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Approach and Methodology for Technical Review of the Pak Beng Hydropower Project Fisheries and Environment



*Regional Stakeholder Forum on the Council Study
and the Pak Beng Hydropower Project*

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Luang Prabang, Lao PDR

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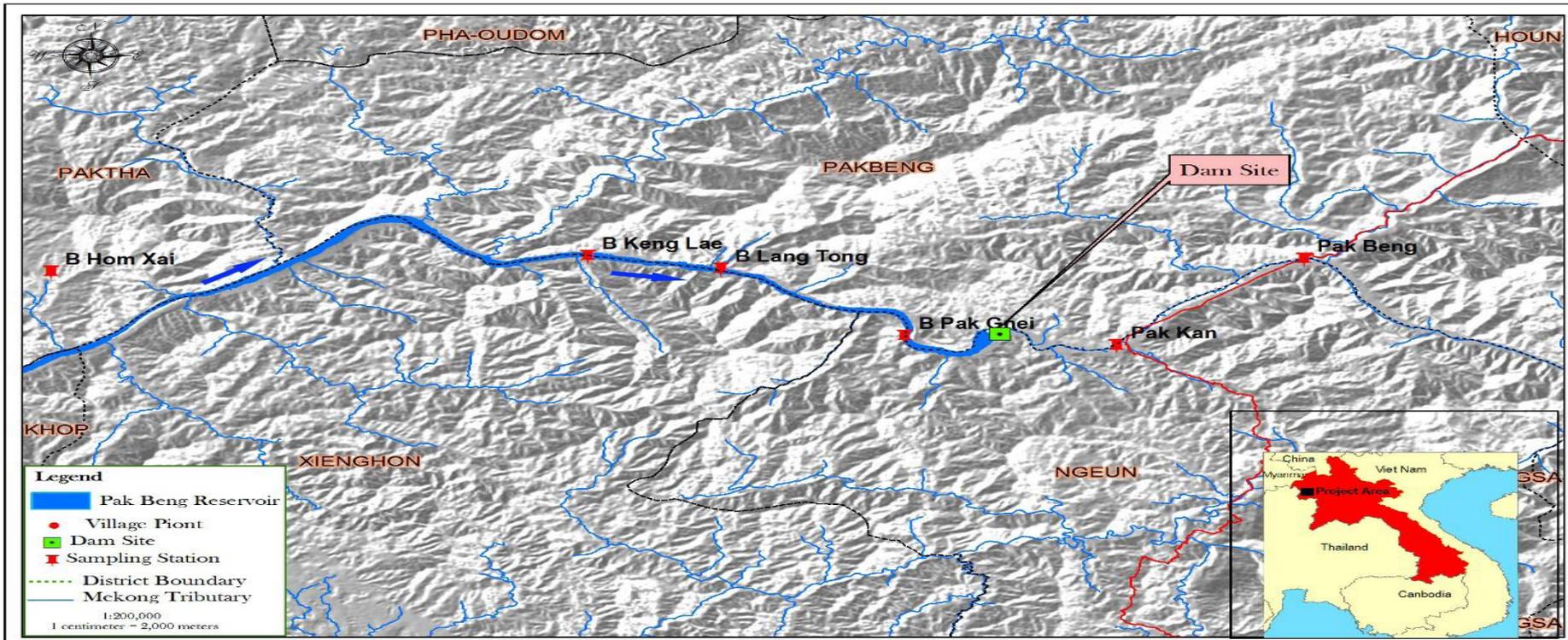
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Overview of the Submitted Documents

- *Fisheries*

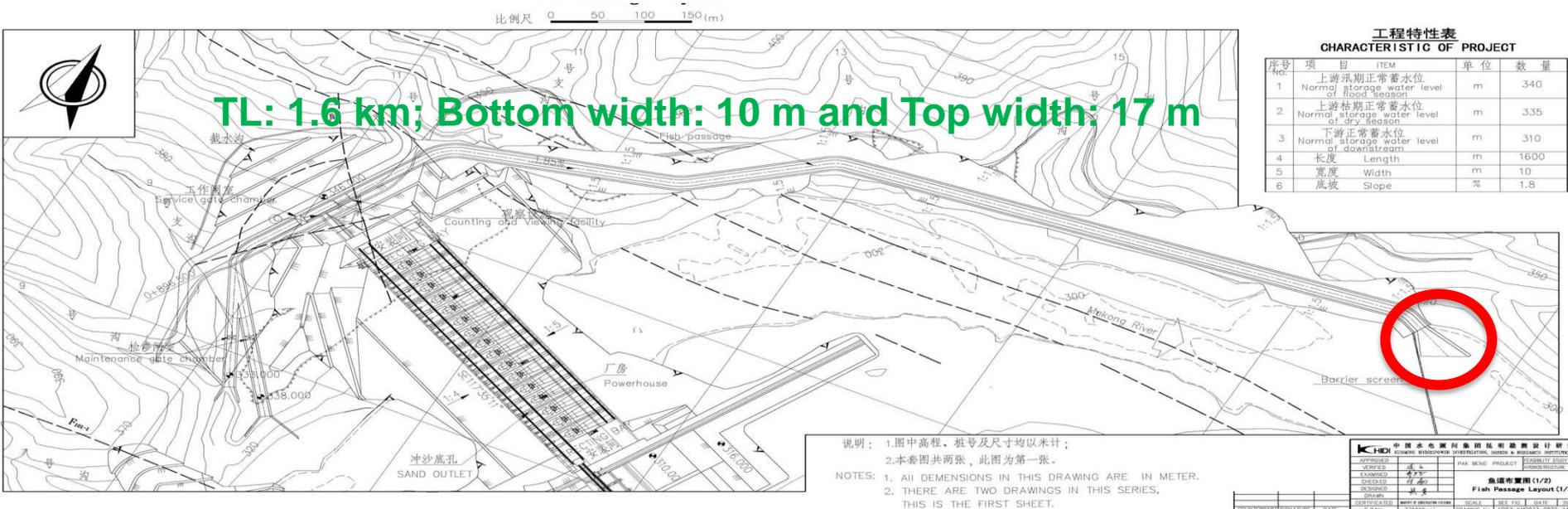
- The Project collected both **secondary and primary fisheries data** at **six** sampling locations up and downstream of the dam for a few days each in the dry and flood seasons;
- 54 fish species were found from the field surveys.



- Would **impact the fish population** and various aquatic organisms due to the change of water level and river flows, especially in downstream section, leading to a decline in diversity and abundance of fish species and aquatic organisms.
- The **Mekong giant catfish** (*Pangasianodon gigas*) is likely to be seriously and negatively impacted by the Pak Beng hydropower project and other downstream hydropower projects (e.g. Xayaburi and Don Sahong), eventually or possibly leading to extinction.



- **The Impact level** cannot be distinctly assessed since the data of fish migration is not sufficiently available.
- **A natural-like bypass fishway** was proposed on the left river bank, with gentle land and low gradient, for mitigating impacts on upstream and downstream fish migration.



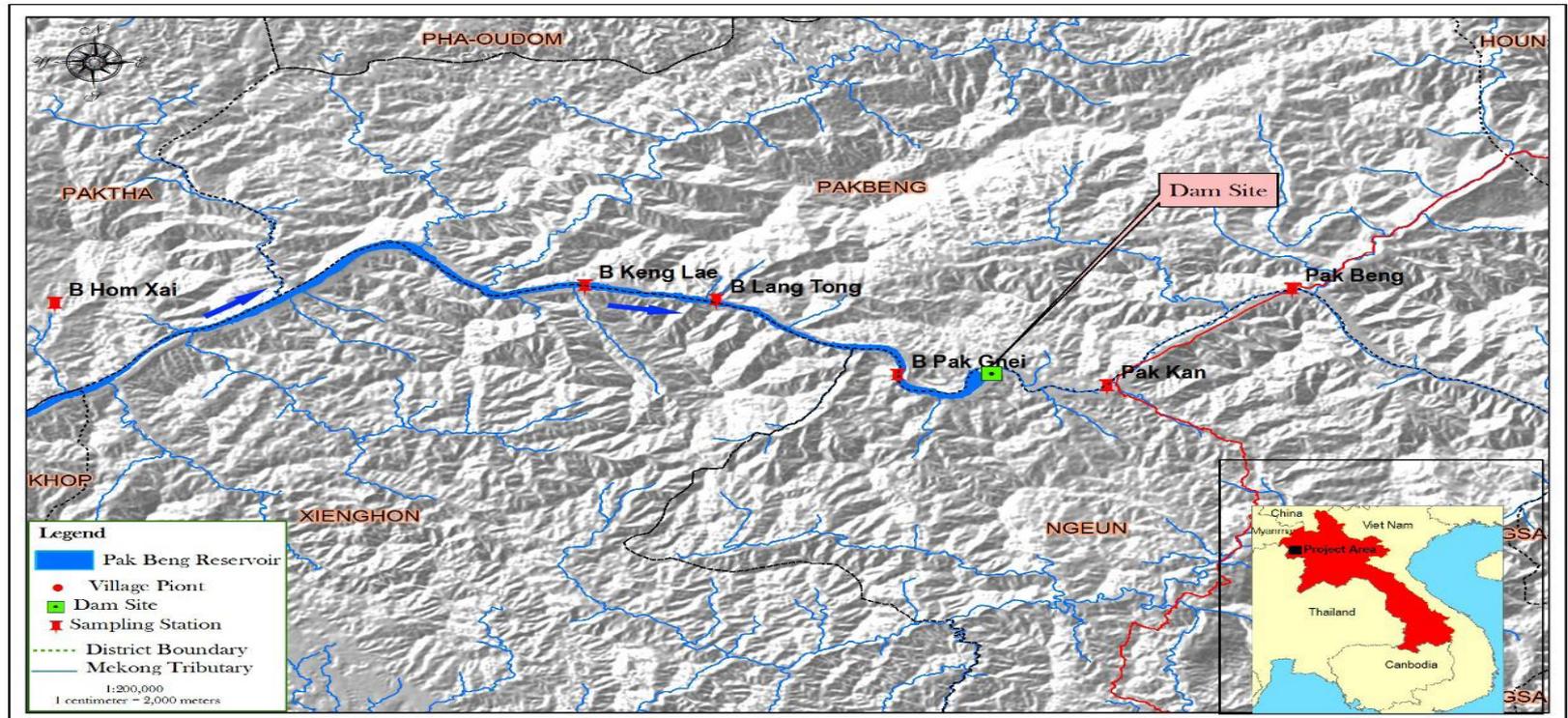
- **A fishery research station** and a fish transport mobile unit with a large container and an aeration system were suggested to establish during construction phase.



Overview of the Submitted Documents

- *Environment*

- The scope of the EIA covers **water quality and aquatic ecology** studies at **six** sampling locations up and downstream of the dam.
- **Baseline monitoring results** from Pak Beng project in the 2010 dry season (a few days) and the 2011 flood season (a few days) for relevant **water quality parameters** are presented.



- The EMMP addresses **water quality monitoring**, but no details on locations and parameters are given and these seem to be largely based on weekly observational data.
- The scope of the **aquatic ecology** baseline includes plankton, benthic fauna and aquatic plants.
- The baseline for plankton and benthic fauna is based on **a single sampling** in January 2011 (dry season) and again in July 2011 (flood season).
- Based on these **limited surveys** it is concluded that planktonic and benthic fauna showed **few species** and **low density**.

- The EIA and ESIA & CIA reports concluded that Pak Beng project may **affect water quality** due to erosion and sedimentation, solid waste, wastewater discharge, degradation of biomass residue, agriculture and aquaculture (increased BOD and changed pH), navigation, and oil spills, especially during construction phase.
- **Impact on habitats**, feeding and spawning grounds of fish and other aquatic organisms.
- There might not be an adequate **minimum flow** downstream from the dam. Upstream of the dam, the habitat will change from free flowing to an **impounded area**, the 97 km reservoir.



Approach and Methodology for the Technical Review

Phase I: Completed



1. Screen submitted Pak Beng HPP documents in relation to fisheries & environment aspects and assess compliance with MRC's Preliminary Design Guidance – provision of crosscheck of PDG requirements & identify gaps in information & scope of EIA documents.

Phase II: Completion by 17 March 2017

2. Through review of EIA documentation, assess the likely general impacts on aquatic ecosystem functioning & fisheries/ environment over the course of the dam's life – construction, commissioning, operation and closure.
3. Identify gaps regarding knowledge on fisheries, ecology/biological behavior of fish species including migration in the LMB and propose critical future assessments, research or study in the immediate term and longer term.

3. Identify gaps regarding knowledge on aquatic ecology and water quality, in conjunction with hydrology expert and propose critical future assessments, research or study in the immediate term and longer term.
4. Review mitigation measures proposed by the developer and advise on their likely effectiveness.
5. Assess possible cumulative effects of Pak Beng under the assumption of the other planned dams in the Mekong mainstream. This will be carried out with particular reference to Xayaburi which is already under construction and may act as a moderating development as it is downstream of Pak Beng. *The SEA, BDP, MDS, hydropower risk assessment and mitigation guidelines (ISH0306) and MRC CS findings will be used to support this assessment and act as comparative assessments.*

6. Draft technical report on possible transboundary fisheries and environment impacts and effectiveness of the measures proposed to avoid, minimize and mitigate adverse impacts on fisheries and the environment of Pak Beng Hydropower Project.

Phase III: Field visit in early April 2017

7. Field visit to the dam site to review the environmental and topographical conditions of the dam site and discuss the various aspects of the dam design and operation with the developers and line agencies in situ.
8. A field visit to Xayaburi Dam is also recommended as any mitigation at Pak Beng needs to be compatible with Xayaburi.
9. Preparation and presentations of preliminary findings of review process and findings of field visits to 2nd JCTWG Meeting

Phase IV: Completion by 10 May 2017

10. Compile all outcomes of the Fisheries EEG into one concise, consolidated and harmonized report according to the needs of the PNPCA JCTWG.
11. Compile an executive summary of findings including key conclusions into a summary report for final MRC Prior Consultation Review Report.

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Thank you!

