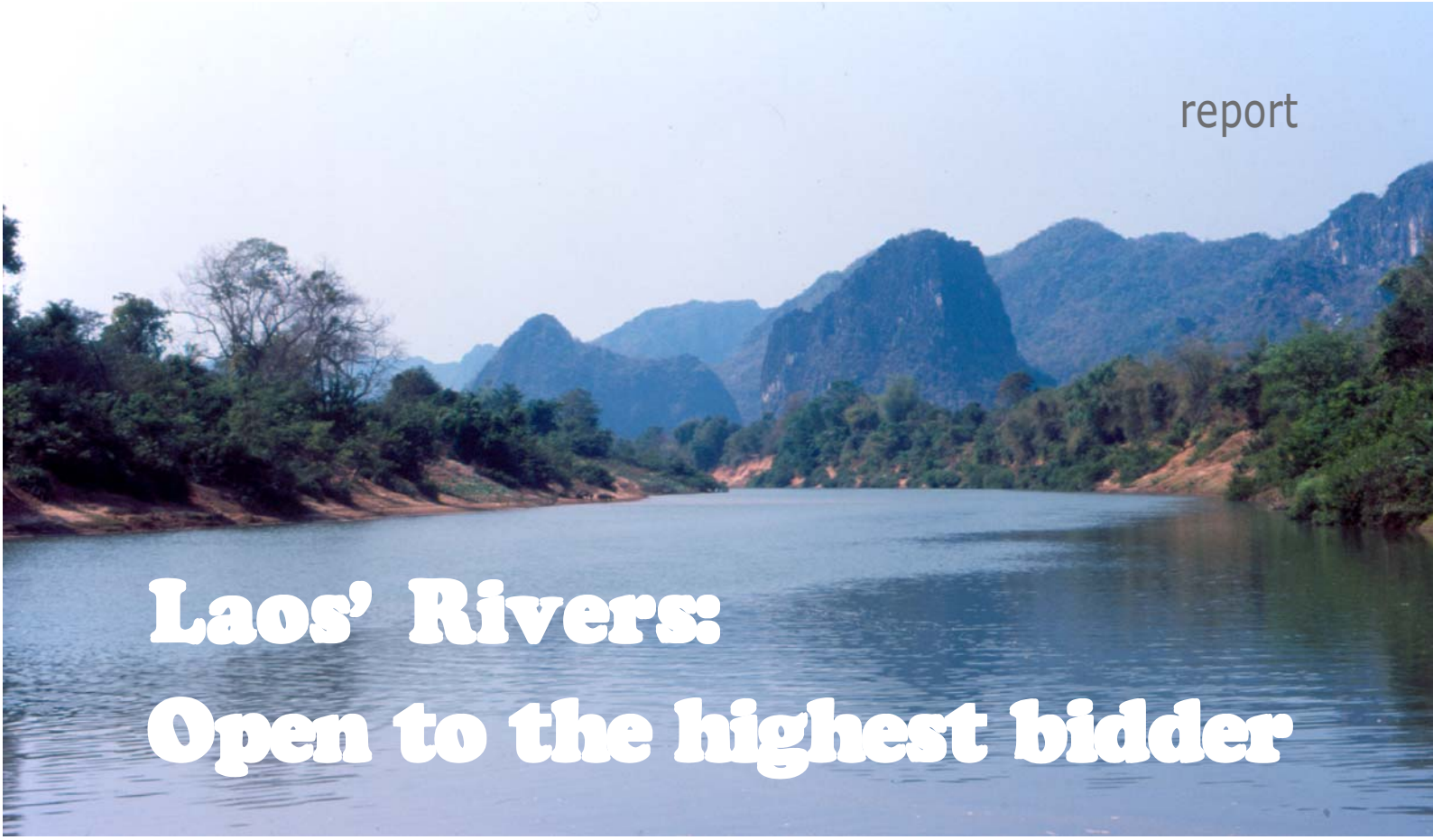

Laos' Rivers: Open to the highest bidder

Since the World Bank's approval of the Nam Theun 2 project in March 2005, the Government of Laos has signed a spate of agreements with hydropower investors from neighbouring countries to develop numerous hydroelectric dams in its bid to become the "battery of Southeast Asia". *Aviva Imhof* examines some of the planned hydropower projects and the implications of increasing regional investments in hydropower development.

For hydropower enthusiasts, Laos today must feel like the heady heydays of the mid-1990s. Since the Nam Theun 2 hydropower project was given the green light in March 2005, it seems that almost every day brings news of another deal being negotiated to build a hydro-dam in Laos.

The mid-1990s were a time when Laos' bid to become "the battery of Southeast Asia" promised to become a reality. Memorandums of Understanding (MoUs) were signed between the Government of Laos (GoL) and private developers to develop 23 hydropower projects. It seemed that every street block in Vientiane boasted a building with a sign proudly proclaiming it was the headquarters for a hydropower development consortium. But then Thailand's economic crash of 1997 struck. Slowly but surely, the investors packed up their bags and went home.

These days, things are finally looking up for would-be hydro investors. In January 2006, the Electricity Generating Authority of Thailand (EGAT) announced that it would sign an MoU with the GoL to purchase up to 4,000 MW of electricity from six hydroelectric projects and one lignite-fuelled plant. The MoU is expected to be signed sometime in 2006.

The projects set to be developed under the new MoU with Thailand include Nam Ngum 2, Nam Ngum 3, Nam Ngiep 1, Nam Theun 1, the Theun-Hinboun extension and the Xe Pian-Xe Namnoy project. There has also been talk of an extension to the existing Houay Ho Hydropower Plant, and an agreement has been signed with Vietnam to export power from the Xe Kaman 3 project in Southern Laos. In the north, the GoL has signed agreements with China's Sinohydro Corporation to develop the Nam Ngum 5 and

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Nam Ou 8 projects in Xieng Khouang and Phongsaly provinces respectively.

However, the news is not so good for those who will be affected by the hydro spending spree currently on offer. Hydropower projects developed over the past decade in Laos have damaged fisheries and river ecosystems that people depend on for their food security and well-being. Tens of thousands of Laotians now lack sufficient food to eat, clean water to drink and income to meet basic needs because of dam projects. As there are no independent agencies within Laos to monitor the government's commitments, affected communities remain isolated, marginalised and intimidated from voicing concerns. The lack of an established legal system and an independent judiciary make it almost impossible for affected people to hold the developers and the government accountable when they fail to live up to their commitments. Furthermore, with no free press or local civil society organisations in Laos, it is extremely difficult to receive objective and accurate information about the situation on the ground.

Over the past decade, millions of dollars of World Bank and Asian Development Bank funds have been spent on numerous studies to identify and rank hydropower projects in Laos. Despite this, there is a startling lack of information on the social and environmental impacts of the planned projects.

What the future holds for communities potentially affected by new projects has never been assessed. Over the past decade, millions of dollars of World Bank and Asian Development Bank funds have been spent on numerous studies to identify and rank hydropower projects in Laos. Despite this, there is a startling lack of information on the social and environmental impacts of the planned projects. The GoL's new National Policy on Environmental and Social Sustainability of the Hydropower Sector requires full Environmental Impact Assessments to be developed and released to the public for all hydropower projects under planning (see box for further details). Yet no environmental impact assessments have been publicly released for any of the projects under consideration for future development.

A World Bank-funded strategic impact assessment for the Lao hydropower sector, conducted by Norplan, notes that the present model for hydropower development of signing MOUs between the GoL and private developers, "is non-transparent and non-competitive, and as far as is known, the content and format of the MOU document is not standardised. Therefore, environmental and social requirements seem not to be incorporated…unless strict requirements in line with present EA [environmental assessment] regulations are included in the MOU, there is nothing that obliges the Developer to adapt technical designs to EIA findings and otherwise minimise environmental and social impacts."[1]

Nam Ngum 2: A high impact project

Back in 2003, only one forlorn sign remained on a prominent French colonial building in central Vientiane: that of Shlapak Group, a consortium comprising nine companies, which hoped to develop the Nam Ngum 2 dam project. While Shlapak Group is one of the investors that have long since departed Laos, Nam Ngum 2 is very much alive.[2] According to media reports, the project has already secured a 25-year power purchase agreement with EGAT, although this could not be independently confirmed. The 615-megawatt (MW) project, now being developed by SouthEast Asia Energy Company Limited, is scheduled to come online in 2010, and would cost around US$790 million.

Nam Ngum 2 is located upstream of Laos' oldest hydropower plant, Nam Ngum 1. The project is known to be a high impact project, and would displace around 5,800 mostly Hmong, Phouan, Thay Neu and Tai-Kadai people. As the river valleys in the area are all populated, there is no obvious available land in the area for their relocation. The *Nam Theun 2 – Study of Alternatives*, by German consultant hydropower company Lahmeyer, reported in 1998 that "past experience has shown that resettlement for these groups is usually very traumatic and unless carefully planned and handled in a participatory manner resettlement can lead to intense despondency and depression."[3]

In addition, there are fears that the project will release poor quality water, contaminating the water supply of downstream communities and the Nam Ngum reservoir, which is a major fishery. Very little information exists about the Nam Ngum 2 project, and while an environmental impact assessment was supposed to be done in the 1990s, this has never been released to the public.

New Lao government policy a positive move?

In June 2005, the Lao government enacted a National Policy on Environmental and Social Sustainability of the Hydropower Sector in Lao PDR. The policy was enacted as a precondition for World Bank support for Nam Theun 2. The policy contains some commendable principles, including:

- All large hydropower projects must produce a full Environmental Impact Assessment and Environmental Management Plan, and a comprehensive monitoring and evaluation framework involving independent monitors;
- Full compensation should be given to all people whose assets, resource use and livelihoods are altered by the project. There should be targets for compensation, livelihood restoration and community development over the entire lifespan of the project;
- Any loss of natural habitat will be offset, where possible, by funding and implementing effective conservation management in nearby protected areas of similar habitat and equivalent conservation importance;
- Public disclosure of all relevant documents;
- All hydropower projects constructed since 1990 should develop a plan by the end of 2007 to bring the projects into compliance with the policy.

While the principles are commendable, experience in Laos indicates that such a policy will not be implemented without constant attention and action from outside monitors. Without an established independent legal system to hold the government or developers accountable, there are few incentives for project developers or the government to comply with Lao law. Over the past decade, the Lao government has consistently failed to follow through on commitments made to affected communities, refused to release key documents, and neglected to consistently monitor the impacts of dam projects on affected communities and the environment. It is hoped that the policy will make a difference to how the Lao government handles hydropower development, but only time and constant vigilance will tell.

Even less is known about the other projects planned for development.

Regional investment on the rise

Many of the projects planned for Laos in the coming decades will involve investments from Vietnamese, Chinese, Malaysian and Thai investors. Ratchaburi Electricity Generating Holding, Thailand's largest private power producer by capacity, announced in February 2006 that it planned to invest in up to four projects in Laos, with the first two being Nam Ngum 2 and Nam Ngum 3. China's Sinohydro Corporation has signed agreements with the GoL to develop the Nam Ngum 5 and Nam Ou 8 projects while another Chinese company, NORINCO, is currently developing the Xeset 2 project in southern Laos. Vietnamese investors have their eyes on projects in the South, with Xe Kaman 3 being the first to go forward. And Malaysian company Gamuda has the rights to develop the Nam Theun 1 hydropower project, located downstream of the existing Theun-Hinboun dam.

Many of these companies have poor social and environmental track records in their own country. Sinohydro has been involved in some of the largest and most controversial dam projects ever built in China, including Ertan, Xiaolangdi, Dachaoshan and the massive Three Gorges Dam Project. The Three Gorges Project was marred by corruption and technical problems right from the beginning. Contractors bribed inspectors and supplied substandard material for the construction of the dam, auxiliary structures, and resettlement sites. After touring the project area in late 1998, Premier Zhu Rongji railed against shoddy "tofu" construction work, and 200 foreign inspectors were hired in an attempt to curb corruption. China has the worst safety record of any major dam building country, with 25 large and more than 3,400 small dams having collapsed since 1954.

Project (province)	Installed Capacity (MW)	Purpose	Expected Commercial Operation Date	Project Sponsors	Status	Potential Impacts
Xeset 2 (Champasak and Salavan)	70	Domestic, Surplus Exported to Thailand	2009	EdL, NORINCO (China)	According to the *Vientiane Times,* 17 November 2005, construction has already begun.	Adversely affect approximately 20,000 people in Xeset River Basin. (See *Watershed* Vol.11 No. 1 for more information)
Xe Kaman 3 (Xekong)	250	Export to Vietnam	2009	Viet-Lao Power Investment and Development Joint Stock Company	According to the *Vientiane Times*, 20 March 2006, a construction contract for the project was signed in January 2006; and according to HydroWorld Alert, 17 April 2006, construction has already begun.	Exact numbers of people that will be impacted unknown, as there could be considerable downstream impacts (which have not been studied). There will be some ethnic Ye villages relocated from the project area, but the exact number is still unknown.
Nam Ngum 5 (Xieng Khouang)	60-100	Domestic	2009	Sinohydro Corporation Ltd. (China)	According to the *Vientiane Times*, 27 February 2006, Sinohydro has formalised an agreement to develop the project, which follows an MoU for the feasibility study in 2004. Construction is expected to begin in 2007.	Improved access to remaining forests (not inundated) would increase threats to wildlife; loss of some agricultural land for Muang Chim village.*
Xekong 4 (Xekong)	470	Export to Thailand or Vietnam	2009	Region Oil Co. Ltd. (Russia)	According to *KPL,* 13 March 2006, an MoU was signed on 9 March 2006 to conduct an 18-month feasibility study for the project	Inundation of a large area will require significant relocation from the reservoir area along the Xekong River. It will also block important fish migrations and cause very significant downstream impacts in Laos and Cambodia.
Nam Mo (Xieng Khouang)	105	Export to Vietnam	2009	Mahawong/Harza	According to the *Vientiane Times,* 20 March 2006, Nam Mo has already been surveyed and is a priority project to develop.	Although resettlement requirements remain unclear, people of Ban Muang Ngat 1 may be displaced; and possible negative impacts in upper catchment due to improved access as result of dam and related construction activities.*
Nam Ou 8 (Phongsaly)	640	Export to China	2009/10	Sinohydro Corporation Ltd (China)	According to the *Vientiane Times*, 1 June 2005, Sinohydro and The Committee for Planning and Investment signed an MOU on 31 May 2005	Affect approximately 50,000 people, displacing some 7,000; 300km ^{2} reservoir would inundate part of Phou Dendin NBCA; "fish life and habitats badly impacted."**
Xe Kaman 1 (Attapeu)	465	Export to Vietnam	2009/10	Viet-Lao Power Investment and Development Joint Stock Company	According to the *Vientiane Times*, 20 March 2006, an MoU was signed for a new feasibility study in March 2006.	Displace over 800 people from ten villages; inundation of significant primary forests and impact Dong Amphan National Protected Area, as well as the proposed Phou Kathong NPA; water diversion will result in loss of virtually all resident aquatic populations between the dam to confluence with Nam Vong (4km).*
Don Sahong (Champasak)	240	Domestic, surplus exported	2009/10	Mega First Corporation Berhad (MFCB) (Malaysia)	According to the *Vientiane Times*, 28 March 2006, MFCB and GoL signed an MoU to conduct an 18-month feasibility study	The dam would block one of the most important channels for migrations of many fish species, potentially devastating much of the most important Mekong River fisheries in Laos. The dam also threatens populations of Irrawaddy dolphins nearby and the livelihoods of large numbers of fishers. This dam will also negatively impact Cambodia downstream.
Nam Ngum 2 (Saysomboun special zone)	615	Export to Thailand	2010	SouthEast Asia Energy Company Limited	According to the *Bangkok Post*, 30 January 2006, the project operator "has a 25-year power purchase agreement with Egat Plc"	Displace around 5,500 people; restrict fish migrations in the upper Nam Ngum basin; and affect water quality.**
Theun Hinboun (extension) (Bholikhamsay)	250	Export to Thailand	2010	Theun Hinboun Power Company	According to Theun-Hinboun Power Company, studies are still underway and a decision will not be taken until at least mid 2006.	Could impact thousands of villagers living along the Nam Nyouang, a tributary of the Nam Theun, as well as the Nam Theun River itself.

This map is based on "Figure 6.3: Location of Shortlisted Projects" in: Lahmeyer International and Manusell (2004) *Power System Development Plan for Lao PDR*, p.110

Note: This table was last updated on 30 April, 2006. Data on installed capacity, expected commercial operation date, project status and impacts, vary according to different sources. Final specifications may change during the planning process.

Xekatam (Champasak)	57	Domestic, surplus exported	2011	Kansai Electric Power Company (Japan)	Feasibility study recently completed.	There are a number of ethnic Nya Heun villages in the area of the proposed dams that will be negatively impacted by the project but the exact impacts are uncertain, as the exact design of the project has not yet been determined.
Nam Ngum 3 (Saysomboun special zone)	460	Export to Thailand	2013	Ratchaburi, GMS Power, Marubeni (Japan), GoL	According to the *Vientiane Times*, 7 October 2005, a power purchase agreement is expected to be signed in 2006	Displace approximately 500 people, adversely affect at least 2,000 people downstream.**
Nam Theun 1 (Bolikhamsay/ Khammouane)	474	Export to Thailand	2013	Gamuda Berhad (Malaysia), EGCO (Thailand), GoL	Gamuda signed a development agreement with the GoL in late 2004, and studies are underway.	Affect approximately 19,400 people, displacing some 8,500 (300m-reservoir option) or affect approximately 10,000 people (230m-reservoir option); effectively isolate upper and lower Nam Theun, badly impacting annual fish migrations.**
Xe Pian-Xe Nam Noy (Champasak/ Attapeu)	390	Export to Thailand or Vietnam	2015	None	Previous project sponsor Dong Ah withdrew in 1999. No project sponsor at this stage.	Adversely affect approximately 28,000 people downstream; adverse impact on several globally and regionally endangered species of birds, mammals and reptiles in recorded in the area; disrupt seasonal fish migrations.**
Nam Ngiep 1 (Bolikhamsay)	260	Export to Thailand	2015	Kansai Electric Power Company Nippon Koei (Japan)	According to *Vientiane Times,* 28 April 2006, Nippon Koei and Kansai Electric Power Company signed a project development agreement with the GoL.	Affect approximately 13,000 people, displacing 1,600 people; will have serious downstream impacts on aquatic life and fisheries.
Xekong 5 (Xekong)	300	Export to Vietnam	Unknown	Region Oil Co. Ltd. (Russia)	According to *Vientiane Times* 23 December 2005, MoU signed, which commits Region Oil to investing nearly US$700 million in 3 projects - Xekong 5, Nam Kong 1 and 3	Displace approximately 980 people from 6 villages; reservoir will inundate part of Xe Sap NPA, considered to be "the most important wildlife area in the region, although this is not yet confirmed."*
Nam Kong 1 (Attapeu)	238	Export to Vietnam	Unknown	Region Oil Co. Ltd. (Russia)		The impacts of this dam have not been studied yet.
Nam Kong 3 (Attapeu)	35	Domestic	Unknown	Region Oil Co. Ltd. (Russia)		Displace roughly 1,550 people from three villages; inundate approximately 23km^2 of forested lands.*

*Norplan, 2004, *Lao PDR – Strategic Impact Assessment*, Annex 1: Project Descriptions

**Lahmeyer and Worley. 1998. *Nam Theun 2 – Study of Alternatives*

The Nam Thuen 2 dam, under construction on the Nam Theun River, central Laos.

The increase in regional investors from countries with poor human rights records may be bad news for local people and for civil society in the region. Few opportunities will exist for holding these corporations accountable for the impacts of the projects on local people and the environment.

But will there be a market for the power?

Of course, the question on everyone's minds is whether Thailand will in fact honour its agreement to purchase power from the projects. From media reports and power development plans, it does seem that EGAT is determined to massively increase its imports of hydropower in the coming decades. In addition to the proposed purchases from Laos, EGAT plans to jointly develop at least four dams with a combined installed capacity of more than 12,000 MW in the Salween basin along the Thai-Burma border. One reason for this is to reduce dependence on natural gas, the price of which is linked to oil prices, which have risen sharply over the past year. Importing hydropower is also a way of externalising the social and environmental costs of Thailand's energy development to neighbouring countries.

In order to avoid a repeat of the 1997 crisis, when Thailand was faced with a massive energy glut, EGAT is supporting the development of the Mekong Power Grid – which would interconnect the electricity grids of Thailand, Laos, Vietnam, Cambodia, China and Burma. Thailand's hope is that the grid will establish it as an energy hub in the region. The grid is one of 11 flagship programmes being promoted under the Asian Development Bank's Greater Mekong Subregion (GMS) Program. Of the 12 dams proposed to feed into the power grid, eight are located in Laos.

Connection between Thailand and Vietnam via Laos is imminent. This will open up options for Laos to export power from dams in the south to both Vietnam and Thailand. Scheduled for 2007 is the construction of a transmission line connecting Ha Tinh, Vietnam to Nam Theun 2, Laos. The line would be funded by the Asian Development Bank (ADB) and the French bilateral aid agency Agence Francaise de Developpement (AFD), and would link up with the transmission line that is planned to connect Nam Theun 2 with the Thai grid. While the primary objective of this connection is to enable power sharing between Vietnam and Thailand, the transmission line may also be used for future power exports from Laos to Vietnam, according to

the ADB. A second transmission line connecting Savannakhet, Laos to Pleiku, Vietnam, proposed to be constructed by 2010, will further enable power trading between Laos, Vietnam, and Thailand, and at the same time facilitate export from future hydropower scheme developments planned in Laos.

Multilateral and bilateral financing for transmission lines are in fact subsidising the huge capital costs of planned projects, some of which would not proceed without subsidised public financing for transmission lines.

However, Thailand does not need to rely on imported hydropower to meet its growing energy needs. In 2004, Thailand's National Economic and Social Advisory Council, a government advisory body, produced an Alternative Power Development Plan (PDP) which shows that EGAT has consistently overestimated demand growth, resulting in unnecessary and costly investments. The plan shows that much of Thailand's new supply can be met with lower cost, lower impact and lower-risk resources, avoiding the need for imported hydropower or investment in an expensive regional power grid. These include demand side management and efficiency measures, renewable energy, cogeneration and optimising the efficiency of existing plants (repowering). (See *Watershed* Vol. 10 No. 1 for a longer article on Thailand's Alternative PDP).

The vast majority of Laotians are subsistence farmers who depend on rivers for most aspects of their livelihoods. Dams deprive people of access to riverine resources, and transfer wealth from subsistence farmers to wealthier people living in Vientiane and regional towns.

Better options for Laos

There are alternative development options for Laos, although more research needs to be done on this issue. First, broadening the tax base and improving revenue administration nationally has far greater potential to raise government revenues than hydropower development.[4] In addition, the World Bank itself notes that "agriculture is the most critical sector for improving social and development outcomes in Lao PDR".[5] Investing in agriculture would have a more direct impact on poverty reduction than natural resource extraction projects like hydropower, and would avoid hydropower's massive risks to tens of thousands of Laotian villagers.

Laos is poor and people deserve development. The vast majority of Laotians (around 85 per cent) are subsistence farmers who depend on rivers for most aspects of their livelihoods. Dams deprive people of access to riverine resources, and transfer wealth from subsistence farmers to wealthier people living in Vientiane and regional towns. Development in Laos should start with the strengths of the country and the people and improve upon them. The best way to alleviate poverty in Laos is to start locally – and at a small scale – and build upwards. This is the only way to strengthen the existing economic production methods and ensure that people do not unnecessarily bear the negative costs of development.

Endnotes:

[1] Norplan. 2004. *Lao PDR Hydropower – Strategic Impact Assessment*, pp. 41-42

[2] Shlapak Group was awarded a concession to develop the Nam Ngum 2 dam in 1998. However, this has now been superseded by another concession agreement between the GoL and SouthEast Asia Energy Company Limited (SEAN), signed on 14 March 2006. SEAN's major shareholders include the GoL (25 per cent) and three Thai companies – Ch Karnchang (28.5 per cent), Ratchaburi Generating Holding (25 per cent) and Bangkok Expressway (12.5 per cent).

[3] Lahmeyer and Worley. 1998. *Nam Theun 2 – Study of Alternatives*, Appendix I: Review of Resettlement Issues of Non-NT2 Alternatives p .21

[4] AusAID 2005 *Review of Nam Theun 2 Hydroelectric Dam*, Lao PDR. Canberra: Australian Government.

[5] World Bank. 2004. *Lao PDR Country Economic Memorandum: Realizing the Development Potential of Lao PDR*. Washington D.C.: World Bank.