

Scope of Work

LMB Hydropower Assessment of Economic Costs and Benefits

Objective:

The objective of this assessment is to provide the policy and decision makers in the riparian countries of the lower Mekong basin (LMB) with a balanced assessment of the benefits from hydropower development of the mainstream Mekong River against the costs due to the negative impacts of mainstream dams on the ecosystem services that are currently provided by an interconnected lower Mekong River system.

Problem Statement:

Governments in the LMB face a precipitous decision on whether to proceed with the hydropower development of the mainstream Mekong River. This decision involves trade-offs between short-term economic benefits from hydropower generation and long-term irreversible negative impacts on the ecosystems that provide livelihoods and food security to the rural poor.

The analyses undertaken to date do not appear to have:

1. Properly quantified and internalized the negative economic impacts of the proposed mainstream dams on the ecosystem services currently being provided;
2. Clearly disaggregated and presented (i) the benefits accruing to foreign investors, developers, distributors, and consumers; (ii) the national government's benefits (royalties, taxes, etc.) and costs (O&M, decommissioning, social dislocation, etc.); and (iii) disbenefits to the economy and rural people (national and transboundary) who currently depend on the Mekong River's ecosystem services;
3. Conducted a comparison of the benefits and costs at the national level for the investments; and
4. Adequately explored the possible future hydropower development alternatives available to the governments in lieu of mainstream dams.

Background

As stated on the Mekong River Commission (MRC) web-site, the MRC "was formed on 5 April 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam. The four countries signed The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin and agreed on joint management of their shared water resources and development of the economic potential of the river."¹ The MRC also has an agreed to a set of Procedures for Notification, Prior Consultation and Agreement (PNPCA) among the LMB riparian countries for projects affecting the mainstream Mekong River.

Two parallel activities have been underway at the MRC Secretariat: (i) the Basin Development Plan for 2006-2010 (draft June 2010)²; and (ii) a Strategic Environmental Assessment (SEA) for hydropower development on the mainstream Mekong River (final Report issued in October 2010)³.

¹ It has four goals for 2006 to 2010, which include (i) To promote and support coordinated, sustainable, and pro-poor development; (ii) To enhance effective regional cooperation; (iii) To strengthen basin-wide environmental monitoring and impact assessment; and (iv) To strengthen the Integrated Water Resources Management capacity and knowledge base of the MRC bodies, National Mekong Committees, Line Agencies, and other stakeholders.

² Draft BDP; <http://www.mrcmekong.org/programmes/bdp/Tech-Notes/Assessment-of-Basin-wide-Dev-Scenarios-Main-ReportPt-1%2B2-updated100716.pdf>

³ <http://www.mrcmekong.org/ish/sea.htm>

Proposed/existing Mainstream Dams on Mekong/Lancang River

Mainstream dams in Upper Mekong Basin (UMB)

- **Lancang River Yunnan, China:**
 - ♦ 3 constructed, 1 under construction, 4 planned

Proposed mainstream dams in Lower Mekong Basin (LMB)

- **Chiang Saen to Vientiane (Lao)**
 - ♦ 1. Pak Beng, 2. Luang Prabang, 3. Xayaburi, 4. Pak Lay, 5. Sanakham, 6. Pak Chom
- **Vientiane to Pakse (Lao)**
 - ♦ 7. Ban Koum, 8. Lat Sua,
- **Pakse to Kratie (Lao section above Khone falls)**
 - ♦ 9. Don Sahong, 10. Thakho
- **(Cambodia section below Khone falls)**
 - ♦ 11. Stung Treng, 12. Sambor

Although there it had been expected the two reports would be linked and have common recommendations that would guide the riparian countries in their decisions on mainstream dam development, it became clear in mid-2010 that the draft BDP was tacitly recommending among its development scenarios the development of the 11 mainstream dams, beginning with the 6 mainstream dams in Lao above Vientiane, while the SEA's recommendation is to defer development of the mainstream dams. Before the SEA was finalized, the Government of Lao provided notice of its intention to proceed with the Xayaburi Dam project (one of the six proposed dams in Lao above Vientiane), formally invoking the PNPCA process.

MRC draft BDP Scenarios

Baseline (2000)

- ♦ 1 Mainstream dam in UMB Yunnan;
- ♦ 15 tributary dams in LMB

Definite Future (2015)

- ♦ 4 UMB mainstream dams in Yunnan;
- ♦ 41 tributary dams in LMB (15 existing plus 26 new/under construction)

Foreseeable Future (2030)

- ♦ 6-8 mainstream dams in Yunnan;
- ♦ 71 LMB tributary dams (15 existing plus 56 new/under construction)
- ♦ 0, 6, 9, 11, or 12 LMB Mainstream dams

Long-term Development (2060) – High development scenario

- ♦ 8 mainstream dams in Yunnan
- ♦ 11 LMB mainstream dams
- ♦ 104-136 LMB tributary dams

This issue has drawn international attention. In Secretary Clinton's remarks with Vietnamese Foreign Minister Pham Gia Khiem on 30 October 2010⁴, the Secretary stated that "...at the meeting of the Lower Mekong Initiative, we discussed how to work together to adapt to the effects of a changing climate. And we had a very constructive discussion about the potential impact of building dams on the Lower Mekong. The United States has recommended a pause before major construction continues..."

⁴ <http://www.state.gov/secretary/rm/2010/10/150189.htm>

If approved, the Xayaburi dam, as in the case of all mainstream dams, will likely block the migration of fish and their attendant breeding and feeding patterns along the Mekong River, and the proposed 11 mainstream dams will cumulatively lead to the inevitable extinction of many migratory fish that account for the majority of the current capture fisheries. Although the Xayaburi dam alone will not lead to all the expected disbenefits, the Xayaburi dam is viewed as the first domino that will inexorably lead to the construction of the rest of the proposed mainstream dams in the LMB. In this regard, the cumulative impacts need to be explicitly identified and explained to the policy and decision makers in the context of the Xayaburi Dam PNPCA process.

There are many environmental and social impacts from the proposed mainstream dams⁵, but the key issue that must be clarified post-haste for decision makers are the costs associated with the projected losses in capture fisheries. First, the losses in capture fisheries, which represents the primary protein source for the riparian communities⁶ and will need to be replaced, should have been valued in the economic assessment at the replacement cost for the dietary protein requirement. In addition, given the uncertainties, a sensitivity analysis is necessary varying the level of loss (i.e., 0.55 Mt/yr, 1 Mt/yr, and 1.5 Mt/yr). Second, the economic analysis has examined and attempted to value some ecosystem services, including capture fisheries, but the assumptions used need clarification and the discount rate applied – given the intergenerational nature of the resource – should probably not be the opportunity cost of capital. This needs closer examination. Finally, the economic analysis needs a better discussion of the secondary impacts of the losses in capture fisheries including the sectors share of the local economy and in creating purchasing power for the rural consumer. Those secondary impacts on the poor needed to be highlighted.

Required Tasks

The tasks to be performed for this assessment are the following:

1. Reassess the assumptions used in the BDP economic analysis by (i) using the replacement costs of the losses to capture fisheries in lieu of the currently applied opportunity costs which alone does not internalize the cost to the rural people; (ii) undertake a rigorous valuing of ecosystem services (particularly capture fisheries) so that the negative impacts can be internalized into the economic analysis and this may involve applying social or intergenerational discount rates where applicable; (iii) examine and provide a discussion on the secondary impacts on the rural economy vis-à-vis the loss of capture fisheries;
2. Disaggregate the benefits and costs used in the NPV calculations among investors, developers, consumers, governments and rural people so that policy makers have the information necessary to make informed decisions.
3. Based on an understanding of the state of the art research and development of alternate, less invasive, methods of hydropower development, provide guidance on areas that could be further explored to develop hydropower on the Mekong River without triggering significant environmental impacts.

⁵ 30 million people live within 15 km of the Mekong River in LMB; 100,000+ people would face relocation; 135,000 ha of agriculture lands would be inundated/lost; 55% of the Mekong River between Chiang Saen and Kratie would be converted into reservoir; 75% of baseline sediment load (i.e., 160-165 Mt/year) to Kratie will be removed by dams in UMB (China) and the LMB; 58 species of fish are highly vulnerable to extinction; 80% of key biodiversity areas along Mekong in LMB affected; 73,450 ha of wetland permanently inundated (17% of total in LMB)

⁶ Using the SEA estimates of 0.55Mt/year to 0.9 Mt/year in losses in capture fisheries, the mainstream dams would result in loss of the primary protein source for 12 million to 20 million persons in the LMB, where malnutrition is already an ongoing problem.

Implementation Approach

Under USAID's ECO-Asia contract, which includes trans-boundary water resource issues in the Mekong basin, AECOM will contract with a university or other experts to perform the required tasks in consultation with the MRC. It is important that the economic assessment have credibility with the riparian government decision makers and be vetted with key stakeholders, such as leading NGOs and MRC donors. The product should include a sensitivity analysis and risk assessment to inform decision makers of any potential outcomes and significant transboundary impacts which might warrant postponing mainstream development until the full context of the impacts, mitigation options and possible compensation mechanisms are better understood.

Geographic scope

The geographic scope of the work to be performed is the LMB riparian countries of Cambodia, Lao, Thailand and Vietnam.

Expected deliverables

There are two main deliverables:

1. An economic assessment report of the mainstream hydropower that (i) properly values loss of capture fisheries and the existing ecosystem services provided by an interconnected lower Mekong mainstream; (ii) provides a discussion of the secondary impact of the loss of capture fisheries on the rural economy and the poor; and (iii) disaggregates the benefits and costs identifying accruals (positive and negative) to foreign investors, developers, distributors, consumers, national governments and rural users of existing ecosystem services. An initial draft of this report must be provided to RBMA for review prior to using it for public consultations with riparian governments and regional stakeholders. Based on those consultations, a final draft report will be submitted to RDMA for review and comment. RDMA's comments on the final draft will be included and the report finalized and made available for dissemination.
2. An assessment report that provides guidance on state of the art research and development of alternate, less invasive, methods of hydropower development, that could be further explored to develop hydropower on the Mekong River without triggering significant environmental impacts.

Timeline

The work will need to be completed by 30 April, 2011, with preliminary results available by February 28, 2011, so these can be presented to decision makers within the region.

Solicitation

Interested organizations should send an expression of interest to AECOM at info@eco-asia.org.