

Xayabouri and Pak Lay dams, Xayabouri province, Lao PDR

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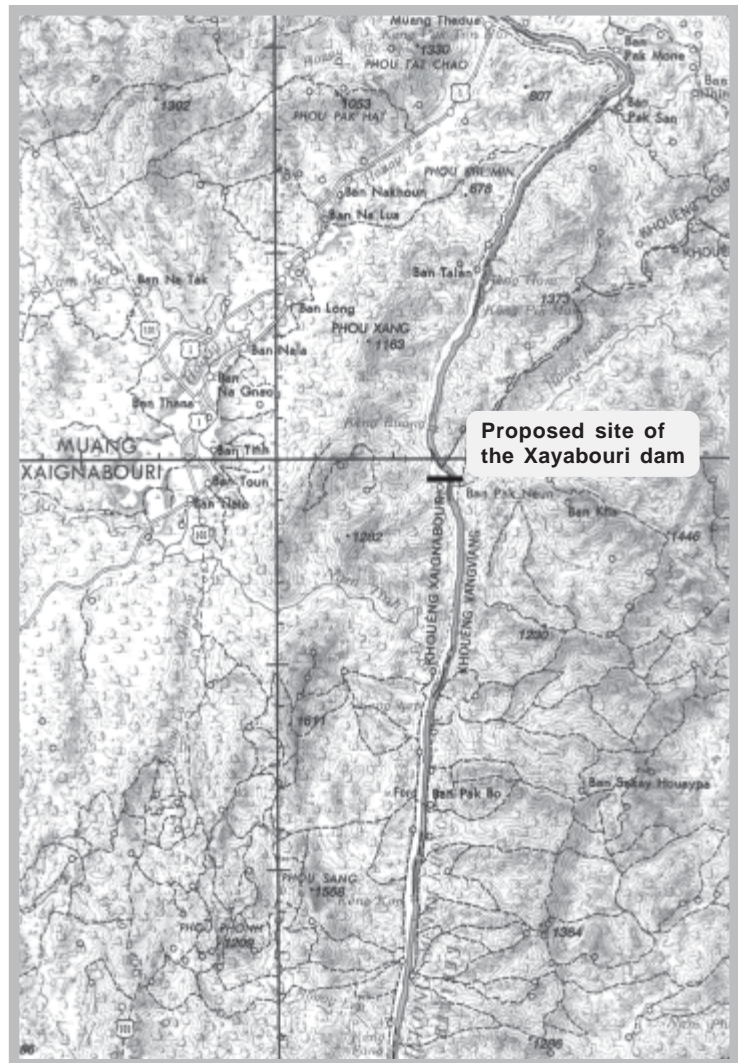
In February 2007, The Lao National Committee for Energy released a list entitled “Power Development Plan in Laos”, outlining the status of existing and planned power projects, the majority of which were hydropower schemes.¹ Out of a total 70 power projects identified in the list, only seven were classified as “Not open to development” – mostly hydropower schemes located on the Mekong mainstream. A few months after the list was released, however, the Government of Laos (GoL) signed agreements with investors from China and Thailand to conduct feasibility studies for two mainstream dams in northern Laos: Xayabouri and Pak Lay (see map).

On 4 May 2007, Thai construction company, Ch. Karnchang Public Company Ltd signed a Memorandum of Understanding (MoU) with the GoL to undertake a feasibility study for the Xayabouri dam. According to the company, the project would cost an estimated US\$1.7 billion and generate 1,260 megawatts (MW) of electricity for export to Thailand.² The feasibility study is expected to be completed by 2009 and construction could begin in 2011.

In June 2007, the GoL signed an agreement with two Chinese companies - Sinohydro Corporation Ltd and the China National Electronics Import – to investigate Pak Lay dam, which according to the 1994 Mekong Secretariat study would be located approximately 110 kilometres downstream of Xayabouri dam. According to news reports, the proposed 1,320 MW Pak Lay dam would cost up to \$1.7 billion to develop and generate electricity for domestic demand as well as export to Thailand.³

Potential Impacts

While very little information is available on both projects, the 1994 Mekong Secretariat study estimated that the Xayabouri and Pak Lay dams would displace 1,720 and 11,780 people, respectively. Both projects were part of a ‘run-of river’ cascade, including five Mekong mainstream dams in northern Thailand and Laos, evaluated as part of the Mekong Secretariat’s “Mekong mainstream run-of river hydropower” study in 1994. A fisheries study published by the Mekong Secretariat in the same year, noted that while there was lack of data to evaluate impacts of individual projects in detail:⁴



[I]f all the five planned dams are to be implemented, they will remove almost all this stretch as a free-flowing stream and convert it to a cascade system that will inundate spawning areas, remove wetland and littoral habitat, increase downstream incubation drift time, block upstream migration, cause turbine mortality, flood the confluences of tributaries, and induce species changes and reduce biodiversity.

The likely downstream impacts that the Xayabouri and Pak Lay projects would have on fisheries and ecosystems are already evident along the Mekong in northern Thailand and Laos, following the construction and operation of two hydropower projects in China’s section of the river – Manwan and Dachaoshan – both of which, like Xayabouri and Pak Lay, are categorised as ‘run-of-river’ dams by the Mekong River Commission.⁵ The construction and operation of the Manwan and Dachaoshan dams have resulted in changes in the flow regime, sediment load,

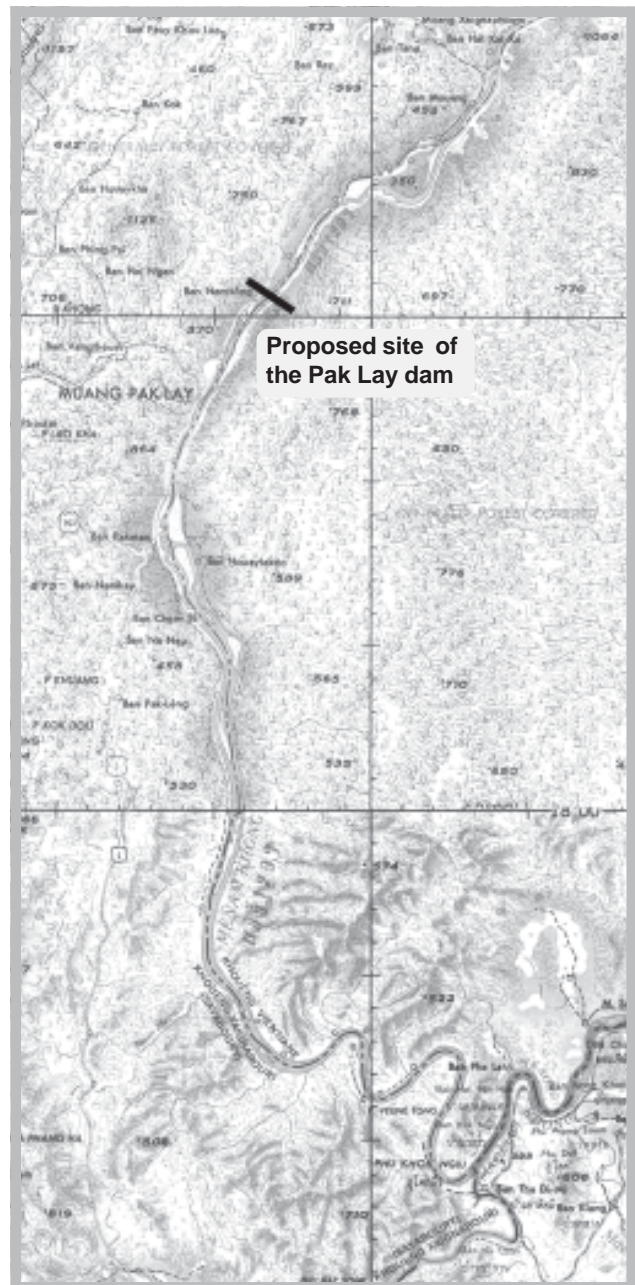
destruction of fisheries and important fish habitats, and erosion of riverbanks, which in turn have severely affected riparian communities' livelihoods.⁶

The stretch of the Mekong where Xayabouri and Pak Lay are proposed to be built, is ecologically distinct from floodplain habitats further downstream. It is characteristic of "a typical mountain river, crossing through steep river valleys with limited floodplain habitats. In this section fishes mainly move from deep pool habitats along the Xayaboury-Louang Prabang stretch to upstream spawning habitats."⁷ This movement of fish, vital to sustaining fish populations, would be blocked if the Xayabouri and Pak Lay dams are built.

Impacts of dams on fish migrations are not confined to the blocking of migration routes. Of equal concern are the changes in hydrological regime and degradation of important habitats, such as deep pools that provide important dry-season refuges for migratory and sedentary species, including the critically endangered Mekong giant catfish. "Fishers in Xayabouri province, Lao PDR, reported existence of a deep pool near Ban Muang Liap, which they believe is a dry season habitat for the giant Mekong catfish. Fishers in Bokeo Province also believe that the giant catfish they catch originate from Xayaboury."⁸

A paper published by the MRC Fisheries Programme in 2002, which reviews existing knowledge and literature on deep pools in the Mekong basin, raises concerns regarding the filling-in of deep pools following the construction and operation of dams. This is already evident in some of Mekong's tributaries such as in the Sesan and Theun rivers, where the Yali Falls and Theun-Hinboun dams are located, respectively.⁹ The paper notes that in some areas along the Sesan and Theun rivers, "deep pool habitats, and the fishes they sustain, have virtually disappeared."¹⁰

Research by the MRC Fisheries Programme identifies impacts of water infrastructure such as hydroelectric, irrigation and flood control schemes, as the "overriding threat to the future of the Mekong's fish and fisheries... There is little doubt that this is the main threat to river fisheries worldwide..."¹¹ While the stretch of the Mekong where Xayabouri and Pak Lay dams would be built appears to be



much less-studied than the areas surrounding the proposed Don Sahong and Sambor dams, experience of dam impacts elsewhere in the Mekong basin clearly indicate these projects would have widespread negative impacts on fisheries and the communities who depend on aquatic resources for their food security and income.

Endnotes:

- 1 see: http://www.poweringprogress.org/energy_sector/pdf_files/Electric_Power_Plants_in_Laos_as_of_Feb_2007.pdf
- 2 http://www.ch-karnchang.co.th/news_activities_detail_en.php?nid=135
- 3 Chinese to study Xayaboury hydropower plant, *Vientiane Times*, 13 June 2007
- 4 Mark. T Hill and Susan A. Hill, 1994, *Fisheries Ecology and Hydropower in the Mekong River: An Evaluation of Run-of-the-River Projects*. Mekong Secretariat, Bangkok, p.53
- 5 see: MRC Hydropower Development Strategy 2001, p.41
- 6 for example, see "The Mekong's Changing Currency", *Watershed* Vol. 11 No. 2, pp.12-25; SEARIN. 2004. *Downstream Impacts of Hydropower and Development of an International River: A Case Study of Lancang-Mekong*; Lazarus, K. et al. 2006. *An Uncertain Future: Biodiversity and Livelihoods along the Mekong River in Northern Lao PDR*, IUCN, Bangkok, Thailand and Gland, Switzerland. 49pp.
- 7 Poulsen, Anders, et al. 2002. *Deep pools as dry season fish habitats in the Mekong Basin*. MRC Technical Paper No. 4, Mekong River Commission, Phnom Penh, p.3.
- 8 *ibid*, p.3
- 9 *ibid*, p.11
- 10 *ibid*., p.3
- 11 Poulsen, A.F. et al. 2004. *Distribution and Ecology of Some Important Riverine Fish Species of the Mekong River Basin*. MRC Technical Paper No. 10, p.19