Sustainable hydropower development is essential and affordable

Initiative on Sustainable Hydropower
International Conference on Trans-boundary River Basin Management
Phuket, Thailand.















Electricity consumption in LMB / GMS

relative to other countries + UN Human Development Index

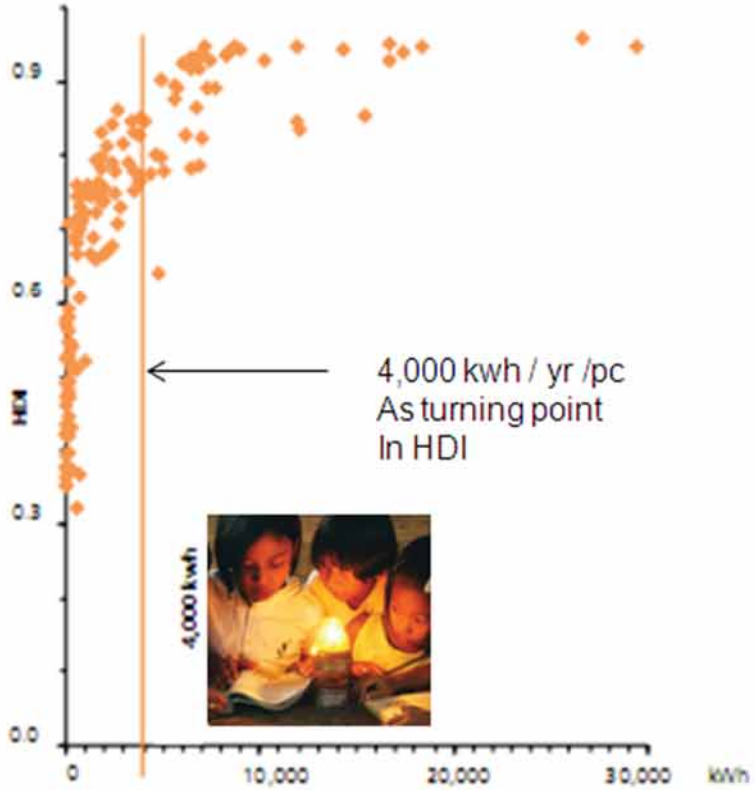
Per Capital Electricity Use

Economy	Kilowatt-hour(kWh)
Cambodia	56
PRC	1,684
Guangxi	1,100
Yunnan	1,252
Lao PDR	187
Myanmar	78
Thailand	1,950
Viet Nam	573
World	2,701
Developing Countries	1,221
OECD	8,795
United States	14,240

Lao PDR = Lao People's Democratic Republic, OECD = Organisation for Economic Co-operation and Development, PRC = People's Republic of China.

Sources: United Nations Development Programme (UNDP). 2007. 2007. *Human Development Report 2007/2008*; National Bureau of Statistics. 2006. *China Energy Statistical Yearbook 2006* (Source of Guangxi and Yunnan data.)

UN Human Development index + Per Capital Electricity Use (2005)



Per capita electricity use

kWh = kilowatt-hour.

Source: United Nations Development Programme (UNDP). 2007. *Human Development Report 2007/2008 Fighting climate change: Human solidarity in a*

Source: Building Sustainable energy futures in the GMS, ADB,

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Thinking behind Sustainability For Hydropower

Sustainability For Hydropower

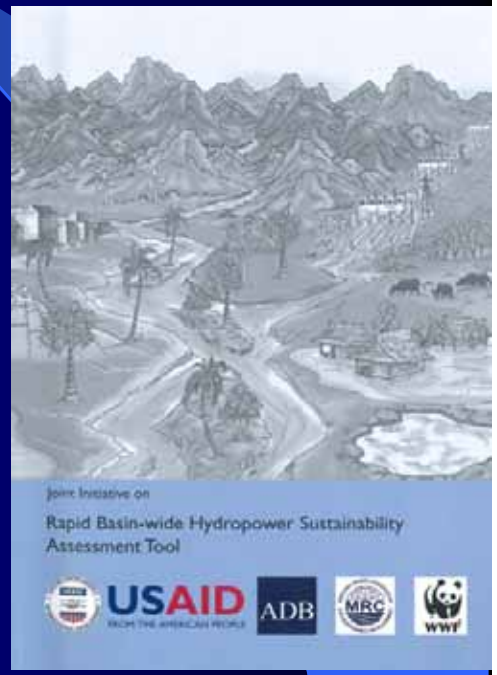
Measured In terms of:

Economic Aspects of Sustainability

- Risks and Uncertainties must be minimized through:
  - Analysis of economic and financial issues and risks must be early identified
- If risk is not properly addressed – investment will be threaten
- HP Project with too much Risks and Uncertainties will have negatives consequences on the Concession Agreement and the Power Purchase Agreement

Economic Aspects of Sustainability

- Economic Aspects of Sustainability in Hydropower Project can be ensured if they are sound and equitably distributed.
  - Legislative framework must be clear to support decision making
  - All Costs (project costs and resources affected costs) must be detailed and included
  - Distribution & Sharing of Benefits must be appropriately allocated to stakeholders and project affected people



Economic Aspects of Sustainability

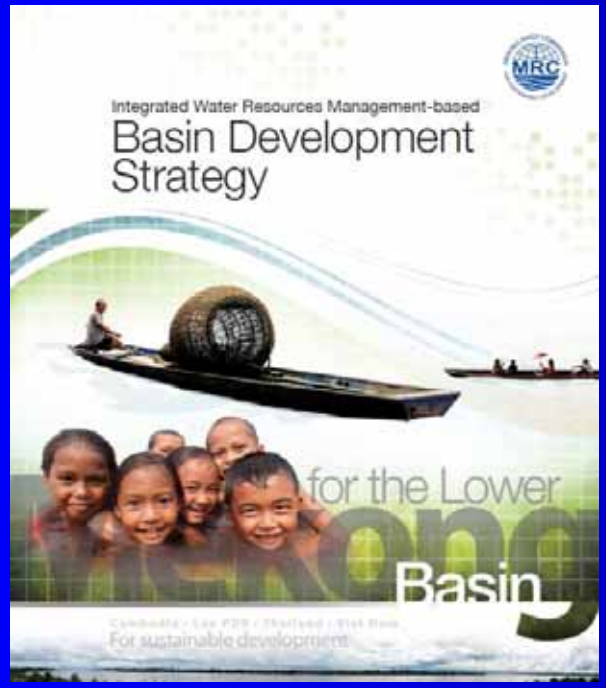
- **Legislative framework must be clear to support decision making:**
  - *Clarity and Efficiency in institutional framework*
  - *Energy Policy and Project priorities*
  - *Priority areas for development and conservation*

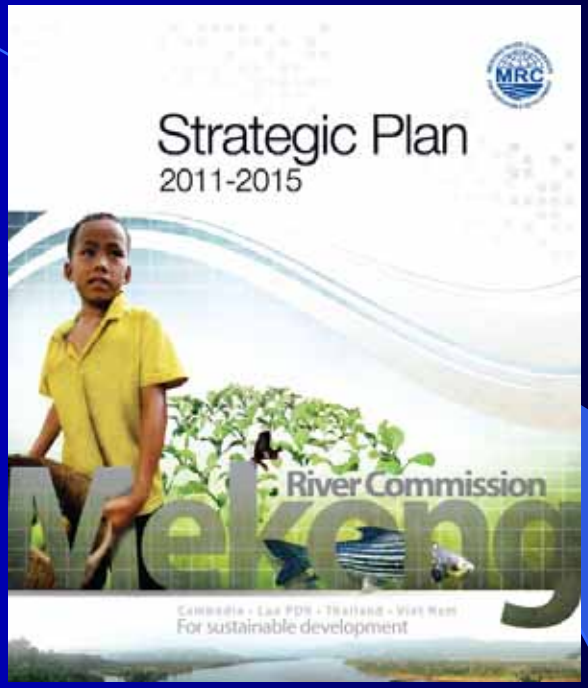
Economic Aspects of Sustainability

- **<u>All Costs must be detailed and included</u>**:
  - *All project costs must be included (Construction, operation and maintenance costs)*
  - *All Social mitigation cost must be included (including land acquisition cost)*
  - *All Environmental costs must be included*

Economic Aspects of Sustainability

- Benefits
  - *Early identification of principal stakeholder and* legitimate interests acknowledged and taken into account in the financial and economic evaluation processes.
  - *The use of the resource should aim for multipurpose usage*
  - *The new HP project should bring benefit to Local, National and Regional communities*





"Additional Studies" for the MRC Initiative on Sustainable Hydropower

- Ecologically sensitive sub-basins identified for limited development of hydropower on tributaries
- Guidelines on multi-purpose evaluation of hydropower projects
- Negative impact mitigation measures for tributary dams
- Study report on evaluated options of mainstream power development in context of national and regional power strategies
- Guidelines on risk mitigation options for possible mainstream dams
- Mainstream and tributary hydropower potential and alternative power options assessed and reported,
- Essential knowledge acquired to minimize uncertainty of possible mainstream dams
- Guidance on Sustainable Management of Reservoir Watersheds
- Improve Environmental and Socio-Economic Baseline Information for Hydropower Planning
- Strengthened cooperation with China for coordinated operations of Lancang hydropower dams to secure benefits of increased dry season flow, address issue of sediment transport and provide early warning

Thank you for your attention