



**MEKONG BRIEF**

**NUMBER 3**

**July 2006**

### **The Theun Hinboun Hydropower Project**

- **The Theun Hinboun Hydropower Project in Lao PDR is a Build-Own-Operate-Transfer project managed by a private company, the Theun Hinboun Power Company**
- **The Lao government's investment in the \$240 million project was funded by a \$60 million loan from the Asian Development Bank**
- **The project has raised significant revenue for the Lao government but also resulted in impacts on the two rivers in the project area**
- **Impacts to fisheries and riverbanks have had a negative effect upon communities who rely on the rivers for their livelihoods**
- **A Mitigation and Compensation Program implemented by the power company has had some success in addressing some of the issues associated with impacts**
- **Ongoing issues relate to limitations in the mitigation and compensation plan and potential impacts of a planned expansion project**

## What is the Theun Hinboun Hydropower Project?

The Theun-Hinboun Hydropower Project is located between the Khammoune and Bolikhamxay provinces, 100 kilometres upstream from the confluence of the Theun/Kading and Mekong Rivers. It was completed in 1998 and it was constructed to generate electricity for sale to Thailand and to contribute towards the development of the Lao economy. Sales of electricity to Thailand occur under a power purchasing agreement signed by the Lao government and the Thai electricity agency, the Electricity Generating Authority of Thailand (EGAT) in 1996. Ninety-five percent of the electricity generated by the project is for export. The Theun-Hinboun Hydropower Project is now the largest foreign exchange source in Lao PDR, achieving its original objective of boosting export earnings for the Lao government.

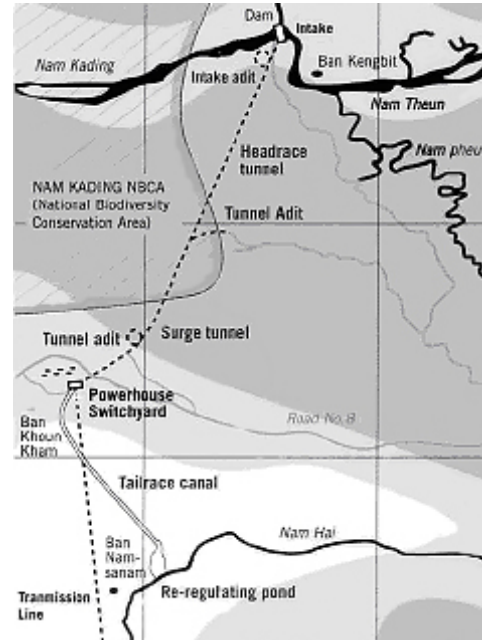


**Figure 1: Location of the Theun Hinboun power plant**  
Source: Theun Hinboun Power Company

### How does the dam work?

The 210 megawatt project generates electricity by diverting the water of the Theun-Kading River into the Hai and Hinboun Rivers. The project derives its effectiveness from the differing heights of the Theun-Kading and Hai-Hinboun River basins. The dam structure is located on the Theun River in the upper basin. Water is transferred from the higher basin, through a 5.5 kilometre tunnel, to a power station located at the base of the mountain. Here water is forced by gravitational pressure through turbines to generate electricity. The water is then discharged

through a 3.5km tailrace canal into a re-regulating pond and released into the Nam Hai River in the lower river basin. This river then flows into the Hinboun River. An 86 km power transmission line carries the electricity generated to the border with Thailand, at Thakhek.



**Figure 2: Hydropower generation system**  
Source: Theun Hinboun Power Company

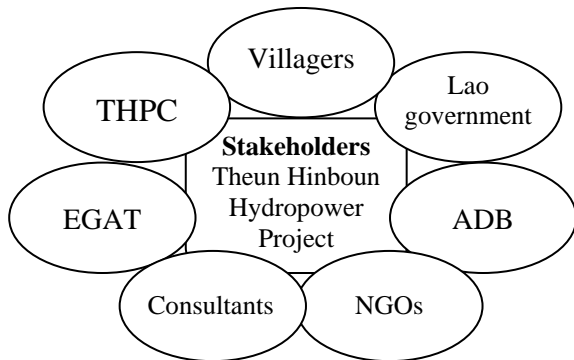
### How was the dam funded and who has management responsibilities?

The Theun Hinboun Project was the first large-scale dam project to be developed in joint venture between the Government of Laos (GoL) and the private sector. The Lao government state-owned electricity utility, Electricité du Laos (EdL), owns 60% of the project and their investment in the project was largely financed by a loan of \$60 million from the Asian Development Bank (ADB). The ownership of the remaining 40% share of the project is split equally between the Thai company MDX Lao and Nordic Hydropower, a partnership organisation owned by the Swedish government public utility. The total cost of the project was \$240 million. It was financed and developed as a Build-Own-Operate-Transfer (BOOT) venture that would see the project transferred back to government ownership in 30 years time. The Theun-Hinboun Power Company (THPC) runs the joint-venture project.

The ADB had a significant role in the project's development in that, in addition to financing the Lao government section of the project, it played a coordinating role between the government and foreign investors. Legal and financial advice was provided through a technical assistance grant.

## Who are the stakeholders?

The stakeholders in this project include the following:



**Figure 3: Stakeholders in the Theun Hinboun Hydropower project**

**THPC:** Private company responsible for operating all aspects of the dam

**Villagers:** Livelihoods affected following construction of the dam

**Lao PDR:** Part owner of the dam, receiving both royalties and profits generated by the dam

**ADB:** Financier & supporter of project, promoting the dam as a 'model project'

**NGOs:** Monitoring dam development in the region, lobbying ADB, Lao government, etc.

**Consultants:** Income derived from conducting EIA, review studies etc.

**EGAT:** Purchaser of power from THPC

## What have been the impacts of the dam?

Soon after the construction of the dam in 1998, impacts both upstream and downstream of the dam structure and downstream of powerhouse on the lower river became apparent. The impacts caused by both the presence of the dam as well as the diversion of large amounts of water from the Theun to the Hinboun river basins have included damage to fisheries, changed river flows, flooding, bank erosion, loss of river bank gardens, loss of access to rivers and reduced water quality.<sup>1</sup> Villagers in the project area, who typically rely on the river and the land for their livelihoods, have been significantly affected by these impacts, many of which were not identified in the original Environmental Impact Assessment (EIA) carried out by the dam developers.

<sup>1</sup> Shoemaker, 1998 *Trouble on the Theun Hinboun*. Report available at: <http://www.irn.org/programs/mekong/threport.html>

## What has been the international critique of the project?

Owing to its status as a 'model project' for the ADB and the impacts that have arisen as a result of its construction, the Theun Hinboun project has attracted the attention of the international NGO community. Both before and after the dam's construction NGOs published reports raising issues relating to pre-project planning, the poor quality of the Environmental Impact Assessment, the impacts of the dam and the need for some sort of mitigation and compensation for project affected people.<sup>2</sup> A sustained campaign was directed both at the Asian Development Bank as well as the private operators of the dam, calling for the issues raised in the reports to be addressed. This dam has also been used as part of wider efforts to demonstrate the negative impacts of hydropower development in the region. Key NGOs involved in the campaign include International Rivers Network, Probe International, FIVAS, Mekong Watch, TERRA and Oxfam Australia.

## What is the mitigation and compensation program?

In 2002 a Mitigation and Compensation Program (MCP) was introduced to deal with the impacts of the dam. This program, implemented by the Environment Management Division of THPC, is funded in the order of \$4.5 million over 10 years. A key aspect of the MCP is the establishment of village development committees. Through these committees the Environment Management Division works with the communities on activities such as wet rice farming, garden keeping, livestock raising and the establishment and operation of savings and credit funds. According to an independent report commissioned by the power company, the program has been making real and substantial effort towards providing mitigation.<sup>3</sup> Limitations to the effectiveness of program activities exist however, for example in regard to the difficulties for villagers of transferring and adapting to new production systems or of replacing protein in diets previously dependent on protein from fish. Concerns about dependence of villagers on the

<sup>2</sup> Eg. FIVAS, 1996, *More Water More Fish?* Avail at: <http://www.fivas.org/publikasjoner/morewater/1content.html>; Shoemaker, 1998 *Trouble on the Theun Hinboun*. Available at:

<http://www.irn.org/programs/mekong/threport.html>

<sup>3</sup> David Blake, Brian Carson and Nattaya Tubtim, 2005 *Review of the Environmental Management Division*, THPC

Environmental Management Division in a situation where the natural environment can no longer be relied upon for livelihood maintenance, are also real.

### What ongoing issues exist with the dam?

Two areas of immediate ongoing concern relate to the Theun Hinboun project. Firstly, there is currently no external regulation of the Mitigation and Compensation Program. This means that should the company change its attitude towards supporting the Program, it is not bound to ensure the villagers' interests are protected.

Secondly, a new Environmental Impact Assessment is currently being carried out for an expansion to the project. Such an expansion project would involve the construction of a new dam on a Theun River tributary above the current dam site. Its purpose would be to hold water back for release during times of low water flow in the Theun River. Such an expansion project could potentially require resettlement of villages and could also place significant demands on the Mitigation and Compensation Program which would likely need to be substantially expanded.

### For further information:

For project detail and ADB perspectives see ADB: <http://www.adb.org/Projects/TheunHinboun/>

For project detail and NGO campaign see IRN: <http://www.irn.org/programs/mekong/theun.html>

### Vital statistics and key dates

Dam capacity	210 megawatts
Project cost	US \$240
Ownership	Electricity du Lao (60%) MDX Lao (20%) Nordic Hydropower (20%)
Financing	US \$60 million ADB loan
Ownership transfer	30 years till ownership transferred to Lao government
Project Dividends	US \$239,090,000 (1998-2005)
No. affected villages	At least 57 villages and 3000 families <sup>4</sup>
MCP spending	US \$4.5million over 10 years

Table 1: Vital statistics of the Project

Date	Event
1991	Project Planning
1993	Theun Hinboun Power Company established
1995	Original EIA carried out
1995-8	Construction carried out
1996	Initial NGO critique released
1998	Dam completed, opened 4 April, impacts on local environment immediately apparent
1999	NGO critique released & subsequent ADB review missions
1999	Study on fisheries impacts
2000	Mitigation and Compensation Program study
2001	MCP implementation, EMD established
2004	MCP review
2004-6	EIA for "expansion project" (NT3)

Table 2: Key dates in the life of the Project

### AMRC's Mekong Brief Series

This Brief is the third in a series of information sheets to be produced by the Australian Mekong Resource Centre (AMRC), University of Sydney, for students, teachers and others with an interest in the Mekong Region.

The AMRC was established in 1997 to promote research, discussion and debate on development and environmental issues in the Mekong Region. The AMRC is a focal point for information, dialogue and activities in support of an equitable and sustainable development path for the Mekong Region.

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<sup>4</sup> ADB, 2002 *Connecting Nations Linking People: The GMS Economic Cooperation Program*, Manila