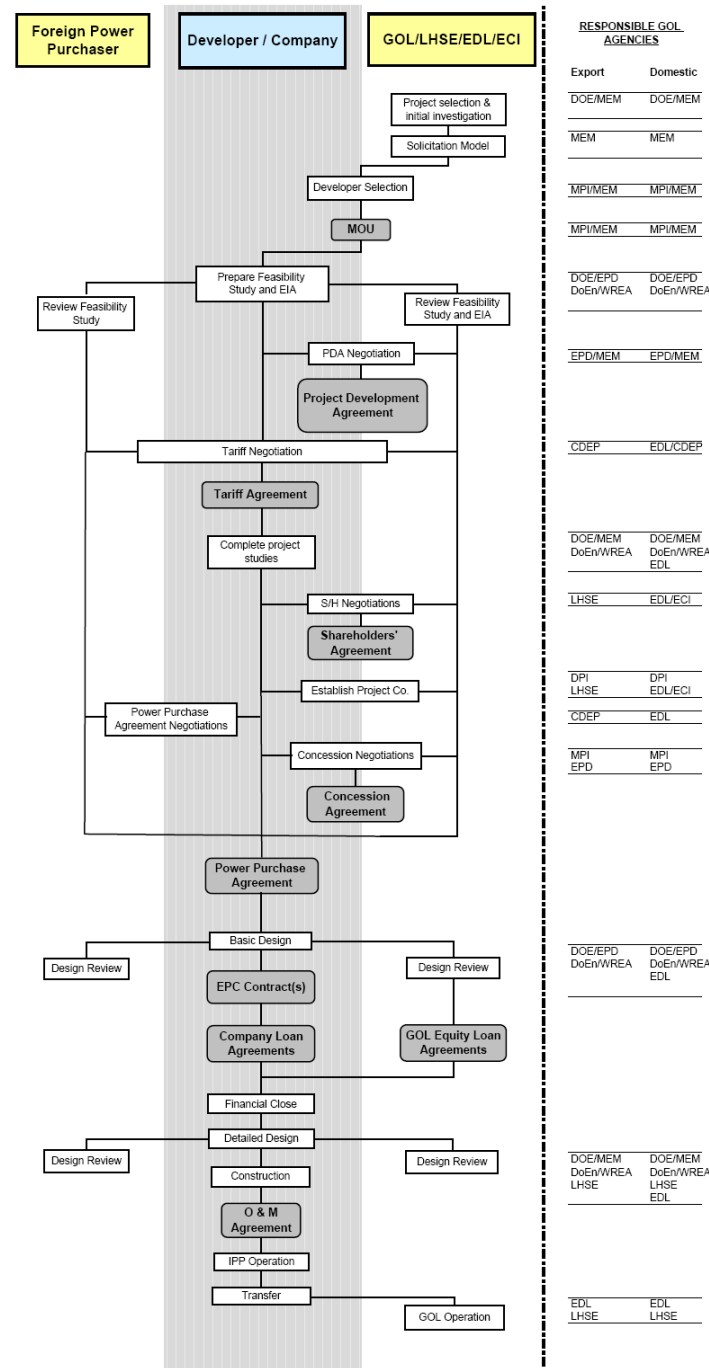
National power regulatory Systems

Example of Lao PDR

- For tributary & mainstream hydropower

Proposals advancing under national regulator systems + bilateral cross-border power agreements

Most mainstream proposals are here in the regulatory system

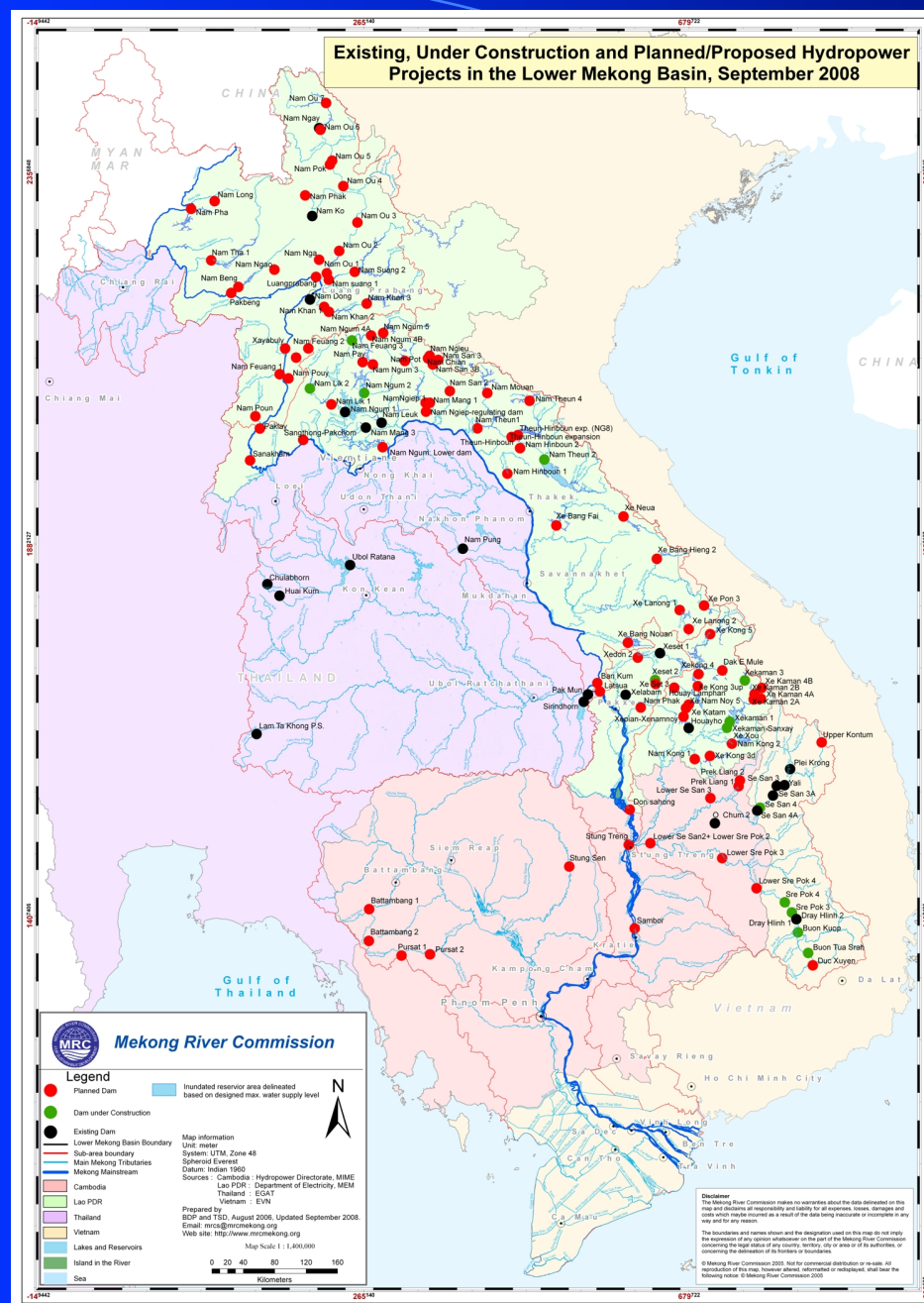


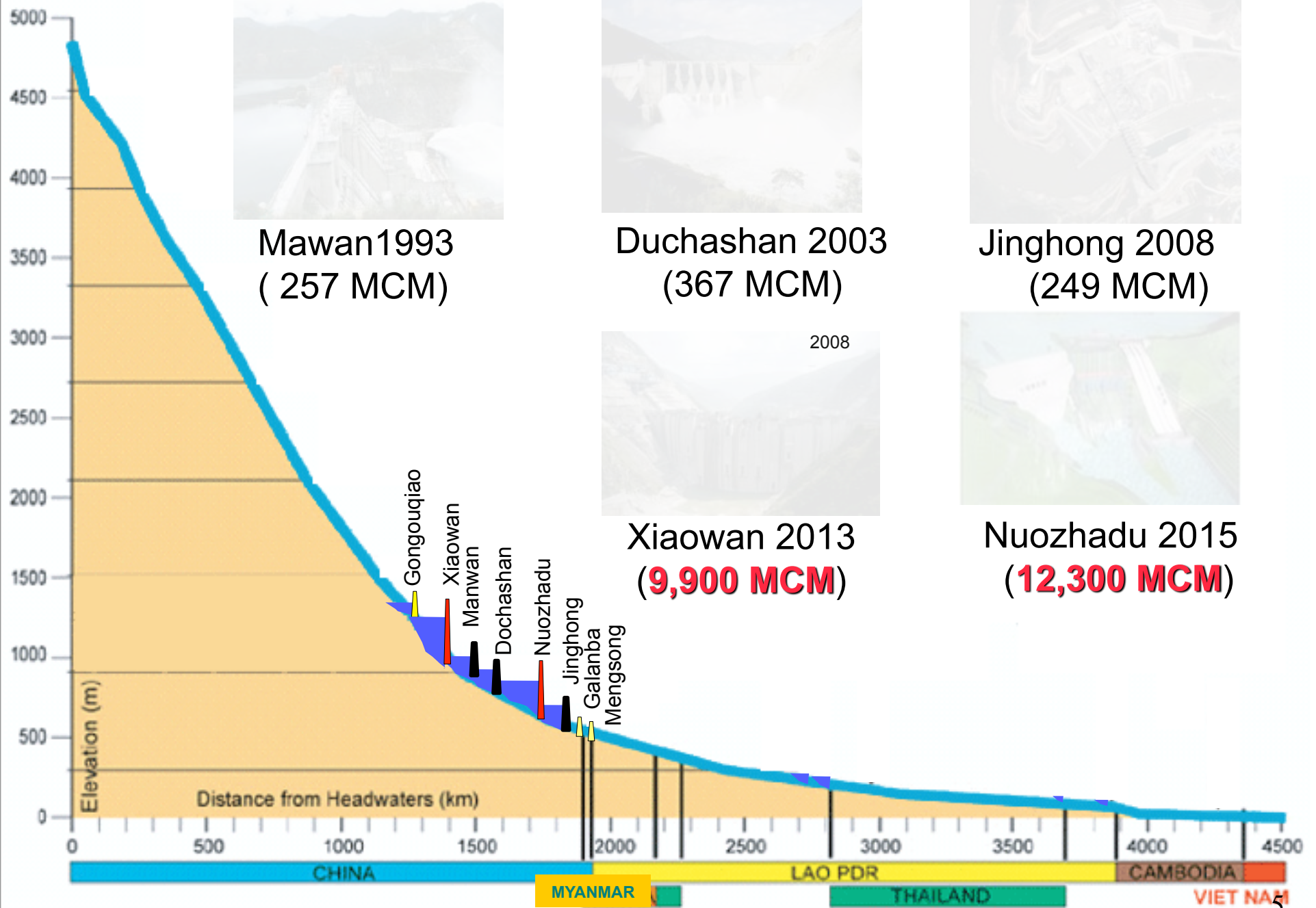
Resource Base

Mekong Basin **53,000 MW**
Lower Mekong Basin **30,000 MW**

MRC Hydropower Database

- 135 projects > 10 MW
- 74 per cent in Lao PDR
- 10 percent in Cambodia and Viet Nam each
- Thailand not planning any more LMB tributary projects





Hydropower in the Lower and Upper Mekong River Basin

- 10 percent (3,235 MW) now on Mekong tributaries.
- A further 3,209 MW under construction on LMB tributaries.
- active consideration up to 12 mainstream hydropower schemes on Lao, Lao–Thailand and Cambodian mainstream reaches
- GMS and Asia Based investors dominant

Remaining LMB potential

- is **105,000 GWh/ year**, (equivalent to about 17.7 NT2s);
- tributary projects of **40,000 GWh/ year** (6.7 NT2s),
- LMB mainstream schemes **65,000 GWh** per year (~11 NT2s).

BDP Scenarios, numbers of LMB hydropower projects and total storage



BDP Scenario	Number of Tributary Hydropower Projects	Storage / Regulation (BCM)		% of Mekong Mean Annual Runoff (MAR)
		LMB Tributaries (seasonal to daily)	UMB mainstream (seasonal)	
Baseline situation (2000) – establishing the reference situation as regards hydrological, economic, environmental and social conditions	15	9.6	2.6	2.4%
Definite future situation (2015) – looking at developments expected by 2015 (i.e. existing, under construction or committed)	41	23.7	23	9.2%
Probable future situation (2030) – looking at country plans for development in the next 20 years through to 2030, with / without 12 mainstream schemes and variants on these	71	46	23	14.2%

Development Issues

Opportunities and risks

- Locating decisions about dam planning and management in a IWRM river basin perspective
- Hydropower Development synergies and tradeoffs with other sectors
- Distribution issues: Local > national > regional perspectives
- Linking sustainable development of regional power sector to sustainable development of the Mekong basin

Focussing on the strategic concerns



THEME	KEY ISSUES
Power & Energy	1. ... 2. ... 3. ...
Economic systems	1. ... 2. ... 3. ...
Hydrology & Sediment	1. ... 2. ... 3. ...
Aquatic Ecosyst.	1. ... 2. ... 3. ...
Terrestrial Eco systems & agriculture	1. ... 2. ... 3. ...
Fisheries	1. ... 2. ... 3. ...
Social systems	1. ... 2. ... 3. ...
Navigation	1. ... 2. ... 3. ...
Climate change	1. ... 2. ... 3. ...

Hydropower Impact = opportunities and risks

Issues

- Sediments and nutrients
- Fisheries
- Livelihoods
- Foreign direct investment
- Power security

Projects by significance of impact – groups and individual projects

Geographic area (area and country by significance of impact)

Distribution of costs & benefit

Example: SEA Scoping & Inception Stage



Collaborative process: To identify themes & issues that each country and each stakeholder interest felt important to balance the development opportunities and risks

- A. Fisheries
- B. Agriculture
- C. Wetlands & biodiversity conservation
- D. Navigation
- E. Health
- F. Local Livelihoods & Poverty reduction
- G. Migration
- H. Irrigation
- I. Energy Security/ energy poverty

- A. Fisheries (1)
- B. Power generation (2)
- C. Navigation (2)
- D. Tourism (3)
- E. Manufacturing/processing industry (4)
- F. Water Quality, sedimentation & erosion (5)
- G. Resettlement & cultural heritage (6)

THAILAND
CAMBODIA

LAO PDR
VIET NAM

- A. Fishery (1)
- B. Power & Energy (1)
- C. Poverty and livelihood (2)
- D. Hydrology and water quality (2)
- E. Agriculture and water supply (3)
- F. Terrestrial ecology and land use (3)
- G. Aquatic diversity and ecosystems and fisheries (3)
- H. Navigation (8)

- A. Agriculture (1)
- B. Fisheries (2)
- C. Transport & inland waterways (3)
- D. Ecosystem integrity and environment (3)
- E. Hydrology and climate change (4)
- F. Power generation (unranked)

Strategic Options to Consider

SEA process on LMB mainstream dams
offered 4 strategic options:

1

- Not to proceed with the mainstream projects

2

- Defer a decision on whether or not to proceed and in what form and circumstances

3

- Proceed with mainstream development on a gradual phased basis

4

- Proceed with rapid development of all 12 projects

Opportunity Space

for dialogue on financing sustainable hydropower

1. Sustainability of **existing and proposed** hydropower schemes > management + development (distinguish between tributary and mainstream)
2. Front-end **project lending** related to incremental cost of building in flexibility for long-term sustainable operation of projects (e.g. from fish friendly turbines to variable level intakes, fish passage and outlets for EF releases).
3. **Benefit sharing**, especially mechanisms to transfer a portion of revenue accruing at regional and national levels to local levels
4. Linkage to **funding catchment management** and RBO/RBC activities, which contribute to sustainable hydropower
5. **Flexibility in project legal documents** to ensure adaptive management over 25-year concession periods (e.g. PPAs and concession agreements).

Opportunity Space for dialogue on financing sustainable hydropower

6. Appropriate roles for **innovative financing sources** including PES and carbon financing targeted to sustainable improvements / outcomes
7. Clarification of future role of project-specific and basin / sub-basin **hydropower sustainability assessments** in improving access to project lending.
8. Financing for **new prototype** “hydrokinetic” schemes for generation in river flows / in-channel / side channel use in sensitive river reaches (no dam hydro generation)
9. Governance and strategic communication

Thank you