A composite image featuring a man in the upper right, focused on mending a fishing net with a needle and thread. The background is a dark, dramatic scene of a waterfall with white, frothy water cascading over rocks. The overall lighting is low, with highlights on the man's hands and the water's foam.

POWER STRUGGLE

THE IMPACTS OF HYDRO-DEVELOPMENT IN LAOS



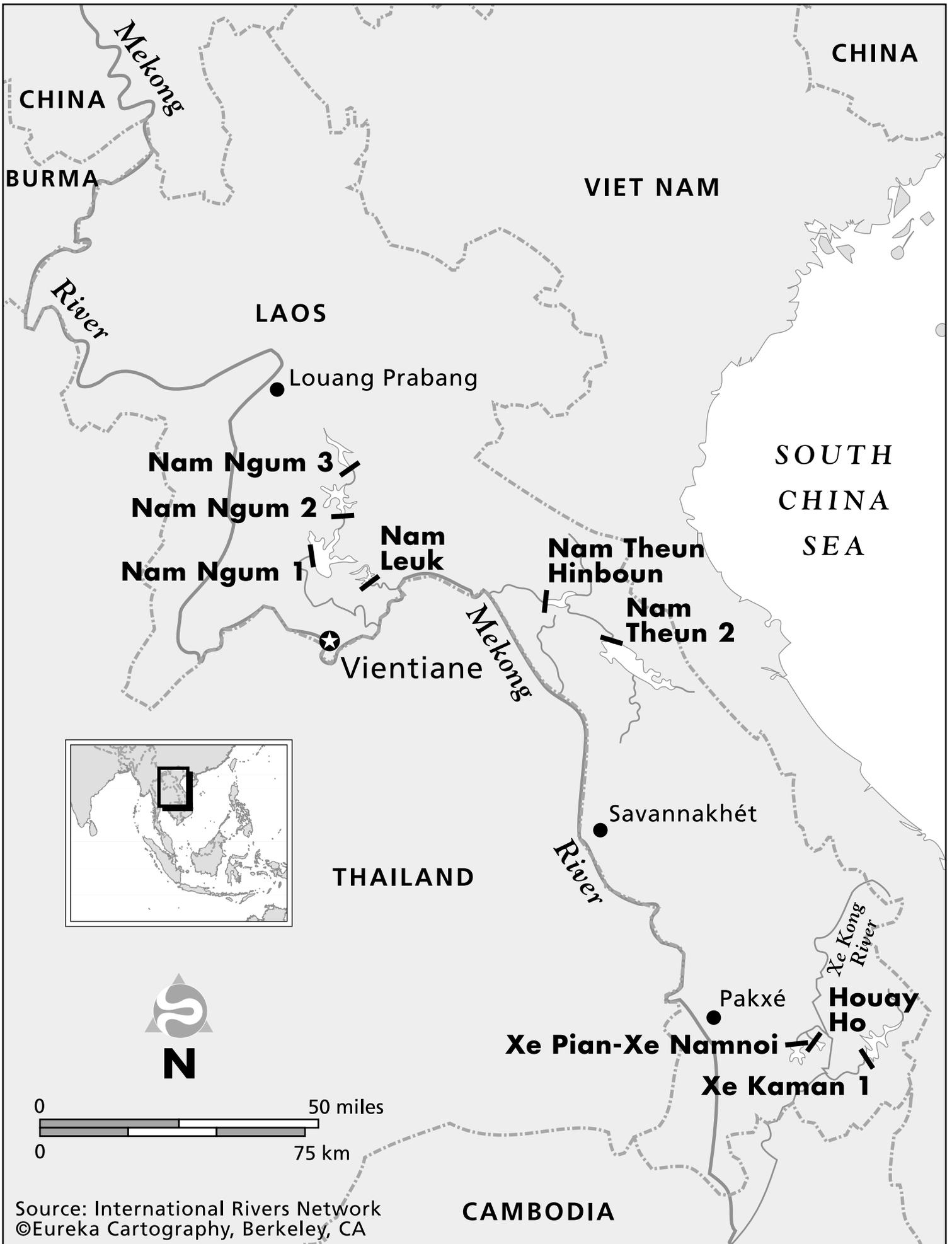
INTERNATIONAL RIVERS NETWORK

Power Struggle

The Impacts of Hydro-Development in Laos



International Rivers Network, February 1999



Source: International Rivers Network
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Introduction



International Rivers Network (IRN) is a non governmental organization dedicated to protecting and restoring the world's rivers and watersheds for the benefit of the people and ecosystems who depend on them. IRN was established in 1986 when it was recognized that US and European dam builders, faced with declining or vanishing markets in their own countries, were looking abroad for new business opportunities. The industry has maintained its momentum in Asia, Africa and Latin America, despite the growing body of evidence that dams frequently fail to deliver their predicted economic benefits, and too often bring social hardship and environmental degradation to areas and people affected by dams.

Introduction

Bilateral aid agencies and multilateral development banks promote and subsidize dams in low-income countries by financing feasibility studies, environmental impact assessments, and dam construction. Frequently, the main beneficiaries of this development aid are the western corporations that procure consultancies and construction contracts. Many dam projects in low-income countries proceed with few environmental and social safeguards, under standards that would not be tolerated in the company's host country. IRN believes that as taxpayer's money is being used to subsidize hydropower development in low-income countries, we have a right and a responsibility to question the strategies being promoted by these development agencies, and demand accountability for their activities. IRN also believes that western corporations should use standards consistent with those in their own countries when constructing or consulting on dam projects in low-income countries.

Since the late 1980s, the Lao People's Democratic Republic (Lao PDR) has been instructed by advisors from the World Bank, Asian Development Bank, United Nations Development Program and bilateral western donors that it has no option but to develop its hydropower resources and sell the power to Thailand. These advisors, coupled with hydropower industry consultants, have promised huge influxes of foreign exchange and capital that will help fuel economic development in the country.

IRN has been working to provide independent advice and analysis to the Lao government to show that the actual benefits of dams rarely match their predictions and to share experiences from the United States, where dams are no longer being built and some are being dismantled. IRN is concerned that the dependence of Lao people on their

ivers for all aspects of their lives — including fresh water, fish for protein, irrigation and fertilization of crops, transportation and recreation — renders them highly vulnerable to the very substantial changes in the river systems brought about by large dams, and that these costs may outweigh any economic benefits.

In February 1998, during a dialogue with Lao government officials, IRN was encouraged to visit the Lao countryside and some dam sites. As a result, IRN visited six project sites at various stages of implementation and spoke with many observers within the country. These field studies form the basis of this report, which aims to provide an overview of hydropower development in Lao PDR, informing the debate at the local, national and international levels.

Chapter 1 of this report documents the history of dam plans for Lao PDR and looks at the macroeconomic impacts of the proposed hydropower strategy. The current economic crisis in Thailand points to increasing uncertainty that the benefits promised to Lao PDR will be realized. Existing schemes are running into financial problems, calling into question the economic viability of large dams in Lao PDR.

Chapters 2 through 7 provide case studies of individual projects at various stages of development. Chapter 2 analyzes the Nam Theun-Hinboun Hydropower Project, a 210 megawatt (MW) trans-basin river diversion project located in Bolikhamxai and Khammouane Provinces of central Lao PDR, which was officially opened on April 4, 1998. The project was partially financed by the Asian Development Bank (ADB) and the Norwegian government, together with other public and private sources, as a Build, Operate, Transfer (BOT) joint venture. An independent researcher visited the project site in March 1998 and documented the



severe and unmitigated impacts being experienced by villagers as a result of the dam, including declines in fish catches, transportation difficulties, flooding of vegetable gardens, and erosion of fertile river banks. The ADB and the Norwegian and Swedish power utilities involved in the project have only recently admitted that the project has had serious impacts on peoples' livelihoods and that villagers deserve compensation for their losses.

Chapter 3 looks at the Nam Leuk Hydropower Project, a 60 MW dam located within the Phou Khao Khouay National Biodiversity Conservation Area in Vientiane Province and the Saysomboon Special Zone. Funding for this \$130 million project, which is entirely owned by the Lao government, has come mainly from loans issued by the Asian Development Bank and the Japanese government. Construction on Nam Leuk began in early 1997 and is expected to be completed by 1999. Problems have plagued the project from the outset, including two sub-standard environmental impact assessments, badly-regulated logging operations, and initially poor standards for road and dam construction, which forced the ADB to halt the project for several months in 1997. The project is now facing a \$20 million cost overrun due to the sub-standard construction work.

Chapter 4 examines the Nam Theun 2 Hydropower Project, the largest and most controversial of all the hydropower projects planned for Lao PDR. Situated in Khammouane Province in central Lao PDR, the \$1.2 billion BOT scheme is being developed by Electricité de France, Transfield Holdings of Australia, and three Thai companies in association with the Lao government. The project is currently stalled until the following are established: a power purchase agreement with EGAT, a concession agreement with the government, and a decision from the World Bank on whether to grant guarantees and other financial assistance to the project. Major concerns have centered around the economic feasibility of the project given the huge construction costs relative to the size of the Lao economy. The project's cost is three times the national budget of Lao PDR, and virtually equivalent to Lao PDR's annual GDP.

Chapter 5 documents the Houay Ho Hydropower Project, a 150 MW trans-basin diversion scheme located in Champassak and Attapeu Provinces of southern Lao PDR. Houay Ho was built and funded by the Korean company Daewoo and was completed at the end of 1998, although it will not start selling power to Thailand until September 1999. By all accounts, the Lao government will derive very little benefit from this project despite the fact that it owns

a 20 percent stake. The project is also reportedly running into financial difficulties. Meanwhile, resettlement of mostly ethnic minority Nya Heun people from the reservoir and watershed areas has taken place under very poor conditions, and people are suffering from a severe lack of food, a shortage of arable land, and insufficient clean water. Project implementation has resulted in extensive logging without apparent benefit to either local citizens or the Lao people as a whole.

Chapter 6 looks at the Xe Pian-Xe Namnoi Hydropower Project, a series of three dams and river diversions in a remote area of the southeastern Bolovens Plateau in Champassak Province that will cost over \$1 billion and generate 438 MW of power. South Korea's Dong Ah Construction Industrial Group has been the main partner in this joint venture project. Currently, the project is stalled while Dong Ah, also facing financial difficulties at home, waits for Thailand to give the green light for negotiation of a power purchase agreement. Meanwhile, resettlement of ethnic Nya Heun villagers from the watershed and inundation areas has commenced and is causing hardship similar to that faced by the oustees from Houay Ho.

Chapter 7 looks at the 468 MW Xe Kaman 1 Hydropower Project which would be located in eastern Attapeu Province in the far southeast of the Lao PDR. The project is being developed by Austral-Lao Power (ALP), a company spun off from HECEC, a former Tasmanian state-owned company that was privatized in 1996. The process by which ALP gained the project concession appears to have violated established Lao government laws and procedures for the granting of concession agreements for large infrastructure projects. While construction has not yet commenced and the consortium has no power purchase agreement with EGAT, logging of the reservoir area is planned to start in 1999, and resettlement of ethnic minority villagers in both the watershed and reservoir areas has already commenced. Many observers fear that the project is a logging scheme in disguise.

The concluding chapter points to some similar and very fundamental problems with all of the projects examined in the report, including anticipatory resettlement under very poor conditions, uncontrolled logging, inadequate compensation for affected villagers, problems with regulation and the conduct of environmental impact assessments. A fundamental rethinking of Lao PDR's economic development strategy is recommended, as well as far-reaching reforms to ensure that any future hydropower development is in the best interests of the country as a whole.

Chapter 1

Economically Shaky Ground

The viability of hydropower in Lao PDR

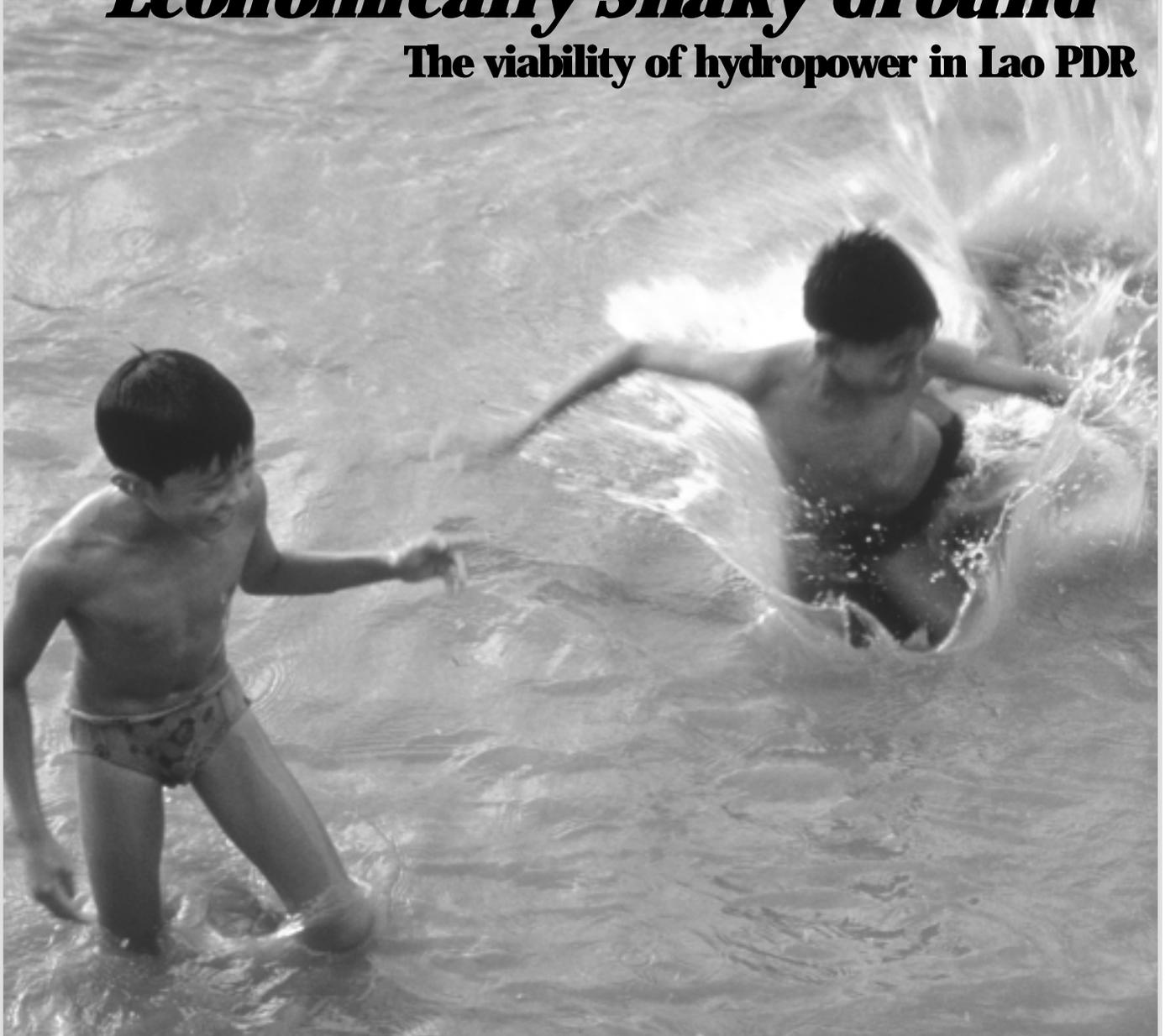


Photo: Elizabeth Price

A HISTORY OF DAM PLANS FOR LAO PDR

Hydropower is not new to Lao PDR. Plans to dam Lao PDR's rivers go back as far as the mid-1950s when foreign engineers inspired by Tennessee Valley Authority's (TVA) development of the Tennessee River Basin in the United States envisaged a grand plan to build a cascade of seven dams on the mainstream of the Mekong River and identified numerous smaller projects on its tributaries. The UN-sponsored Mekong Committee, composed of the four lower riparian nations of Cambodia, Lao PDR, South Viet Nam and Thailand, estimated that the Mekong and its tributaries have a hydropower potential of 58,000 megawatts (MW), 60 percent of which is located in Lao PDR.

The damming of the Mekong was considered a key foreign policy objective of the United States government, which hoped that hydropower, irrigation and flood control projects would lift mainland Southeast Asia out of poverty, thereby discouraging communism. The US was the largest foreign donor to the Mekong Committee and by 1966 had contributed over 20 percent of its total funds.¹ President Johnson was an enthusiastic supporter of the scheme, stating in 1965: "There must now be a much more massive effort to improve the life of man in that conflict-torn corner of our world. The vast Mekong River can provide food and water and power on a scale to dwarf even our own TVA."²

While these plans never came to fruition, largely due to years of war and political instability in the region, they had a profound influence on the development path prescribed for communist Lao PDR as it moved out of isolation in the mid-1980s. The New Economic Mechanism, launched by former premier Kaysone Phonvihan in 1986, signaled a new era for Lao PDR and marked the country's move towards a market economy. A foreign investment code was promulgated in 1988, providing some of the most liberal foreign investment laws in the region. At the same time, the fall of communism in the Soviet Union and its satellite regimes, and the gradual withdrawal of Vietnamese assistance, created a critical gap in the Lao administration that was quickly filled by advisors from bilateral western donors and the multilateral development banks.

Faced with very little experience of capitalism, a shortage of educated personnel, and a dwindling level of financial assistance from its allies in the Eastern Bloc, the Lao government has had little choice but to comply with the dictates of its foreign advisors, primarily the International Monetary Fund (IMF), World Bank, Asian Development Bank and United Nations Development Program, as well as the dam-building consultants and engineers that flocked to the country in the late 1980s and early 1990s.

According to these advisors, Lao PDR, with its large hydropower potential, low level of development, proximity to Thailand, and high level of foreign debt, has no option but to develop its hydropower resources and sell the power to Thailand. According to the 1997 World Bank *Public Expenditure Review*:

"Lao PDR has few options for driving economic growth other than its potential to exploit timber and export hydropower . . . Rising labor costs and human resources constraints limit the ability of the manufacturing sector to increase export earnings. Timber has been a main export, but logging cannot be sustained without incurring serious ecological damage. Apart from hydropower, Lao PDR's comparative advantage seems to lie in its geographical position as a transport corridor and crossroads of a high-growth region, and also in some limited tourism."³

The Asian Development Bank (ADB) has also been active in promulgating this notion. In its 1996 Country Operational Strategy Study for Lao PDR, the ADB states that "... the Bank recognizes that the exploitation of hydropower resources represents the best immediate route for the Lao PDR to increase exports and raise growth of gross domestic product."⁴

Despite Asia's economic woes, these institutions have continued to promote an export-oriented development path for Lao PDR similar to the direction taken by Thailand. For almost twenty years, Thailand followed the World Bank's "market friendly" approach to development and today it, together with other countries in the region, is suffering the effects (see Box 1). Yet the World Bank, ADB and other advisors have refused to recognize the implications for Lao PDR, instead continuing to promote hydropower as the key to Lao PDR's development future.

POOR ADVICE TO A POOR COUNTRY

The advice was simple. In the early 1990s Thailand, undergoing a massive boom in its economy, was growing rapidly and needed additional sources of power. Power demand was expected to grow by as much as 12 percent per year during the period to 2010, and the Electricity Generating Authority of Thailand (EGAT), facing increasing opposition to hydropower projects at home and limited supplies of domestic fossil fuels, could not satisfy this demand internally. Lao PDR, with its abundance of hydropower potential and modest domestic demand for power,⁵ was in a good position to become the "battery" of Southeast Asia: supplying first Thailand, and then its other neighbors, with much-needed power.

The quandary was how to raise the massive capital required for large dams, which involve high initial construction costs and long capital payback periods. The ADB and World Bank, faced with insufficient resources and a new ideology of encouraging private sector investment in infrastructure projects, encouraged the Lao government to allow private sector participation in the hydropower sector through a new mechanism called BOT: Build, Operate, Transfer. This concept was hailed by industry, governments and multilateral banks as the solution to financing large infrastructure projects — the private sector would build the project with their own financing; operate, maintain and manage the facility for a period of up to 30 years; and then transfer ownership to the government. Thus the private sector would invest the capital and absorb the risks, with virtually no drain on the public purse (see Box 2). The advisors recommended that smaller projects such as the 60 MW Nam Leuk dam be built by the public sector with aid financing, and the larger export-oriented projects

be left to the private sector, with the government taking an equity in the project.

The Lao government had little option but to adopt this strategy. Viraphone Viravong, Manager of Electricité du Laos (EdL), stated:

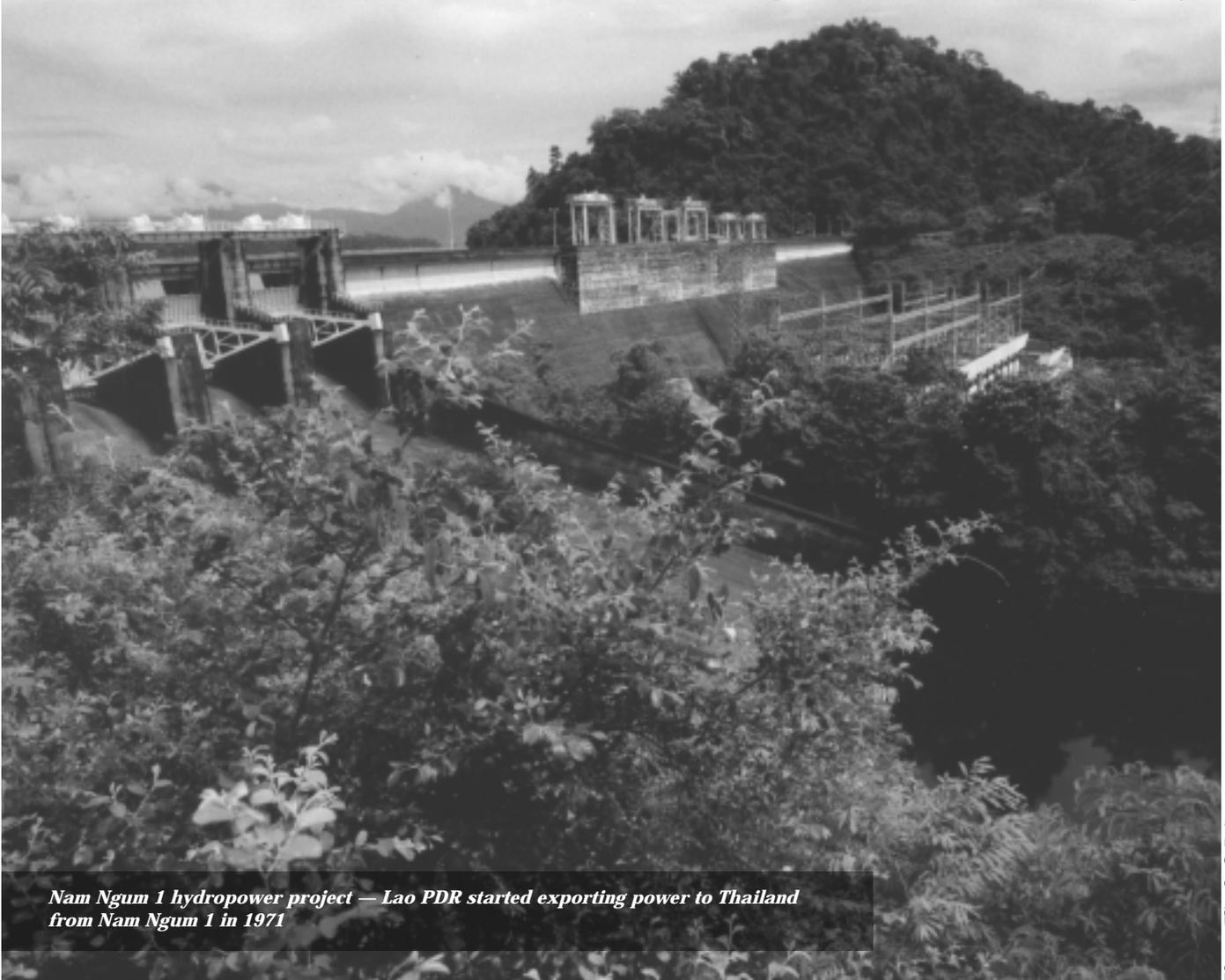
“If we are allowed, we would have preferred direct soft loan [from the World Bank and the ADB] to develop our own [hydropower] projects like the way EGAT has developed its own hydropower projects. But both the World Bank and the ADB said they do not have money for large scale projects in Lao PDR. If you are poor, you don’t have much of a say. This is a price to be poor.”⁶

Enormous aid resources were poured into exploring the options for hydropower development in Lao PDR. Numerous reports were produced by western hydropower consultancy companies eager to shore up a future for themselves in one of the most promising hydropower markets in the world. These reports formed the backbone of the Government of Lao’s (GoL) development strategy.

THE HYDRO RUSH

The Lao government, faced with a plethora of powerful and experienced advisors all saying the same thing, embarked on a bold new strategy to encourage private sector participation in the hydropower sector. In June 1993, when the economic future of Thailand looked rosy, the government signed a memorandum of understanding (MoU) with Thailand to export 1,500 MW of power by the year 2000. In June 1996, the GoL signed a further MoU with the Thai government to supply an additional 1,500 MW by 2006. An agreement with Viet Nam for the transfer of 1,500 to 2,000 MW of power by 2010 was also signed in September 1995.

The 1993 deal resulted in a flurry of agreements between foreign investors and the GoL to build hydropower projects in Lao PDR. By 1995, 23 MoUs had been signed with Korean, Australian, European and North American companies to build dams with a total capacity of



Nam Ngum 1 hydropower project — Lao PDR started exporting power to Thailand from Nam Ngum 1 in 1971

Photo: Elizabeth Price

6,676 MW.⁷ The Lao government would have an equity share in all of the projects, and would benefit from royalties, taxes and proceeds from power sales. The government estimated that by the year 2000, receipts from hydropower would be worth approximately \$120 million, making it the country's largest source of foreign exchange earnings.⁸ By 2010, the government's earnings would reach \$350 million annually.⁹

But in the great rush to sign deals, secure finance and build dams, nobody stopped to warn the government of the

enormous economic, social and environmental risks in such a strategy. Certainly, the hydropower consultancy companies, faced with declining markets in their own countries, were not about to disclose that hydro was a notoriously risky investment. The World Bank and ADB, who have historically demonstrated a bias towards promoting hydropower as an engine of development¹⁰, failed to give sound economic advice to Lao PDR by refusing to comprehensively analyze alternative development options for Lao PDR. Neither did they inform the Lao government of the experi-

BOX 1: Thailand, the Bubble Bursts

The devaluation of the Thai baht on July 2, 1997, and the subsequent collapse of what was previously one of the world's best-performing economies, throws into question the sustainability of the high growth, export-oriented development strategy promoted by the World Bank and ADB and adopted by Thailand and other so-called "Asian tigers".

Between 1965 and 1995, Thailand was posting annual growth rates averaging 6.5 percent.³⁷ In the 1990s, following extensive liberalization of the financial sector, Thailand became a magnet for short-term money, attracted by high interest rates and the prospect of quick gains in the then highly profitable property sector, consumer credit and stock exchange. The foreign money came from North American, Japanese and European banks, mutual and pension funds.

However, when the Thai economy started to decline, due to decreasing export competitiveness, an apparently over-priced currency, and a burgeoning property bubble, the high-risk, high-profit speculative investments started to look less attractive, and foreign investment poured out of the country.

At the same time, the Thai baht, previously pegged at 25 to the dollar to gain the confidence of investors, was devalued. This meant that US or other foreign currency denominated loans became increasingly more expensive to repay. The immediate effect was to create further chaos in a financial sector already bruised by the collapse of the property market. Soon, the crisis spilled over into the real economy as construction projects ground to a halt and industries — especially those heavily dependent on imported components — closed down. This sent tens of thousands of factory and construction workers out into the streets, or back to their already poor villages.

It is difficult to pinpoint one fatal flaw in Thailand's economic development.

Broadly, the collapse of the "miracle" is the result of powerful forces of economic globalization — deregulation, liberalization and enormous volumes of private capital circling the world in search of quick profits — colliding with the relatively weak political and economic institutions of a developing country.

However, there are three particular factors which help to understand Thailand's present situation.

First, Thailand adopted an export-oriented development strategy. This strategy required Thailand to maximize its competitive advantages, in particular cheap labor and natural resources. As a result, both have been over-exploited.

Second, instead of mobilizing domestic savings or government financing for development and investment, successive Thai governments did whatever needed to be done to attract foreign investment, including liberalizing the finance sector, pegging the baht, and maintaining artificially high interest rates.

Third, the overall policy was not backed by sufficient investment in improving real productivity, training and education, or by directing investments into productive sectors of the economy.

The result was an economy driven by and dependent on foreign investment but increasingly uncompetitive in the global market because it was producing more or less the same goods as other countries in the region which have lower wages and, in some cases, more skilled workers.

In addition, although growth has been impressive, little attention was paid to economic redistribution, social investment and rural development. Consequently, Thailand has become an increasingly divided country, with widening income, education and opportunity gaps between urban and rural populations.

It is fair to say that Thailand's growth in the past five years was virtual rather than real — a measure of a speculative bubble primed by short term investment and enabled by rapid liberalization.

The World Bank, in its 1993 report *The East Asian Miracle*, says "In the past twenty years a consensus has emerged among economists on the best approach to economic development . . . The appropriate role for government in a market friendly strategy is to ensure adequate investments in people, provision of a competitive climate for enterprise, openness to international trade and stable macro-economic management."³⁸

Thailand was an exemplary student of the "market friendly" school, scoring high marks for embracing the role prescribed by the World Bank.

The Asian Development Bank's report *Emerging Asia* says that: "Much of East Asia's success can be ascribed to the fact that East Asian countries used market institutions and openness earlier and much more than other developing countries. In particular, they adopted the strategy of export-led growth and stuck to the discipline that this imposed."³⁹

The reports were written pre-crisis. Since then, there has been a flurry of accusations about lack of transparency, corruption, cronyism, poor government oversight and regulation, and so on. While there is some truth in these criticisms, they are not in themselves the cause of the crisis, but rather the consequence of rapid liberalization in the absence of properly accountable political and economic institutions. In effect, Thailand was doing just as the ADB and World Bank had advised: letting the market make the decisions. Recent events have shown that this is a fragile, volatile, inequitable and ultimately unsustainable development strategy.

BOX 2: B.O.T.

BOT (Build, Operate, Transfer) is a relatively new approach to infrastructure development which enables direct private sector investment in large-scale projects such as roads, bridges and power plants. The theory of BOT is:

Build — A private company or consortium agrees with a government to invest in a public infrastructure project and secures their own financing for construction.

Operate — the private developer then owns, maintains and manages the facility for an agreed concessionary period (between 20 and 30 years) and recoups their investment through charges or tolls.

Transfer — after the concessionary period the company transfers ownership and operation of the facility to the government or relevant state authority.

Proponents argue that BOT reduces the drain on the public purse and allows for a more efficient provision of services.

Enabling the private sector to invest directly in infrastructure projects gives the state the benefit of a much-needed infrastructure development without having to borrow or spend its own money to build it. The inter-

national financial institutions that have been lending for large infrastructure projects for many decades are attempting, through BOT, to transform their role of direct creditor/investor to one of facilitating and brokering private sector investment.

Despite the confident promises made by proponents, the supposed benefits of the BOT model are based more on belief than on empirical evidence. BOT has no track record; less than a decade ago the concept was little more than a curiosity; and to date there is no major BOT project that has successfully completed all stages of the cycle according to original plans. On the other hand, several BOT ventures have already run into serious problems due to cost over-runs, unrealistic price and income projections, and legal disputes between private operators and the state.

The Asian crisis has resulted in a spate of uncertainties surrounding BOT power projects. In Thailand, Pakistan, China, Indonesia and Malaysia, state-owned authorities unable or unwilling to satisfy dollar-denominated power purchase agreements have been seeking to renegotiate, and in

some cases repudiate, contracts with independent power producers.⁴⁰ The slowdown in economic growth has meant that some countries now have a power surplus.

Even the financial sector is now seriously questioning the viability of BOT. According to the *Financial Times* publication *Power in Asia*, "the lending and deal-structuring community are now in the throes of a major rethink on the future of so-called BOT deals in the face of the severe economic retrenchment taking place throughout the region."⁴¹ It is increasingly apparent that the risks involved in large infrastructure projects are greater than many financiers are willing to accept. The buyers of power (usually state utilities) may seek to renegotiate downward the price they pay for power from the project. Currency fluctuations are also a major risk — if power is paid for in dollars, a local currency devaluation may make it impossible for the utility to recover costs from the consumer. Conversely, if power sales are denominated in local currency, a devaluation will affect the ability of the developers to pay dollar-denominated debt and lower the returns to their foreign shareholders.

The assumptions and premises underpinning the BOT model need to be critically re-examined.

No free lunch: The notion that BOT is a way of creating public infrastructure at little or no cost to the public purse is nothing more than wishful thinking. Whether the investment is recouped through road-tolls, electricity sales or other tariffs, it is users, taxpayers and/or the state who ultimately pay the cost of the project.

The subsidy fix: As large infrastructure projects are risky, investors have proven to be reluctant to go near such ventures unless governments and/or international financial institutions provide various subsidies, guarantees and protection against competition.

Transferring risk: In most large BOT projects the private sector has only been willing to participate if governments or multilateral development banks assume a significant portion of the project risks. There seems to be no corresponding mechanisms which guarantee that the project leads to net gains and benefits for the governments and local people concerned.

Minimizing external costs: Large-scale infrastructure projects always entail a complex mixture of indirect costs, including environmental impact and the cost of social dislocation and resettlement. Private investors often seek to exclude these costs, leaving the bulk of them to be carried by the government and local communities.

Long-term viability: For the developer, there is little or no incentive to ensure that the facility remains financially or technically viable after it has been transferred to the government. Maintenance and capital replacement costs are likely to be kept at a minimum, especially as the date for handover to the government draws near.

ence of countries such as Paraguay, Ghana, Guatemala and Colombia which had tried to rely on hydropower to fuel their economic and social development.¹¹

THAILAND: A RELIABLE CUSTOMER?

While Lao PDR has MoUs with both Thailand and Viet Nam for export of power, until now Electricity of Viet Nam (EVN) has expressed little interest in buying Lao power, and the Vietnamese Government itself often talks of exporting power to Thailand. Viet Nam's Power Development Plan for 1996 to 2012 makes no mention of

purchases from Lao PDR. Viet Nam has its own major dam-building plans and large off-shore gas deposits, which makes it an unreliable market for Lao power. Also, concerns that EVN will not be able to honor power purchase agreements makes international banks wary of lending to Lao power projects intended for export to Viet Nam.

This leaves Thailand as the sole market for Lao power, putting Lao PDR in a highly vulnerable position. In 1994, after agreeing to buy 1,500 MW of power from Lao PDR, EGAT launched its private power program and invited private generating companies to submit bids for power plant licenses to own and operate new plants and sell all or part

of their output to EGAT.¹² The response was overwhelming: altogether EGAT received over 30 bids from international consortia to supply 32,000 MW, which exceeds EGAT's projected expansion needs for at least the next 15 years.¹³ Many of these bids were for highly efficient combined cycle turbine plants. Lao PDR also faces competition from other neighbors, most particularly Burma and Yunnan Province of China.

Hydropower consultants such as Lahmeyer, Worley, and Halcrow admit that combined cycle gas turbines can generate power more cheaply than hydropower from Lao PDR, but usually justify hydropower on the basis that supplies of gas are not sufficient to meet Thailand's needs. For example, the Se Kong-Se San and Nam Theun River Basins Hydropower Study consultants state that "It is well recognized that, with its high operating efficiency and relatively low operating cost, CCGT [combined cycle gas turbine] plant is generally the most competitive option for power system expansion at the present time — given adequate gas availability."¹⁴ Lahmeyer and Worley state in the Nam Theun 2 *Study of Alternatives*, "The cheapest form of generation for Thailand is gas-fired, but not enough gas can be imported in the short to medium term, in spite of contracts and MoU's with Malaysia, Myanmar, Viet Nam, Oman and Indonesia."¹⁵

Recent events indicate that gas availability is not a problem for Thailand, at least in the foreseeable future. The

past few years have seen the discovery of increasing volumes of natural gas in the Gulf of Thailand, and industry experts say that there is probably double the known estimated volume. In May 1998, due to the downturn in power demand, Thailand abandoned an MoU with Oman to buy up to 2.2 million tons of liquefied natural gas.¹⁶ In July 1998, Indonesia conceded that its plans to develop the giant Natuna gas field were no longer feasible because of low demand in Asia and the falling price of natural gas throughout the region.¹⁷ According to the hydropower industry's own journal, *International Water Power and Dam Construction*, "the chief threat facing hydro in the region is that the increasing availability of low cost natural gas will make hydro uncompetitive."¹⁸

The economic crisis, now expected to be more severe and protracted than originally anticipated, is having a significant impact on Thailand's demands for power. Thailand's actual demand during the fiscal year ending in September 1998 contracted by 2.25 percent from the previous year.¹⁹

Thailand's future demand is even more uncertain. EGAT's latest revised power development plan for 1998 to 2001 shows that given existing commitments for power purchases, EGAT's reserve margin will reach a high of 61.2 percent in 2004, and in 2006 it will still be 46 percent.²⁰ EGAT's power reserve requirement is only 25 percent. As a result, EGAT is working to reduce power supply by 2,000



Nam Ngum 1 hydropower project

Photo: Elizabeth Price

MW in 1999 and another 4,000 MW in 2000 through renegotiating start-up dates for new independent power producer (IPP) projects and through reducing capacity in existing power plants.²¹

This will affect Thailand's need for Lao power. In November 1998 it was reported in *The Nation* newspaper that EGAT has decided to delay power purchases from

Laos. EGAT stated that it will now buy 1,600 MW from Laos in 2006, and another 1,700 MW in 2008.²² However, this could be subject to further delays, depending on Thailand's economic situation.

The industry journal, *International Water Power and Dam Construction* predicted in August 1998 that "putting the Lao hydro programme back together promises to be

BOX 3: High Risks, Low Returns

The failure of hydro to thrive in the new world of BOT reflects the reluctance of investors to commit themselves to financing what are perceived as high risk projects offering low rates of return.

Cost Overruns

Research by the World Bank has documented a clear tendency to underestimate the cost of hydroelectric projects — of some 70 World Bank funded projects, costs were, on average, 27 percent above appraisal estimates (inflation adjusted), almost 5 times higher than the average cost overruns on thermal power stations.⁴² Another World Bank study reveals that, of 80 hydro projects completed in the 1970s and 1980s, three-quarters had costs in excess of budget. Final costs on half the projects were at least 25 percent higher than estimated; costs exceeded estimates by 50 percent or more on almost one-third of the projects studied.⁴³ In general, the larger a hydro project is, the larger its construction cost overrun in percentage terms.⁴⁴

Cost overruns are particularly damaging for the economics of dams because, although their operating costs are very low, their construction costs are extremely high. Capital costs represent around 80 percent of the total lifetime cost of hydro dams. By comparison, capital costs represent around half the lifetime costs of coal-fired plants.⁴⁵ A 30 percent cost construction overrun for a dam is thus much more expensive than an equivalent percentage cost overrun for a coal plant. High capital costs and the frequent need for foreign bank loans also mean that the economic viability of dam projects is extremely vulnerable to rises in interest rates and currency devaluations.⁴⁶

Commenting on the reluctance of investors to finance hydro projects, international finance and project development consultant and former Head of Energy at the World Bank, Anthony Churchill, notes: "The industry's record of overruns is an

embarrassment. Although not all projects have suffered from poor performance in this regard, enough have done so, and this in turn has resulted in a perception in the financial community that these are high-risk projects. Endless litigation between contractors, engineers and owners has added to this perception."⁴⁷

Schedule Slippage

Time overruns are also a common feature of large hydropower projects. Forty-nine hydro projects reviewed by the World Bank's Industry and Energy Department in 1990 took on average five years and eight months to build, fourteen months longer than the average pre-construction estimate.⁴⁸ As with cost overruns, "schedule slippage" can have a damaging effect on project economics by delaying the time from which revenues from electricity sales and water supply can start to repay the heavy debt service costs which large dams entail. The World Bank notes that a one-year delay in revenue earnings will reduce the difference between the projected benefits and costs of some projects by almost a third; a two-year delay, by more than half.⁴⁹

Lower than Expected Output

Worldwide, major hydroelectric projects have conspicuously failed to produce the amount of power that was originally forecast. Factors which affect the output of dams include shutdowns for repairs and maintenance and, in particular, seasonal and annual variations in streamflow: if there is not enough water to turn a dam's turbines, it cannot produce electricity. Indeed, hydrological factors are the most common reason why dams have failed to meet their capacity targets.⁵⁰ Generally, at least several decades of streamflow records are usually required to make reasonably reliable predictions taking into account annual cycles of variations in rainfall.⁵¹ In Lao PDR, streamflow records do not exist

for a large number of rivers, and where they do exist they are short and intermittent. As a result, planners have had to rely on extrapolating data using questionable statistical assumptions.

Globally there is a pattern of dam-builders overestimating annual flows and underestimating peak floods.⁵² Hydrologists predicted in the early 1960s that an annual average of 1.8 billion cubic meters of water would flow into Thailand's Bhumibol and Sirikit reservoirs. After the dams' completion, however, inflows averaged only 1.2 billion cubic meters per year.⁵³ Together, these World Bank-funded dams contained only 7 percent of their total usable volume in March 1994. During 1991, Thailand's 25 largest dams contained a total of just under half of their combined usable capacity; the following year this figure fell to just over one-third.⁵⁴

During 1987 and 1988, when the water level of Nam Ngum reservoir dropped drastically, Lao PDR's economy was seriously affected. The revenues from hydro dropped from \$30 million to \$23 million during that time.⁵⁵

In May 1998, Viet Nam, which depends on hydropower for 80 percent of its electricity supply, experienced severe power shortages following several months of drought in the northern provinces. Viet Nam's biggest hydro plant at Hoa Binh was forced to reduce its output because water levels in the reservoir fell below the 80 meter dead water mark.⁵⁶ When the rains did come in mid-June, they pushed water levels at the reservoir to breaking point, forcing authorities to open the floodgates, threatening down-river dykes and putting residents at risk.⁵⁷ While the rains in mainland Southeast Asia have always been highly unpredictable, there is no doubt that climate change will exacerbate this situation, causing even greater hydrological risks when determining the feasibility of hydropower projects in Lao PDR.

extremely difficult. Not only must pricing and project financing deals be renegotiated within a new economic climate, but fossil fuel prices are declining even as new technologies make them more attractive.”²³

A BUYER'S MARKET

Lao PDR's reliance on Thailand as its only market for power puts it in a vulnerable bargaining position, particularly as EGAT, faced with a range of options for satisfying its power demands, needs Lao power less than Lao PDR needs to sell its power. The Thai attitude is best illustrated by a statement from EGAT's former deputy governor, Viroj Noppakhun, “We are helping the Lao. If we don't buy their power, they will have no market and so they cannot develop their country.”²⁴

On numerous occasions, Lao PDR has been forced to comply with unacceptable prices and conditions or face the prospect of losing its only buyer of power. In 1979, then Thai Prime Minister Kriangsak Chamanan, on a visit to Vientiane, agreed to raise the power price for Nam Ngum from 40 satang (less than 2 cents/KWh) to 80 satang. EGAT, unhappy with the price increase, reacted by stopping the import of Nam Ngum electricity at the Thai border province of Nong Khai. A day later, Lao PDR had to comply with EGAT and accept the previous price.²⁵

In 1995, EGAT demanded that the GoL allow the use of its territory for the transmission line from China's Jinghong dam in Yunnan to Thailand. The GoL was reluctant to agree and requested a surcharge for the use of its territory to construct the transmission line. In mid-1996, EGAT forced the GoL to agree as a precondition for buying any more power from Lao PDR.²⁶

EGAT has also managed to negotiate very low prices for recent power purchase agreements. At the time of the negotiation of the power purchase agreement for Nam Theun-Hinboun, Viraphone Viravong, who led the EdL delegation in negotiations with EGAT, stated: “We may have no choice but to accept EGAT's condition. Even though the [PPA] is not fair, we cannot afford to waste time and all the money that has been invested.”²⁷

The same thing occurred in 1996, when Vientiane attempted to renegotiate the power purchase agreement for the Houay Ho hydropower project. Vientiane demanded a tariff of 4.35 cents/KWh, but agreed to adhere to the original price accord of 4.22 cents/KWh after EGAT threatened to drop its plan to purchase Houay Ho power.²⁸

A PRIVATE INVESTOR'S PARADISE?

It is evident from examining the current status of hydro in Lao PDR, that the optimistic predictions for the “Kuwait of Southeast Asia” have thus far failed to materialize. By

2000, despite the substantial human and financial resources poured into encouraging hydro-development, Lao PDR will be selling only around 467 MW of power to Thailand, a far cry from the 1,500 MW of new power sales predicted in 1993. Only 313 MW of these 467 MW will be from capacity added in the 1990s.

This power comes from five projects: Nam Ngum 1, Xeset, the Nam Theun-Hinboun (see chapter 2), Nam Leuk and Houay Ho (see chapter 5). Six other memoranda of understanding — five hydropower projects and one lignite plant — are apparently still valid, although these are all stalled awaiting power purchase agreements and commercial financing: Nam Theun 2 (see chapter 4), Nam Ngum 2 and 3, Xe Pian-Se Namnoy (see chapter 6), Xe Kaman 1 (see chapter 7) and Hongsa Lignite Plant.

Nam Ngum 1, a 150 MW dam, was built in the late 1960s and construction was financed by grants administered by the World Bank. The US provided half of Nam Ngum's construction costs. Nam Ngum 1 had an initial installed capacity of 30 MW, later increased to 150 MW through the addition of three 40 MW units — two financed by soft loans from the ADB and one by the World Bank (WB). The 45 MW Xeset plant was an EdL project funded by the ADB through soft loans and completed in 1989. Approximately 60 percent of the total output of Nam Ngum 1 and Xeset power plants is exported, earning 14 percent of the country's foreign currency.²⁹ In 1997, EdL received \$20.8 million in revenue from the sale of energy to Thailand.³⁰ However, although Nam Ngum dam is a significant foreign exchange earner, its economic viability would likely be in doubt had the GoL actually had to pay for its construction costs.

The 210 MW Nam Theun-Hinboun Hydropower Project is a joint venture between the Lao electricity utility, EdL (60%), a Thai company GMS-Thailand (20%), and two Nordic state-owned utilities, Vattenfall of Sweden, and Statkraft of Norway (20%). The Norwegian aid agency NORAD gave a grant of \$7 million for the project. The ADB contributed a loan of \$60 million, and the remainder of the financing came from export credit agencies in Norway and Sweden, and a consortium of Thai commercial banks. The dam became operational in January 1998. The 150 MW Houay Ho Hydropower Project was funded entirely from Korean conglomerate Daewoo's balance sheet, and is due to be completed towards the end of 1998.

It now seems that as a result of the economic crisis, revenues for Houay Ho and Theun-Hinboun have been affected due to the low tariff and the drop in the baht exchange rate. In April of this year, the Lao government and project developers requested an adjustment of the power purchase agreements of all Lao power export projects due to

the devaluation of the Thai baht. The central issue concerned payment terms which are to be made equally in two parts — Thai and US currencies. Half of the baht portion is based on the exchange rate on the day the power sale agreement was signed, the other portion is based on the exchange rate on the day when the power is supplied.

Earlier in the year, EGAT had negotiated with IPPs within Thailand to adjust their power sales tariff to reflect the lower value of the baht.³¹ However, reflecting the lower importance they attach to power imports from Lao PDR, they were not prepared to do the same for the Lao government. EGAT refused to adjust the tariff for Theun-Hinboun, stating that the construction of the project had finished before the flotation of the baht. As a result, Theun-Hinboun's revenues were down by about \$10 million in 1998. For Houay Ho, in August 1998 EGAT agreed to pay 55 percent of the electricity purchase price in US dollars, instead of the 50 percent stated in the original contract. The consortium had wanted EGAT to pay the full price in dollars.³² Houay Ho is reportedly experiencing serious financial difficulties.

Out of the five projects that have been built in Lao PDR, four involved concessionary financing from a public source, and one was financed entirely from a company's own resources. No other private consortium has managed to raise commercial financing, nor successfully negotiate a power purchase agreement with Thailand, nor are they likely to until at least 2006, when Thailand may negotiate additional power purchases from Lao PDR. This puts the country in a highly vulnerable situation economically.

A recent report by Bangkok-based Thai Farmers Bank Research Centre shows that Lao PDR has already been hard hit by the economic crisis.³³ The kip has fallen from 740 to the dollar before June 1997 to around 4,200 to the dollar at the end of 1998. There has been a dramatic slump in foreign direct investment approvals, from a peak of about \$1.2 billion in 1995, to \$972 million in 1996, and \$150 million in 1998. As of the first quarter of 1998, Thailand's investment in Lao PDR of \$57 million constituted 90 percent of overall foreign investment in that country.³⁴

With such a high reliance on a notoriously risky sector such as hydropower, the economy could be in for further shocks in the coming years, particularly as it is increasingly unlikely that any consortium will be able to attract the necessary financing in a country considered to be of high political and economic risk. The prices being offered by EGAT to the Lao government are simply too low to make the projects economically attractive to the private sector. As a result, hydro proponents are counting on continued subsidies to the industry from the multilateral development banks and bilateral aid agencies.

This is compatible with international financing trends. According to the World Bank, the private sector is likely to invest in relatively small hydro plants where risks are low. John Briscoe, Senior Water Advisor at the World Bank states that

"It is relatively easy to involve the private sector in smaller projects . . . For larger projects there has been, and will be, little private sector financing unless there is substantial involvement of governments and bilateral and multilateral agencies in co-financing such projects and in assuming some of the risks."³⁵

Briscoe states that the large variety of risk factors associated with large hydro dams — hydrologic, geologic and environmental — make it an unattractive investment for the private sector. This was acknowledged by the industry as far back as 1994, in a conference on the private financing of hydropower projects. Financiers said for a "typical developing country", the upper limit which private investors would be likely to risk putting into a hydro project, even on a very favorable site, would be between \$120 million and \$150 million, which is enough for only a 75 to 100 MW plant. These commercial realities were never reflected in the advice given to the GoL from either the multilateral development banks or the hydropower consultants hired to perform sector studies and economic analyses. See Box 3 — "High Risks, Low Returns" for details on the risks of hydropower.

CONCLUSION

Acting on the advice of the World Bank, ADB, UNDP and other donors, Lao PDR has borrowed tens of millions of dollars for its hydropower sector, with the promise of bountiful foreign exchange to finance national development. Already there are signs that this strategy will not work. Thailand's uncertain demand for power and its abundance of cheaper alternative sources domestically mean that it is unlikely to require additional power from Lao PDR, at least in the next 7 years. Lao PDR's reliance on Thailand as its only market for power puts it in a vulnerable bargaining position, forcing Lao PDR to agree to whatever price EGAT offers. The reluctance of private financiers to absorb the large risks associated with hydropower will make it increasingly difficult for private companies to attract financing for dams in Lao PDR without some kind of subsidy to the industry from the multilateral development banks and bilateral aid agencies.

As will be shown in the following six case studies, those dams that have been proceeding are causing substantial social and environmental impacts, while their claimed economic benefits to Lao PDR may not even be realized. The question to consider is whether the benefits outweigh the economic, social and environmental risks.

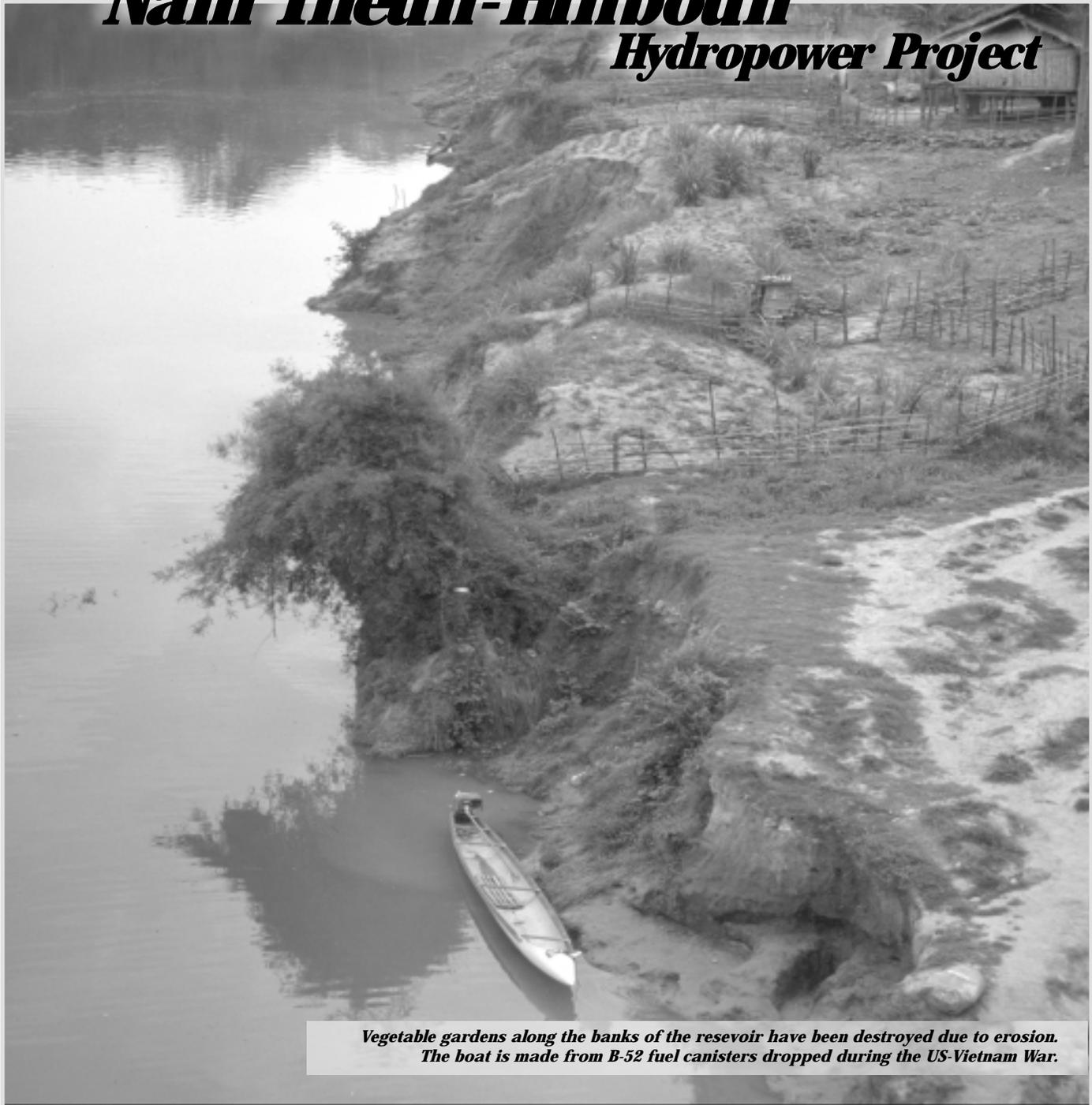
As the consultants in the *Initial Environmental Examination* for the ADB-funded Se Kong-Se San and Nam Theun River Basins Hydropower Study have stated:

“Since hydropower development has the potential to cause extremely wide-ranging and severe irreversible social and ecological impacts, it is important to ask whether such damage is acceptable under the current economic instability within the region, whether the principal objective of the developments are appropriate for the actual needs of the countries proposing them, and whether these developments will compromise future asset management purely for the sake of short-term gain.”³⁶

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Chapter 2

Nam Theun-Hinboun Hydropower Project



*Vegetable gardens along the banks of the reservoir have been destroyed due to erosion.
The boat is made from B-52 fuel canisters dropped during the US-Vietnam War.*

The Theun-Hinboun Hydropower Project, a 210 MW trans-basin river diversion project located in Bolikhamxai and Khammouane Provinces of central Lao PDR, was officially opened on April 4, 1998. The project was partially financed by the Asian Development Bank and the Norwegian government, together with other public and private sources, as a BOT joint venture.

A. MAIN CONCERNS

This case study is based on the field report *Trouble on the Theun-Hinboun* which was published by IRN in April 1998. This report documents the impacts of the project on local livelihoods and the inadequacy of compensation measures.¹ Additional information has been gathered from other recent reports and accounts of the project. The following concerns have been identified:

- Theun-Hinboun has already had a severe impact on the livelihoods of thousands of Lao villagers — resulting in reduced fish catches, the destruction of vegetable gardens and dry season drinking water sources, and transportation difficulties. Approximately 6,000 Lao people live in the 25 villages near to the project site and are considered to be “especially vulnerable” to impacts from the project.² In addition, thousands of other people living in the Theun and Hinboun river basins are also now being affected by the project.
- Existing mitigation and compensation measures are grossly inadequate, leading to a situation wherein those least able to afford it — local villagers — are in effect subsidizing the power company’s shareholders.
- The process by which project decision-making and implementation has occurred has been extremely poor and plagued by conflicts of interest, political expediency, and a pro-hydropower agenda on the part of the ADB and NORAD which ignored basic regulatory principles.
- Only recently, after sustained lobbying by NGOs, have the ADB and project developers admitted that the project has had serious impacts on people’s livelihoods and that villagers deserve compensation for their losses.

***“Khachow poi nam laew,
nam keun, baw dy kin pa”***
*(When they release the water and
the river here rises, we have no fish to eat)*

*Woman fishing in the Hinboun River
by Ban Song Hong, March 4, 1998.*

B. BACKGROUND AND DESCRIPTION

Nam Theun-Hinboun is the first of several large hydropower projects planned or under development in the Theun-Kading River basin.³ The dam was approved despite concerns raised by groups in Thailand, Norway and other ADB-donor countries that the project proponents had systematically failed to safeguard the interests of Lao citizens both in the appraisal and implementation stages.

Construction began in 1994, and is now complete. The dam was closed in January 1998, and the project was officially opened on April 4, 1998.

The project diverts water from the Nam Theun, one of the largest Mekong tributaries, through a tunnel to a power plant located at the base of a mountain within the Hai/Hinboun river basin. The water flows on through a canal and re-regulating pond into the Nam Hai stream, which then flows into the Nam Hinboun, another Mekong tributary. If Nam Theun 2, to be located further upstream, does go ahead, it will divert water out of the Theun River, resulting in a reduced power generation capacity for Theun-Hinboun.

The Theun-Hinboun is a BOT project run by the Theun-Hinboun Power Company (THPC) with a 30-year license. Electricité du Lao (EdL) officials reportedly wanted the project to be an EdL venture without private sector involvement. However, the ADB heavily pressured the Lao government to accept a BOT model with foreign involvement. Several individuals who were working on hydropower projects at the ADB at the time of those negotiations have since taken positions with the project developers.

The THPC is a joint venture between EdL (60%), MDX/GMS-Thailand (20%), and Nordic Hydropower (20%). Nordic Hydropower’s ownership is equally split between Vattenfall of Sweden and Statkraft of Norway, both of which are state-owned utility companies. The Asian Development Bank loaned \$60 million out of a total cost of \$260 million to the Lao Government for its equity share of the project and the Nordic Development Fund loaned another \$7.3 million. The Norwegian bilateral aid agency NORAD contributed \$7 million and UNDP provided a small grant. Financing was also provided in part by a consortium of commercial banks and Scandinavian public export credit agencies. The project will more than double the electrical generating capacity of Lao PDR and is expected by the government and project proponents to be a major foreign exchange earner.

The ADB and THPC have been describing the project as privately financed: “The first privately financed infrastructure in Lao PDR, Theun-Hinboun will serve as a model for future hydro power development.”⁴ This is misleading as most of the financing is either public or publicly guaranteed. Well under half of the total investment in the project involves non-publicly guaranteed private financing.

The 1997 devaluation of the baht means that Lao PDR will receive substantially less in total dollar revenue than envisioned when the power purchase agreement (PPA) was

signed. This is because the tariff is payable in baht, half at the exchange rate at the time the PPA was signed (25 baht to the dollar) and half at the exchange rate on the day of delivery. As a result, in 1998 the project lost around \$10 million in revenue. This is a point of concern since the loans for the project are payable in US dollars. The Hydropower Office claims the project still has an excellent anticipated internal rate of return, primarily because Nam Theun 2 has not yet been built, resulting in more water for Theun-Hinboun.

As recently as late 1997, the ADB proclaimed the project a “winner”, with “little for the environmental lobby to criticize.”⁵ In reality, environmental and other public interest groups, and Lao people within and outside of the government, have expressed concern about the project, and the process by which it has been implemented, ever since it was first proposed.

C. PROJECT ISSUES AND ANALYSIS

Information in this section is based on a report published by IRN entitled *Trouble on the Theun-Hinboun*, which was

based on a March 1998 field visit to the project area by independent researcher Bruce Shoemaker. Shoemaker’s findings have been corroborated by two reports produced for the World Wide Fund for Nature Thailand Project Office.⁶

1. Impacts on Local Livelihoods

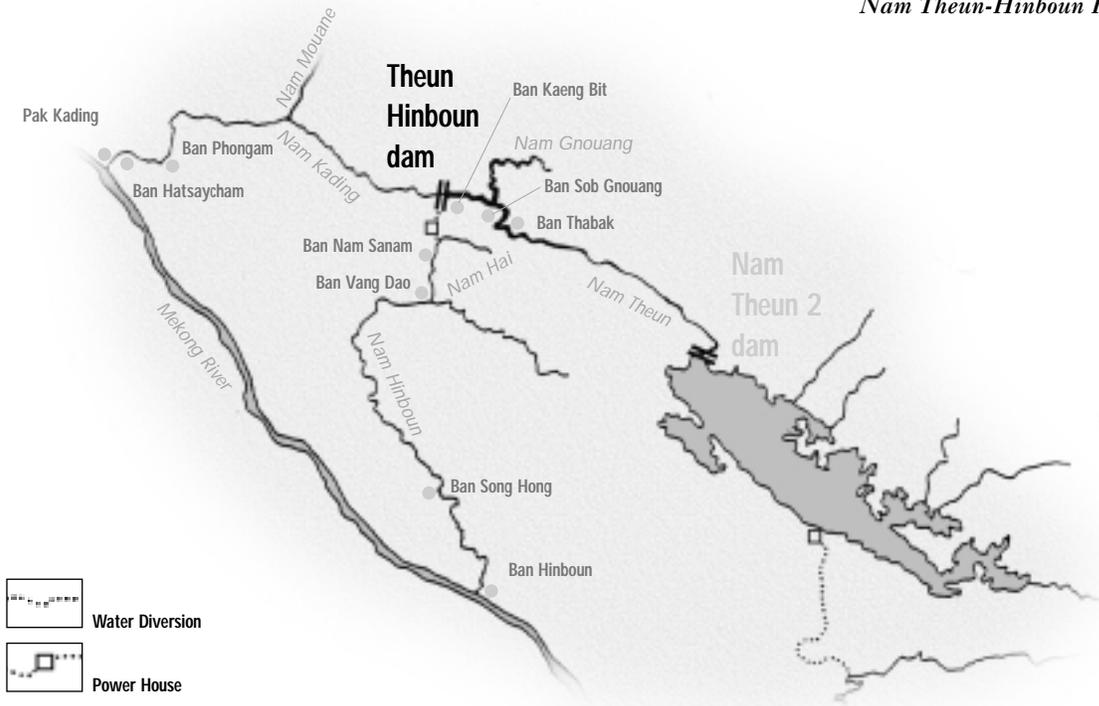
Shoemaker, who is fluent in the Lao language, visited ten villages in three distinct affected areas, two months following the closing of the dam. Shoemaker interviewed a wide cross-section of people

including women, men, young people, fish market stall owners, shop owners, fishermen, village headmen, boat pilots, and others. He found that:

“I buy directly from the village fishermen. They come to the riverbank by the bridge every morning. This year in the dry season there are very few fish. They no longer come down since the dam was closed . . . I estimate that there is a 70% reduction in the number of Nam Kading fish available for sale here compared to this time last year.”

Fish seller at village market downstream of the dam, March 2, 1998.





“The results of these interviews clearly show that the Theun-Hinboun project is already harming the livelihoods of many people in the Theun and Hinboun River basins. In all three areas visited, villagers — without exception — reported substantial declines in fish catches. These declines ranged from 30% to 90%. Villagers also reported being impacted by the loss of riverbank vegetable gardens, the loss of dry season drinking water sources, and transportation difficulties. In some areas, villagers must relocate their homes and do not feel they are receiving adequate assistance with this process.”⁸

Downstream in the Theun-Kading River basin

Immediately downstream from the dam site, the Theun River (known as the Kading River from here to the Mekong) flows 40 km through the Nam Kading National Biodiversity Conservation Area. Further downstream there are many villages along the river which depend on fishing for food and income generation. Villages all the way down to the confluence of the Nam Kading with the Mekong are experiencing negative impacts from the dam closure.

Since the diversion, water levels during the dry season have declined dramatically. Villagers report that many fish are no longer present in the river and that the fish catches that they depend on for food security or for sale for cash income have declined dramatically. These declines are reported to be between 30 and 70 percent.

Reservoir Area

Thirteen villages are located along the headpond, or reservoir, which was created along a 24 km stretch of the Nam Theun and Nam Nyouang upstream from the dam. While the ADB and THPC have claimed that the project will be beneficial for these villages — allowing for an increased fish catch — at present many villagers report harmful

impacts on their food security and economic livelihoods.

In contrast to the Theun River below the dam, problems are very different along the headpond. Fish catches have declined dramatically due to the difficulties of fishing in the deep, still waters of the reservoir. Erosion has occurred, causing loss of land, and in villages such as Ban Sob Nyoueng, many households have relocated within the village or left completely since the project began.

“The water levels this year since the dam was closed are the lowest we have ever seen for this time of year. The fish have all fled to the Mekong... Another problem is boat travel. Here we depend on the river for transport. This has become difficult with the low water level. We have fruit orchards across and up the river and we always used our boats to bring the fruits, watermelons, etc. down to the village but now our boats get stuck. Now we will need a road.”

Villagers at Ban Phongam, Nam Kading, March 2, 1998.

Vegetable garden areas have been inundated and some people report troubles with transport due to streams being backed up around their villages.

Nam Hai-Nam Hinboun downstream areas

Below the powerhouse, tailrace channel, and re-regulating pond, the water originally in the Theun River flows into the Nam Hai, a small stream that in the past had only flowed seasonally. The water flows in the Nam Hai for several kilometers to the confluence with the Nam Hinboun. The Nam Hinboun then flows approximately 80 km to its confluence with the Mekong River. There are villages located all along these rivers, however only the villages in the immediate area of the project and just past the confluence of the Hai and the Hinboun were until recently considered by the THPC and the ADB to be “directly impacted.” Interviews confirm that villagers all the way to the Mekong are suffering ill effects from the project.

The water now flows quickly and is very muddy in the Nam Hai and in the Hinboun. It has become difficult to fish in this area and this is having an impact on the livelihoods of people living along the river. In addition, their vegetable gardens have been flooded and dry season drinking water sources inundated. Many villagers express fear of flooding during the rainy season.

2. Compensation and Mitigation Measures

Thousands of Lao citizens now suffering harmful impacts from the Theun-Hinboun project have not received direct compensation for their losses and until recently there were no plans to provide them with any such compensation. In October 1994, the Lao government, acting with legal advice from the ADB, signed a license agreement with the THPC which limited the Company’s obligations to provide compensation and

environmental mitigation to \$1 million. This apparently arbitrary figure was based on an assumption of minimal environmental impacts as predicted in the initial EIA by Norconsult.

In 1996, one and a half years after the beginning of construction, a new study commissioned by NORAD revealed that the environmental mitigation costs would be much higher than originally envisioned and led many observers to question the lack of funding for such measures. In October 1996, the company signed a supplemental agreement with the government which increased the amount the developers would allocate for environmental mitigation and compensation from \$1 million to \$2.59 million. THPC also agreed to a 5 cubic meter per second minimum downstream release and to flush sediments past the dam. The agreement absolved the private shareholders from any further obligation to assist with mitigation or compensation measures for the life of the project. Within the entire \$260 million dollar project cost — which includes this \$2.59 million for the mitigation program — a total of only \$50,000 had been allocated for all resettlement and compensation costs for affected local people.

The funds for the re-regulating pond and modifications allowing for a downstream flow (together 67% of the total mitigation budget) should have been included as part of the project’s basic infrastructure from the start, rather than being credited as special “mitigation” measures. Most of the remainder of the mitigation funds went for monitoring and three studies conducted by foreign consulting firms. No money for the implementation of any activities recommended in these studies was included.

According to staff of the Environmental Management Committee Office of the THPC (EMCO), which implements the mitigation program, most of the \$50,000 available for resettlement and compensation

“Before the dam closed and the water came up we got drinking water from springs down on the riverbank during the dry season. In the rainy season we get water from other nearby streams which flow at that time. Now the springs are all flooded with the muddy river water and we must go long distances to find drinkable water . . .”

Villagers at Ban Vang Dao, Nam Hai/Nam Hinboun Confluence, March 2, 1998.

Table 1: Theun-Hinboun Environmental Mitigation Budget

Construction of Re-regulating Pond	\$1,600,000
Design Modifications to dam for minimum flow	130,000
Clearing Obstructions in Nam Hai	100,000
Modifications to Tailrace Channel	50,000
Treatment and Protection of Spoils Heaps	100,000
Monitoring Program	300,000
Local Information Program	15,000
Rural Development, Fish, Irrigation Studies	250,000
Resettlement and Compensation Costs	50,000
TOTAL:	\$2,595,000

was spent on purchasing land for the transmission line towers. Most of the other line items had also already been expended or committed so there was no prospect of reassigning any of the current mitigation budget to increase compensation for affected villagers.

At the time of going to press, the ADB had just released an Aide Memoir based on a visit by Bank staff to the project site from November 18 to 28, 1998. The visit was scheduled in response to Shoemaker's report and sustained campaigning by NGOs. In the Aide Memoir, the ADB finally acknowledges all of the impacts identified by Shoemaker. The ADB states that "although several measures are being taken in response to these impacts, THPC has yet to put in place a comprehensive mitigation program to address all of these individual impacts ..."

The Memoir states that THPC has agreed to redefine the project impact zone to include the Nam Theun downstream of the dam to the Mekong confluence, and from the Nam Hai-Nam Hinboun confluence to the Nam

Hinboun-Mekong confluence. THPC has apparently agreed to "immediately design and implement a program that will clearly

identify Project impacts on all villages within the newly defined Project zone." This will include a survey of all villages which will allow THPC to immediately compensate for loss of gardens, loss of fishing nets, wells to compensate for impaired water supplies, and reinstatement of dry season access, if any is required.

According to the Memoir, the process of negotiation and provision of compensation will begin immediately after the survey information is collated, and is expected to be completed in approximately eight weeks. In addition, the THPC is developing a fisheries management plan, and will continue to monitor fisheries impacts with a view to providing compensation.

The ADB is not clear on where additional funds for compensation will come from, but implies that the THPC will shoulder these costs out of project revenues. The ADB does state that the THPC Board decided in November 1998 to immediately provide an addi-

"The project has never looked in depth at the problems we have. They just come quickly, tell us what will happen and leave. They are not very interested in our situation. There has never been any talk about compensation for our losses."

Village leader at Ban Sop Nyoueng along the headpond, March 3, 1998.

"This year we have no vegetable gardens . . . Every year we grow vegetables in the dry season along the riverbank but these areas are now flooded. Many of these vegetables are eaten within the households but if sold they could bring 200,000 to 300,000 kip a year per family. New gardens can probably be developed in higher areas but it takes time to do this . . . In the meantime we have a big loss."

Village headman at Ban Sop Nyoueng, March 3, 1998.



Theun-Hinboun dam

tional \$100,000 for the expanded monitoring program and some additional mitigation measures. The EMCO budget has been increased, and the monitoring program will continue up to 2003. While it is certainly commendable that the company is agreeing to cover compensation and additional monitoring, these costs should have been factored into the initial cost-benefit analysis.

The Aide Memoir suggests a step in the right direction by the THPC and the ADB, but the situation will need to be continually monitored to ensure that villagers are receiving adequate compensation. This is especially important because, as demonstrated by the Pak Mun dam in Thailand, fisheries impacts are likely to be experienced well into the future, and cannot be mitigated (see Box 4).

3. Poor Process

From the outset, Theun-Hinboun has suffered from a poor process of implementation and biased decision-making by project proponents. The original EIA study, conducted by Norconsult (formerly Norpower) in 1993, was of such low quality that the study's financier, NORAD, facing public pressure, rejected it soon after its completion.

NORAD subsequently admitted that Norconsult should not have been allowed to carry out the study as it was part-

owned by Statkraft, one of the project developers standing to make a profit from the dam. Despite this, the ADB approved the loan for the project, allowing construction to begin in November 1994.

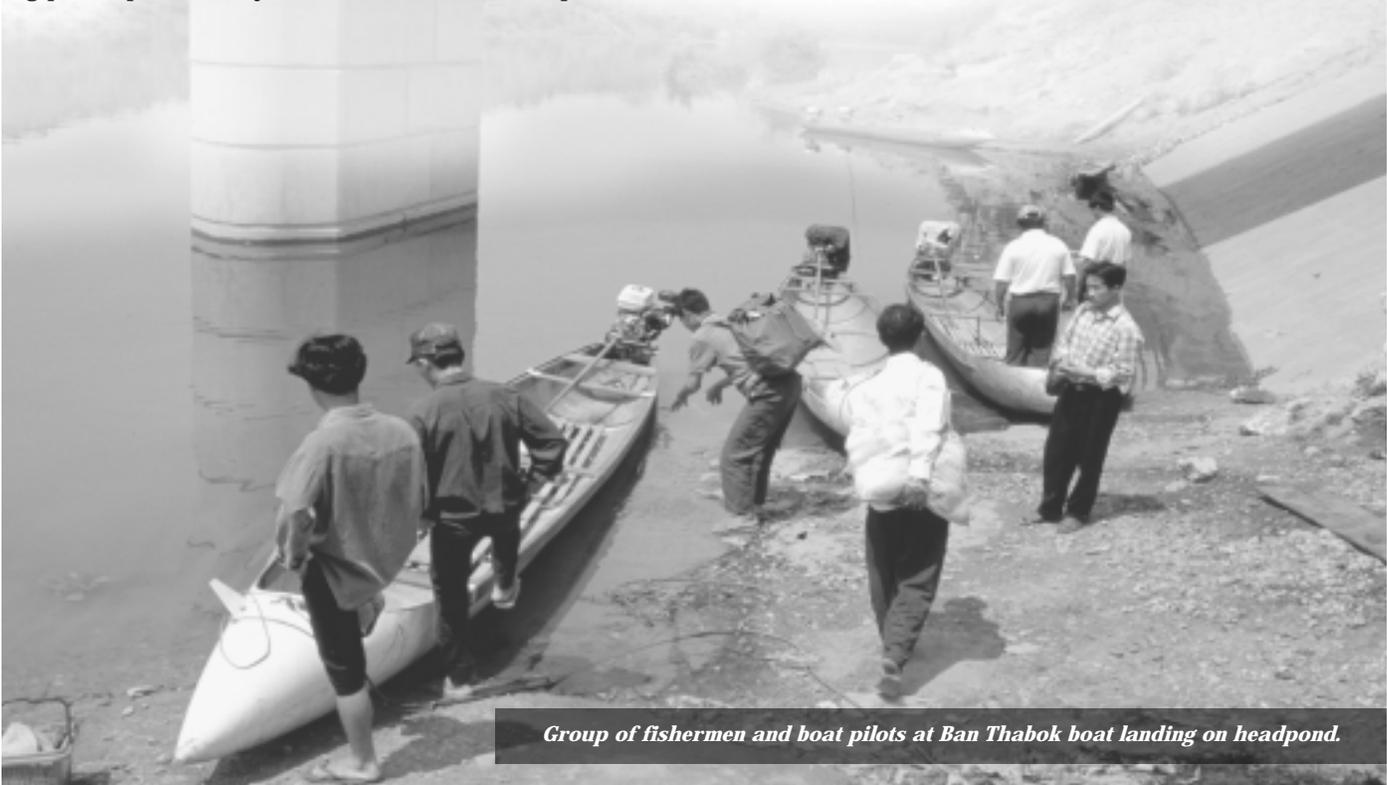
Norconsult was awarded additional contracts for design work and on-going engineering consultation.

Responding to public pressure in Norway, in 1995 NORAD commissioned additional EIA studies which were carried out by another Norwegian consultancy, NORPLAN. These studies were extremely critical of the original Norconsult EIA and contradicted

many of its assumptions and findings. The NORPLAN study predicted many of the impacts now being experienced by villagers, and identified the need for mitigation measures well beyond the scope of the \$1 million originally budgeted. However, the NORPLAN assessment was not finalized until one and a half years after construction had already begun. By this point it was too late to include some of the recommended mitigation measures. This also meant that the loans were extended and the concession contract signed before the actual costs of mitigation were known.

“The project has many bad effects! Now it is very difficult for fishing. We can only get about half as many fish as before the dam closed. We don’t know where all the fish went. We have to buy expensive new nets to try to fish deeper in the river now. It is very difficult . . . There are many problems. We have not been told about receiving any help or compensation for these problems.”

Comments from a group of six fishermen, Ban Thabak boat landing, headpond, March 3, 1998.



Group of fishermen and boat pilots at Ban Thabok boat landing on headpond.

A 1995 investigation by the Norwegian NGO FIVAS found that, in violation of the ADB's own guidelines, there was no process of consultation with affected villagers prior to project construction, and villagers were never informed about potential negative impacts arising from the project.¹² The NORPLAN study confirmed this.

Furthermore, only with the dam closure has a program of systematic monitoring of villager fish catches begun. This means there is no baseline data showing what the situation was before the closure, making it difficult to determine compensation for economic losses to fisherfolk. This monitoring should have begun at the time of the first feasibility study.

D. CONCLUSION

As presented above and documented in detail in the Trouble on the Theun-Hinboun field report, many thousands of Lao citizens in a wide area are suffering harmful effects from the operation of the Theun-Hinboun

hydropower project. Like many of the dams in Lao PDR, the project proceeded without any accurate information as to what the likely social and environmental costs of the project would be or how compensation and mitigation measures would be funded. At all steps the ADB, NORAD and other project proponents exhibited a pro-project bias, ignoring legitimate concerns and acting in an expedient and unprofessional manner.

Only after sustained external pressure have the ADB and developers been forced to acknowledge that people deserve to be compensated for losses arising from the project. However, the poor process of implementation means that there is no pre-project baseline data with which to compare project impacts, making it even more difficult to assess compensation. Whether adequate reparations will be paid to the affected people remains to be seen.

Overall, the experience with Theun-Hinboun points to the need for fundamental changes in how hydropower projects are studied, assessed, negotiated, approved and regulated in the Lao PDR.

BOX 4: Theun-Hinboun: A Lao Pak Mun?

The Pak Mun Dam, a somewhat smaller "run-of-river" project funded by the World Bank on a Mekong tributary in Thailand was completed in 1994, the same year that Theun-Hinboun was approved. As at Theun-Hinboun, the central social/environmental issues at Pak Mun have focused on fishing and related economic livelihood losses.

As of 1994, 1,567 households were identified as affected, six times the number of families EGAT and the World Bank had initially claimed would be affected. In July 1995 an additional 2,506 families filed claims for compensation. Eventually an agreement was reached in which households adversely affected by the Pak Mun dam were given 30,000 baht (\$1,200) in direct cash compensation. An additional 60,000 baht per household went into a community-managed fund for income-generating schemes in the area.

By July 1995, the cost of Pak Mun resettlement and compensation had reached \$39 million and was still growing. The bulk of this, \$34.3 million, was for compensation costs. While there are certainly socio-economic and other differences between the Pak Mun and Theun-Hinboun areas, the Pak Mun experience suggests that the true costs of compensating Lao citizens for the losses caused to them by Theun-Hinboun may have been grossly underestimated.

- 1 Shoemaker, Bruce, *Trouble on the Theun-Hinboun*, International Rivers Network, Berkeley, April 1998.
- 2 Midas/Burapha, *Theun-Hinboun Environmental Studies in Lao PDR: Draft Final Report*, Vientiane, June 1995, pp.9-10.
- 3 The Theun river is named the Kading downstream of the Nam Theun-Hinboun dam site.
- 4 Theun-Hinboun Power Company Ltd., *Theun-Hinboun Power Project: A Contribution to Development*, Vientiane, 1997, p.3.
- 5 Gill, Ian, "Theun-Hinboun gamble pays off: Hydropower project to increase Lao PDR's GDP by 7 percent" *ADB Review*, Nov/Dec. 1997, p.8.
- 6 Steinmetz, R., *A Participatory Biodiversity Assessment of Khammouane Limestone National Biodiversity Conservation Area*, WWF Thailand Project Office, January 1998 and Baird, I., *A Preliminary Assessment of Aquatic Resources, with a Special Emphasis on Fish and Fisheries, in and adjacent to the Khammouane Limestone NBCA*, WWF Thailand Project Office, July 1998.
- 7 All villager quotes in this chapter are from Shoemaker, op cit.
- 8 Ibid, p.5.
- 9 *Agreement on Environmental Mitigation Measures to be Undertaken and Paid for by the Theun-Hinboun Power Company Ltd.* Between the Government of Lao People's Democratic Republic and Theun-Hinboun Power Company, December 6, 1996.
- 10 "Pak Mun: The lessons are clear, but is anyone listening?" *Watershed* Vol. 1, No 3, 1996, p.21.
- 11 Ibid, p.23.
- 12 FIVAS, *More water, more fish?: A report on Norwegian involvement in the Theun Hinboun Hydropower Project in Lao PDR*, Oslo, 1996.

Chapter 3

Nam Leuk Hydropower Project



Ethnic Hmong villagers who will be impacted by the Nam Leuk project.

Nam Leuk is a 60 MW dam and diversion scheme located within the Phou Khao Khouay National Biodiversity Conservation Area (NBCA) in Vientiane Province and the Saysomboon Special Zone. Funding for this \$130 million¹ project, which is entirely owned by the Lao government, has come mainly from loans issued by the Asian Development Bank and the Japanese government. Construction on Nam Leuk began in early 1997 and is expected to be completed by the end of 1999.

A. MAIN CONCERNS

IRN staff and other researchers have visited the project area several times, most recently in November 1998. Based on these visits and project reports, the following concerns have been identified:

- Low quality and biased environmental impact assessments have provided a poor basis for decision-making. The original EIA, conducted by Lahmeyer/Worley in 1992, was rejected by the ADB following criticism. A subsequent study, by Sogreah Ingénierie, was better, but also failed to properly address many important questions. Both consultants had conflicts of interest due to their involvement in implementing hydropower projects in Lao PDR and, in Sogreah's case, their on-going involvement in designing and supervising construction on the Nam Leuk project.
- China International Water and Electric Corporation, the construction contractor, initially used very poor standards for road and infrastructure construction which resulted in excessive sedimentation in the Nam Leuk river. CWE is largely responsible for a \$15-20 million cost overrun which will affect the economic viability of the project. The government may be forced to sell a part of the project to a private power company.
- Policies for compensating villagers for the loss of land, fishing resources and other livelihood impacts are unclear.
- In early 1998 uncontrolled logging was initiated in and around the inundation area in violation of the plans and regulations established by the ADB and Sogreah. This is particularly disturbing given the area's status as an important rare habitat for globally threatened animal species.

B. BACKGROUND AND DESCRIPTION

Nam Leuk is the second of three Lao government projects designed to increase water flow into the Nam Ngum reservoir. Nam Ngum has been affected by siltation and water shortages. The first diversion project, Nam Song, was completed in 1995 with ADB funding. The third, Nam Mang 3, would also be located in the Phou Khao Khouay NBCA. While feasibility studies have been completed for Nam Mang 3, this project is currently on hold.

The Nam Leuk project is situated in a remote area of the Phou Khao Khouay NBCA, one of 18 legally recognized NBCAs in the country. Phou Khao Khouay is one of the

most important protected areas in the country, providing critical habitat for wild elephants, tigers and many other globally rare and endangered species.

The Nam Leuk, which flows south towards the Mekong, is to be dammed by a 45 meter high structure creating a 13 square kilometer reservoir. The water is then diverted to the north through a powerhouse, into the Nam Xan, then on into the Nam Ngum reservoir. The powerhouse will generate up to 60 MW of electricity, which will be transported to the nearby town of Pakxan and to the Nam Ngum powerhouse for local supply and export to Thailand.

The original feasibility and EIA studies took place in 1992. Following criticism of the quality of these studies, a new EIA was prepared in 1995. Despite a critical independent review of the new EIA and a letter from 16 NGOs urging the ADB to finance a new study, the ADB approved a \$52 million loan for the project in 1996. The Japanese government, through its Overseas Economic Cooperation Fund (OECF), gave a yen loan of \$38.5 million and the Lao government contributed the remaining \$22.1 million. The project is expected to incur a \$15 to \$20 million cost overrun and at the time of writing it was unclear where this money would come from (see section 2 below).

In response to the criticism at the time of loan approval, the ADB established an independent panel of experts (POE) to monitor the project. Their mandate is limited to the construction period and it is unclear whether any independent monitoring of the project will occur following its completion. The POE has thus far made three visits to the project area.

In July 1997 the ADB, in an unprecedented move, suspended work on the dam due to the substandard construction work by contractors China International Water and Electric Corporation. Construction was resumed four months later, on the proviso that the contractors would adhere to two plans of action on technical and environmental/social matters. In February 1998 a new controversy emerged due to the inability of Electricité du Laos (EdL) and Sogreah to control project-related logging in the inundation zone and surrounding areas.

C. PROJECT ISSUES AND ANALYSIS

1. EIA Process Seriously Flawed

The first ADB-financed EIA was produced by the German hydropower engineering firm Lahmeyer International together with New Zealand consultants Beca Worley International in 1992.² This EIA is now widely acknowledged to have been of poor quality. The Protected

Areas Division of the Department of Forestry, concerned about the potential impacts of Nam Leuk on the NBCA, commissioned an independent review. This review was scathingly critical of the Lahmeyer/Worley EIA, calling it “inadequate, inaccurate and misleading.” The review found that the consultants had completely missed the existence of two good-sized villages in the downstream area, failed to consider the likely impacts on fishing resources, and over-estimated the downstream water flow levels in the Nam Leuk following dam construction. Even though Lahmeyer had also worked on the pre-feasibility study for the nearby Nam Mang 3 project, the combined impacts of building both projects was never addressed.³

Based on this review and subsequent outside criticism, the ADB rejected the Lahmeyer/Worley EIA. The French firm Sogreah Ingénierie was contracted to produce a new EIA which was completed in November 1995.⁴ While an improvement on the Lahmeyer study, a review of the EIA by Dr. Guy Lanza, an expert in riverine ecology at the University of Massachusetts, found that it failed to include important information that should have been part of the decision-making process and made many questionable assumptions. Data on fisheries was incomplete and the livelihood issues of local communities were not examined in sufficient detail. Lanza stated that: “Vitaly important questions about the environmental conse-

quences of the project are either not addressed or are based on incorrect assumptions and/or invalid interpretations of the limited data provided in the EIA.”⁵ Lanza concluded his review by predicting that the negative impacts of the dam would be much more severe than anticipated by Sogreah.

Another review of the fisheries section of the Sogreah EIA found it to be based on poor research methods and incomplete data:

“Sogreah’s assertions that an approximately 50 percent reduction in the Nam Leuk’s natural flow during the rainy season, directly attributable to the Nam Leuk Diversion and Hydroelectric Project, will have no impact on the Nam Leuk’s fisheries or local communities — but will instead result in benefits — is absolutely unfounded. Sogreah’s EIA presents no reliable, empirical research to support its dismissal of potential impacts on the Nam Leuk fisheries and village communities.”⁶

Sogreah also had an interest in ensuring that the project went ahead. Following project approval, they were awarded contracts to do detailed design work for the dam, to supervise construction, and to prepare the project Social Action Plan, for which they are to receive in excess of \$5 million. Due to substandard work by construction contractors China Water and Engineering, Sogreah is apparently now responsible for construction and has reportedly received additional funds.

BOX 5: Lahmeyer and Sogreah: Vested Interests in Hydro

Lahmeyer

The German-based consulting firm Lahmeyer International has gained a reputation for unabashed support of controversial hydropower projects worldwide. Their involvement and support for projects such as Bakun in Malaysia, Arun III in Nepal and Chixoy in Guatemala has been severely criticized by international human rights and public interest groups. In Lao PDR, Lahmeyer has been a leading proponent of hydropower development. Their past contracts have included the Nam Song Project EIA and Nam Mang 3 pre-feasibility study for the ADB, Hydropower Master Plan for Lao PDR and the Nam Theun 2 Study of Alternatives for the World Bank.

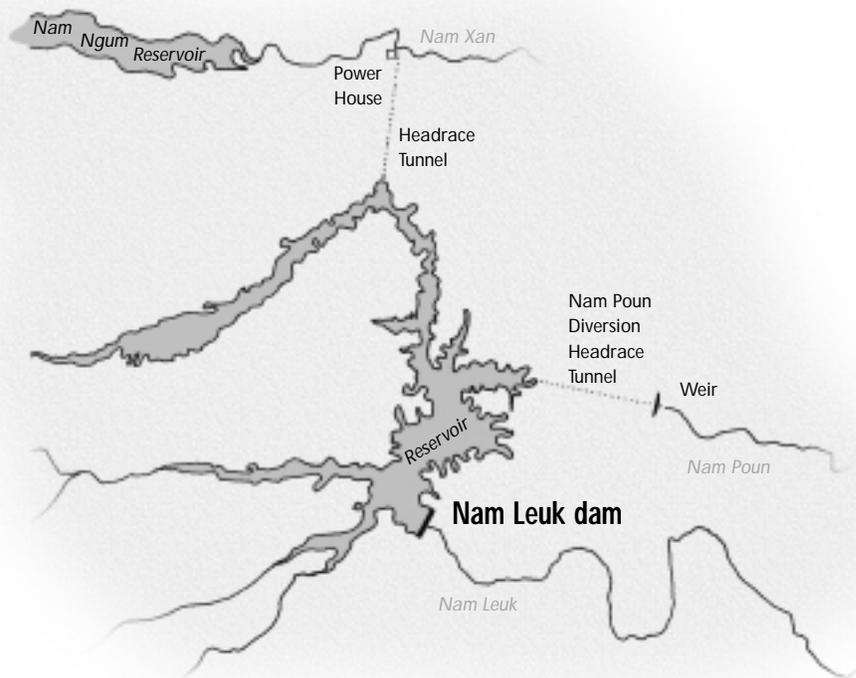
Lahmeyer has built up a track record of cost overruns, questionable feasibility studies and exaggerated statistics. In Guatemala, Lahmeyer was the lead company in a three company consortium which planned, designed and supervised construction for the 300 MW Chixoy Dam. The consortium’s 1974 feasibility study recommended construction despite serious geological problems at the damsite. In 1976, an earthquake forced the first of several re-evaluations of the damsite seismology and geology, delaying project completion by nearly three years and contributing to a cost overrun of \$750 million. In addition, the feasibility study ignored the existence of the over 2,500 people forced to resettle because of the project.⁷

During their presentation at the Alternatives Study workshop held in Vientiane in May 1997, Lahmeyer’s vocal and unqualified support for hydropower development while in the process of implementing a study that was supposed to be an unbiased and independent examination of the issue surprised many workshop participants.

Sogreah Ingénierie

Sogreah Ingénierie is a French engineering consulting firm with substantial experience in dam building. Many of the hydro plants that they have helped design and construct have serious and well-documented problems of economic and technical viability as well as social and environmental damage. These projects include Turkwell Gorge (Kenya), Diama (Senegal), Madura Oya (Sri Lanka), Pak Mun (Thailand) and Selingue (Mali).

Sogreah signed a \$280 million contract to build the Turkwell Gorge dam in Kenya without obtaining preliminary information on the hydrology and sedimentation of the site and before establishing a final design of the dam.⁸ As a result, the dam proved to be a technical fiasco with its turbines unable to reach even half their generation capacity two-and-a-half years after operation began in February 1991.



2. Problems with Construction Contractor

To date, the performance of the main construction contractor, China International Water and Electric Corporation (CWE), has been poor. The company received the contract after submitting a bid much lower than that of its competitors. In May 1997, IRN staff observed that construction was causing excessive sedimentation in the Nam Leuk. In July, the ADB suspended construction in order to investigate. Villagers in downstream areas and at the Tad Leuk waterfall later confirmed to a researcher that the water quality of the Nam Leuk did deteriorate in the period before the suspension of construction.

The Nam Leuk POE looked into this issue during their first mission in September 1997. They found that the Environmental Officer for CWE, who was supposed to be on site throughout the project construction period, had not even been in Lao PDR since construction began. Twice, ADB missions were sent to the site to investigate and, following further negotiation with the company, construction was resumed in November 1997. The company was required to implement remedial measures which require adherence to higher standards on technical matters and environmental/social issues. In addition, a construction expert was added to the Panel of Experts.

The construction expert has made a number of visits to the project site. According to the expert, some of the problems with the contractors have included lack of

skilled staff, insufficient staffing levels, lack of design capabilities, shortage of equipment, communications problems between Sogreah and CWE staff, and poor living conditions for Lao laborers. The quality of construction appears to have subsequently improved, and it has been reported that Sogreah is now largely responsible for construction at the site.

CWE's poor performance has resulted in a \$15-20 million cost overrun, which will affect the economic viability of the project and the government's return on their investment. The ADB, unwilling to provide an additional loan, has recommended that the government pursue two alternate options for meeting the shortfall.⁹ The first option involves the Government selling nine percent of their 60 percent equity interest in the Theun Hinboun Power Company, thereby maintaining a majority stake in the company. However, the ADB states that it is "highly unlikely" the Government will agree to this option. The other option involves selling part of the project, along with part of Nam Ngum hydropower project, to Sithe Pacific Holdings, a subsidiary of New York-based Sithe Energies Ltd. that has been looking for two years for a suitable investment in Lao PDR. As the government is also reluctant to do this, Sithe has offered to provide a loan to EdL to finance the shortfall. In return, Sithe wants to operate Nam Leuk during the repayment period and recoup their loan through power sales to Thailand. Either way, the government will be paying dearly for the problems caused by CWE.

3. Impacts on Local Livelihoods

Impacts on local citizens are expected to occur in two main areas — the northern powerhouse and reservoir area, consisting of 3,120 people living in six villages, and downstream along the Nam Leuk, an area with 6,200 people living in seven villages.

Process of Consultation

Until well after the time that the Nam Leuk project was planned and approved, almost no consultation with affected villagers, especially those in the downstream areas, occurred. The original EIA completely failed to acknowledge the presence of two important downstream villages — Ban Nyangkhoua and Ban Phongam/Houakhoua. The second EIA refers to detailed social impact assessment and consultation work that was conducted. This work was mostly sub-contracted by Sogreah to staff of the Lao Women’s Union who had little experience in conducting such studies. Inadequate time was provided and it was reportedly difficult for villagers to

provide meaningful input. This consultation process does not appear to have met minimal ADB standards but was still accepted.

Only recently, following sustained external criticism, are locally impacted communities starting to be consulted and their needs for assistance and compensation more formally recognized. A Social Action Plan for the project was completed in January 1998 by Sogreah.¹⁰ This plan finally addresses some issues, such as the expected impacts on Ban Nam Leuk, that were downplayed or ignored in the EIA.

“We were not told in advance about the project. We only heard about it when they began repairing the road. It is only very recently that people from the project have come to talk to us.”

Villager at Ban Pak Leuk, located downstream from the project, March 1, 1998.

Impacts

In the reservoir and powerhouse areas several Hmong villages are particularly impacted by the project. The villagers of Ban Nam Leuk will lose some of their paddy, orchards, and grazing lands as well as access to forest resources. Other villages will lose temporary access to their lands during the construction phase of the project.

The impacts on downstream and upstream fishing resources are likely to be substantial. In the Social Action



Nam Leuk construction site, March 1998.

Plan Sogreah makes contradictory statements. Sogreah, acknowledging that villagers have “an extreme dependence” on fish for their nutritional protein, states that “both northern and southern villages may experience short or even long-term declines of unknown magnitude in fishery production as a result of the project.” Sogreah then goes on to state that “the southern and northern villages will suffer only small negative impacts from the project. These will be far outweighed by the benefits of infrastructure development and the potential for rural electrification.”¹¹ To state that negative impacts will only be small after acknowledging that the declines in fish catches are of “unknown magnitude”, suggests a value judgement that is clearly inappropriate in a plan that is supposed to document the social impacts of the project.

The Protected Areas Report predicts that the impacts on fishery resources for downstream villagers will be substantial: “Reduced water flow in the Nam Leuk River will undoubtedly have a severe impact on the aquatic ecosystem of the Nam Leuk River, and also those of the Nam Gngang and Nam Mang Rivers. Apart from reducing fish habitat substantially, the reduced water flows will also severely impede fish migrations in the river, resulting in some species completely disappearing from parts of the river.”¹²

The Protected Areas Report also predicts that reduced water flows may impact downstream villagers by making the collection of essential water for drinking, agricultural, and other household purposes more difficult. Given that boats are a primary source of transport, some villagers may suffer from transportation difficulties as well.

4. Mitigation and Compensation Measures

Under the terms of the loan agreement between the Lao government and the ADB, mitigation and compensation measures for affected villagers must be implemented according to Bank standards which state that villagers should be no worse off after a project. However, the total cost and financing of mitigation measures is still unclear.

Plans for directly compensating villagers in the upstream areas who stand to lose paddy and other productive land are apparently now moving forward. The Social Action Plan, which includes a budget of \$742,000, recommends fisheries monitoring for five years so that base lines for compensation become established. A total of \$40,000 is budgeted for fisheries loss compensation, but there is no explanation as to how this amount was calculated. At this stage procedures for determining and allocating compensation are unknown.¹³ At other hydropower projects in the country, the Lao government and the ADB have thus far failed to provide direct compensation to local villagers

in downstream areas for the loss of fishing resources and other harmful livelihood impacts. Whether the commitment exists at Nam Leuk to properly document future livelihood losses and to adequately and appropriately compensate villagers for these losses remains to be seen.

In the Social Action Plan Sogreah recommends that the Lao government consider taking additional ADB loans to fund a \$1.5 million “Integrated Rural Development Program” (IRDP) for the affected areas which would include many of the envisioned compensation and mitigation measures, including relocation of Ban Nam Leuk. This is in addition to the \$742,000 under the SAP. At the time of writing this plan has not been funded. The IRDP would appear to be another example of hydropower project costs being externalized. The cost of this separate loan was not included as part of the estimated costs at the time the decisions were made to proceed with the project.

Sogreah also proposes a highly unusual strategy to fund fisheries mitigation measures, should they be needed, for the downstream communities: forcing the affected people pay for the measures themselves. Special taxes would be collected on the wages of those people living downstream who find work with the project during its construction phase: “The internalisation of labour for reservoir biomass clearance . . . will produce considerable revenues (e.g. up to \$160,000 for downstream villages as wages coming into the villages) . . . an equitable and acceptable mechanism for taxing these “windfall” wage incomes . . . should be used to fund the development of any central facilities/water supply, breeding ponds etc. which an intensified fish production system would probably require.”¹⁴ The Panel of Experts in their second report confirms that “some of the money earned from this internalized labor will be used to fund village self help works which enable an intensification of subsistence farming.”¹⁵

This is an extraordinary assertion as a windfall usually refers to something gained by chance through little or no effort. In this case, villagers would be taking time away from their normal activities in order to perform demanding physical labor for wages of 3000 kip (less than \$1.00) per day with food. It is difficult to believe that such an idea has been seriously proposed much less actually incorporated into the Social Action Plan.

Given the poor track record of providing adequate compensation to impacted villagers in other Lao hydropower projects, including those financed by the ADB, it will be essential that steps be taken to allow for independent verification of future livelihood losses and compensation measures implemented in order to ensure that villagers are properly compensated.

5. Uncontrolled Logging within the Protected Area

A central concern over the implementation of Nam Leuk is the potential for harmful impacts on the Phou Khao Khouay NBCA. It is common practice for the Lao government to grant logging concessions for an inundation area once a project MOU or agreement is in place. Such concessions have frequently been abused, with logging also occurring outside of the actual inundation area (see Houay Ho, Chapter 5). Road building, transmission lines, population influx, hunting, and other project related development can all add to the project's impact on an area.

The ADB has made assurances that such impacts will be strictly controlled at Nam Leuk. According to ADB plans, the logging was to have been done "by a logging company through tendering" and funds collected from the company would be used to "reforest or rehabilitate double the amount of hectareage lost to the siting of the reservoir a minimum of 2,000 ha of land within the NBCA."¹⁶

In their EIA and subsequent project implementation planning, Sogreah identified management strategies that were supposed to ensure that the project would have minimal impact on the environment. Funding was provided to support complementary protected area management activities through the Protected Areas Division of the Department of Forestry, including the provision of a Protected Areas Advisor employed by Sogreah. Before logging and bio-mass clearance of the inundation area was to occur, the monitoring and enforcement capacities of the Protected Areas staff was to be strengthened through training and the provision of equipment such as vehicles, radios, etc. Sogreah, as part of their management contract, was given responsibility to carry out these activities.

Apparently, Sogreah and EdL failed to inform the Ministry of Agriculture and Forestry (MoAF) of these plans. Early in 1998 the military-run Mountainous Areas Development Company (Bolisat Phattana Khet Phoudoi, or BPKP), without the prior knowledge of either Sogreah or EdL, was granted a logging concession for the inundation area. BPKP then set up a logging operation in part of the concession area while subcontracting other parts to Vietnamese logging firms. In late January and February 1998, BPKP and the Vietnamese firms carried out logging in the area. A visitor to the dam site on March 1, 1998 observed evidence of this logging operation. The visitor interviewed local people and members of logging teams, who reported that logging had already occurred outside of the inundation zone in at least two places within the Protected Area. These reports were later confirmed in Vientiane, and is acknowledged in the Second Report of the Panel of Experts.

Following this discovery, the MoAF issued an order at

the end of February suspending the logging. However, loggers at the site on March 1 assured the visitor that this was only temporary and that they were confident they would be able to resume cutting soon. According to the Second Panel of Experts Report, the Protected Area authorities have put a team of eight staff in the field, with radios, to monitor BPKP logging to ensure that no further incursions into forest outside the reservoir area take place.

6. Nam Mang 3

Another hydropower project, Nam Mang 3, has also been planned for the Phou Khao Khouay NBCA. The ADB had listed Nam Mang 3 as being in its "project pipeline" for Lao PDR for 1998. It has now been dropped from this list and its future status is uncertain.

Were it to proceed, the development of Nam Mang 3, combined with Nam Leuk, would have a particularly devastating impact on the Phou Khao Khouay NBCA, fragmenting it to such a degree that it would be much less able to support the diversity of endangered species that now live in the area. Wildlife experts in Lao PDR are particularly concerned about the development of Nam Mang 3 as it will be located in one of the most important wildlife habitats in the Protected Area. The cumulative impacts on downstream areas of both projects is likely to be particularly severe, and as pointed out in the Protected Areas Division study, these impacts have not yet been adequately researched. The experience with uncontrolled logging at Nam Leuk in early 1998, which occurred despite the assurances of the ADB and the consultants, suggests that controlling such activities at Nam Mang 3 would be extremely difficult.

D. CONCLUSION

While a much smaller project than the other five hydropower projects reviewed in this report, Nam Leuk, as it has been planned and implemented, has also suffered from some of the same fundamental problems. Villagers have been left out of the planning process and future compensation arrangements remain unclear. There have been conflicts of interest apparent in the work of the consulting companies selected to conduct the project EIAs, providing a poor basis for decision-making for both the Lao government and for the project financiers — the ADB and the government of Japan. Uncontrolled logging has occurred, threatening a fragile protected area.

Based on its problematic recent history, careful monitoring of Nam Leuk will be required as it is implemented over the next few years — particularly its impacts on local communities and the steps that are taken to address these impacts.

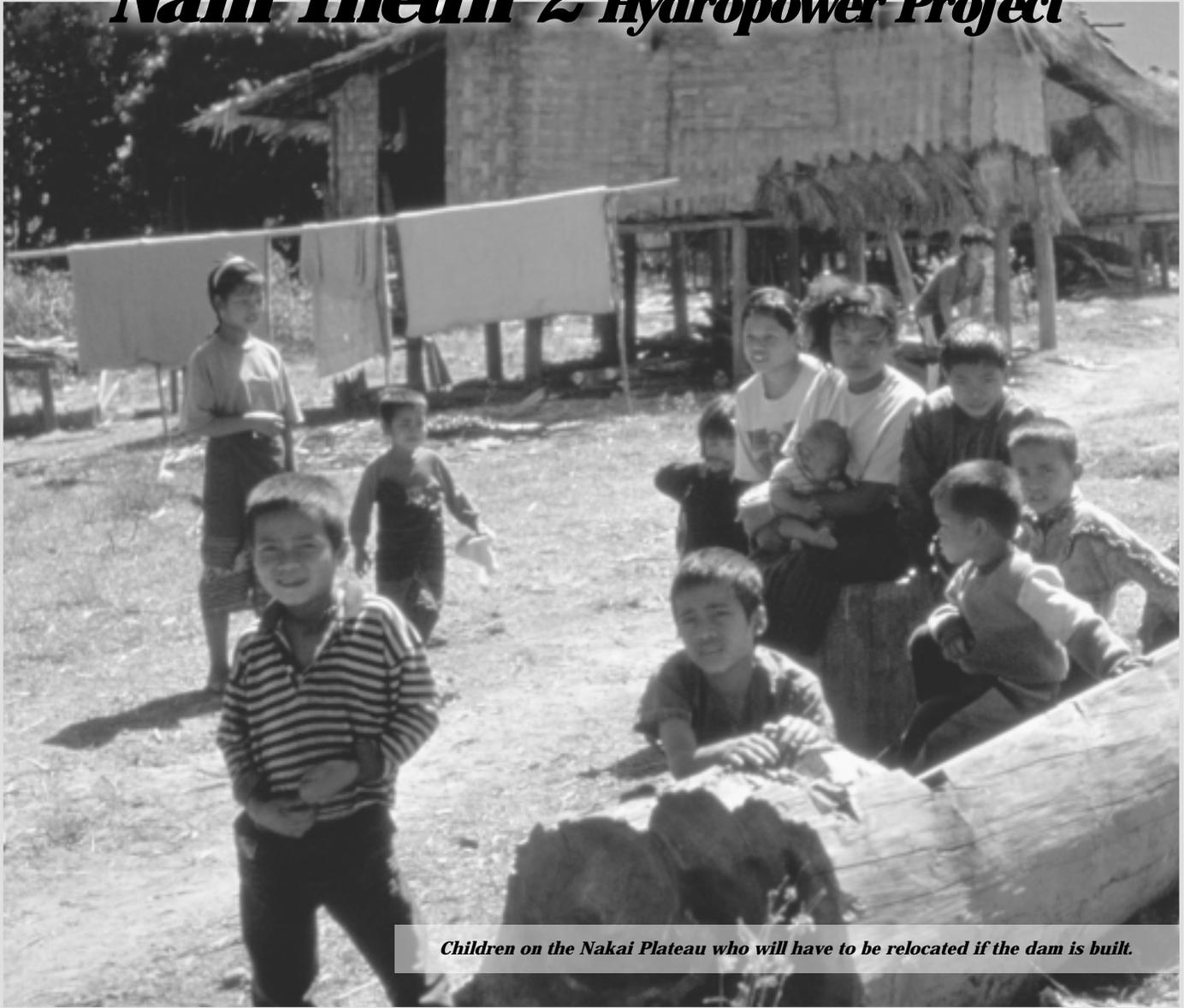
- 1 Original estimated cost was \$112 million, but the project is expected to incur a cost overrun of between \$15-20 million.
- 2 Electricité du Laos, Beca Worley International, New Zealand, Lahmeyer International, Germany, *Nam Leuk Hydropower Project — Feasibility Study Environmental Impact Assessment Final Report*, Asian Development Bank (TA No). l221-Lao, January, 1992.
- 3 Protected Areas Division, *Review of the Impacts of the Nam Leuk Hydropower Development Project and the Nam Mang No. 3 Multipurpose Project in Bolikhamsay Province, Lao PDR*, Department of Forestry, MOAF, Vientiane, October, 1994.
- 4 Electricité du Laos and Sogreah Ingénierie, *Nam Leuk Hydropower Development Project: Environmental Impact Assessment Final Report*, November, 1995.
- 5 Lanza, Guy, *A Review of the Nam Leuk Hydropower Development Project: Environmental Impact Assessment Final Report*, International Rivers Network, Berkeley, August, 1996.
- 6 TERRA, *Briefing Paper #27: Nam Leuk Fisheries*, Bangkok, August 26, 1996.
- 7 McCully, P, *Silenced Rivers: The Ecology and Politics of Large Dams*, Zed Books, London, 1986, p.75
- 8 Ibid, pp.261-2.
- 9 These options are outlined in an ADB Aide Memoir from a Special Review Mission to Nam Leuk, 18 to 28 November 1998.
- 10 Electricité du Laos and Sogreah Ingénierie, *Nam Leuk Hydropower Project Social Action Plan*, Vientiane, January 1998.
- 11 Ibid, pp.48-49.
- 12 Protected Areas Division, *Review of the Impacts of the Nam Leuk Hydropower Development Project and the Nam Mang No. 3 Multipurpose Project in Bolikhamsay Province, Lao PDR*, Department of Forestry, MOAF, Vientiane, October 1994, p.7.
- 13 Electricité du Laos and Sogreah, op cit, p.72.
- 14 Ibid, p.44.
- 15 Panel of Experts second report, p.8.
- 16 Asian Development Bank, *Proposed Loan — Nam Leuk Hydropower Project, Report and Recommendation of the President*, Manila, August 1996, p. 27.

Despite assurances from the ADB and project consultants, uncontrolled logging occurred both within and outside the reservoir site in the Phou Khao Khouay Protected Area.



Chapter 4

Nam Theun 2 Hydropower Project



Children on the Nakai Plateau who will have to be relocated if the dam is built.

Nam Theun 2 is the largest and most controversial of all the hydropower projects planned for Lao PDR. Situated in Khammouane Province in central Lao PDR, and only 50 km upstream from the already completed Nam Theun-Hinboun Hydropower Project, the \$1.2 billion BOT scheme is being developed by Transfield Holdings of Australia, Electricité de France, and three Thai companies in association with the Lao government. The project is currently stalled awaiting a power purchase agreement with EGAT, a concession agreement with the government, and a decision from the World Bank on whether to grant guarantees and other financial assistance to the project.

A. MAIN CONCERNS

IRN has been closely following this project since 1995. Consideration of project documentation over the last four years and a field visit to the Nakai Plateau by IRN staff during February 1998 revealed the following main points of concern with Nam Theun 2:

- The large economic, social and environmental impacts of the Nam Theun 2 project, coupled with the size of the project compared to the size of the Lao economy, renders it a high risk project for the Lao government.
- The project has soaked up an enormous amount of Lao government human and financial resources since the late 1980s, diverting attention away from other hydropower projects within Laos. Meanwhile, it is not even certain that Thailand will require the power from Nam Theun 2.
- Significant environmental destruction has already occurred, despite the fact that the dam may never be built. Since 1993, the military-run logging company has logged more than one million cubic meters of timber on the Nakai Plateau to clear the reservoir area.
- Project proponents, including the World Bank, claim that the Nakai Plateau is so degraded that it is not worth saving, and that the dam should be built to provide revenue to protect the watershed area. Yet the project will have a severe impact on the environment and livelihoods of people living in 3 important river basins in central Laos.
- Around 4,500 people will be resettled to make way for the dam's reservoir. The natural resource base of these people has been steadily eroded as a result of anticipatory logging on the Nakai Plateau, and their expectations have been raised by promises of new homes and land. The dam has precluded alternative development programs and options for the villagers, leaving them in a highly vulnerable position whether or not the dam proceeds.

B. BACKGROUND AND DESCRIPTION

Despite maintaining that it is not committed to supporting the project, the World Bank has been promoting Nam Theun 2 since the mid-1980s. In 1986/87 the Bank was the executing agency for a UNDP-funded pre-feasibility study of Nam Theun 2, Nam Ngum 2 and Nam Ngum 3 hydropower projects.¹ In 1989, the World Bank and UNDP funded a fea-

sibility study of Nam Theun 2 by Australian hydropower consultants Snowy Mountains Engineering Corporation (SMEC). According to the SMEC study and a World Bank-appointed Panel of Experts, the project represented “the best option” for hydroelectric development in Lao PDR, and the government was advised to pursue a partnership with the private sector for the implementation and financing of the project.

In 1993, the Lao government awarded Transfield Holdings Ltd., one of Australia's largest construction companies, the exclusive mandate to develop the project. Transfield formed a consortium, now known as the Nam Theun 2 Electricity Consortium (NTEC), to build and operate the dam for a 25 year period, before turning it over to the Lao government. NTEC is made up of Transfield (which has a 10% stake); Electricité de France (30%); a Thai construction company, Italian-Thai Development (15%); a Thai telecommunications company, Jasmine International (10%); and Merrill Lynch Phatra Thanakit Securities (formerly Phatra Thanakit) (10%). The Lao government has a 25 percent equity holding in the project.

Financing is expected to consist of 30 percent equity and 70 percent debt. Three leading commercial banks — Barclays (UK), Société Générale (France) and ANZ Bank (Australia) — are interested in financing the project, but only if the World Bank provides a “partial risk” guarantee, due to the perceived risk of investment in Lao PDR. The French bilateral aid agency, Agence Française de Développement, is expected to finance part of the government's equity and provide some of the debt, and a number of export credit agencies, including the Thai and Australian agencies, are also expected provide financing.

A team of Bank staff visited Lao PDR for discussions on NT2 in late 1995. According to an Aide Memoire released soon after the visit “. . . Bank support for the proposed (NT) project depends on its full compliance with the Bank's operational policies and guidelines.” The Bank advised the GoL that further studies were required before it could decide to finance the project. The Bank also requested that the government carry out a series of public consultations in Lao PDR. The World Bank commissioned studies on alternatives, economic impact, and an environmental and social action plan for the catchment area, all paid for by the Lao government with loans from the International Development Association, the soft-loan window of the World Bank. NTEC commissioned a resettlement action plan and a third environmental impact assessment, due to criticisms from NGOs and World Bank environmental staff that the first two EIAs were substandard and unacceptable.²

The project consists of a 50-metre high dam on the Theun River, the fourth largest tributary of the Mekong, in central Lao PDR, and would flood approximately 450

square kilometers of the Nakai Plateau, an area of rich biological diversity. Water from the Nam Theun reservoir will drop more than 350 meters to a powerhouse with an installed capacity of 900 MW.³ Almost all of the power will be exported to Thailand. The water discharged from the powerhouse will then flow to the Xe Bangfai through a purpose-built downstream waterway.⁴ The Xe Bangfai flows into the Mekong about 150 km south of the Nam Theun. The reservoir will necessitate the relocation of approximately 4,500 people.

Current Status

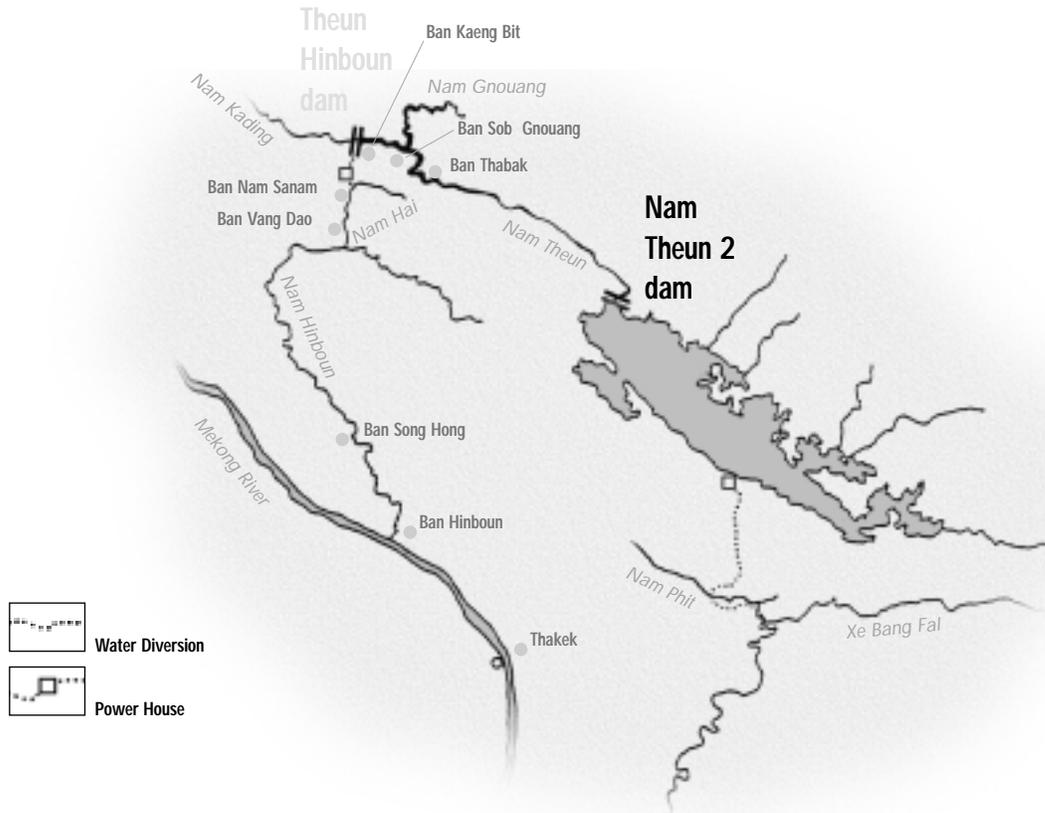
Nam Theun 2 is currently stalled, awaiting a decision by the World Bank on whether to grant a political risk guarantee to the private developers, a soft loan to the Lao government for a social and environmental project in the watershed area, and private sector loans to NTEC. Originally expected to be completed by the year 2000, the Lao government and NTEC are now predicting a start-up date of 2005.⁵ However, given EGAT's current excess capacity, this is believed to be unrealistic.

In October 1996, EGAT cancelled the power purchase agreement for the Nam Theun 2, citing delays in the project as the reason. There has been speculation that EGAT's

moves were intended to push the consortium to agree to a lower price for electricity from Nam Theun 2 after discovering that it can buy more reliable and less expensive power from private producers in Thailand.

In October 1997, the World Bank announced that the timing of the Bank's decision depended on the negotiation of a power purchase agreement between EGAT and NTEC, and a concession agreement between the GoL and NTEC. Jean-Michel Severino, Vice-President of the World Bank's East Asia and Pacific Region, announced at the time that, "many, many things remain to be done in many areas, but we think that there is now a good chance that the poverty alleviation, environmental protection and macro-economic targets of this major operation for Lao PDR will be met."

In December of that year, Electricité de France replaced Transfield as the lead developer in the consortium. Transfield has spent more than \$30 million on the project and is reportedly looking to sell its stake in the consortium. In November 1998, the government and NTEC signed a Heads of Agreement, a precursor to a concession agreement establishing the broad parameters of the concession. NTEC claims that the GoL "officially informed EGAT in October 1998 that Nam Theun 2 was its sole priority and that all efforts should be concentrated on its timely implementation."⁶



C. PROJECT ISSUES AND ANALYSIS

1. Economic Impact

Nam Theun 2 is the largest hydropower project planned for Lao PDR. The World Bank's 1997 Public Expenditure Review stated that

"The dimension of NT2 is large relative to the size of the economy, with total costs representing over 70 percent of 1995 GDP. By virtue of its size, the project will affect Lao PDR's credit standing and debt service burden. Despite Lao PDR's impressive growth performance in recent years, the country's weak economic position would not allow it to meet the contractual obligation of a counter-guarantee, should it be called in the case of a default."⁷

The estimated cost of the project has skyrocketed from \$800 million in 1989 to \$1.2 billion⁸ in 1998. By comparison, in 1997 Lao PDR's national budget was \$341.5 million and GDP was \$1.7 billion. At the same time, the projected financial returns of the project are decreasing. Whereas the first feasibility study of the dam in 1991 estimated that it would generate \$176 million in annual revenue for Lao PDR, the most recent independent economic impact study, by US consultants Louis Berger International, says it will only generate \$33 million.⁹

NTEC's most recent claim is that the project will generate \$250 million of revenues from electricity sales per annum, and that the GoL's share of the overall cumulated revenues over the concession period will total approximately 50 percent, due to dividends, royalties and levies.¹⁰ However, this figure is misleading as it does not take into account debt servicing, nor the multitude of risks involved in a project of this size, including risks concerning hydrology, foreign exchange convertibility, and the possibility that, as natural gas prices decrease, EGAT will seek to renegotiate the purchase price downward. There is a precedent for this — in many Asian countries state-owned authorities have been seeking to renegotiate PPAs with independent power producers (see Box 2 for further details).

Inadequate knowledge of how much water will be available to turn the dam's turbines exposes the government and investors to a significant economic risk. An independent review of the hydrological data for Nam Theun 2 found that the data available "is not sufficient to fully assess the [dam's] viability . . . and potential impacts to water resources and related natural/human resources."¹¹

It appears that NTEC is concerned about the lack of hydrological data, and is attempting to transfer this risk onto the Lao government. The Louis Berger team identified provisions in the current draft of the concession

agreement that would offset royalty payments and resource levies due to the GoL in the event that low rainfall resulted in low power sales. Louis Berger also found that NTEC intended to include provisions in the agreement that payments and levies to the GoL would be withheld were the project unable to meet a "hurdle" rate of return. Louis Berger states that "since the GoL is exposed to hydrology risks as a significant equity shareholder, one might argue that it should be insulated from this risk in its role as a sovereign sponsor."¹²

Many observers have speculated that the chief interest of most of the companies comprising NTEC is in the lucrative revenues to be gained from the construction contract. Without subjecting the contract to international competitive bidding (ICB), it is easier for the consortium to deliberately exaggerate estimated construction costs of \$740 million so as to maximize profits.

NTEC is proposing a system that opens some parts of the contract to ICB, but keeps the most lucrative parts for the consortium members.¹³ Under the new plan, EdF and Transfield will be appointed Head Contractors — they will take overall responsibility for project management, but will not take part in any construction activities. If there are cost overruns, these will be absorbed by the Head Contractors, but if there are savings, they will be passed onto the consortium members. EdF and Transfield will together receive a fee of around 20 percent of the total construction cost for this — likely to be around \$150 million. By contrast, their equity contributions will amount to \$108 million for EdF and \$36 million for Transfield.

The construction will be divided into 4 packages, three of which will be subject to full ICB.¹⁴ The fourth package, which is by far the largest and most lucrative, involves all above-ground work including the dam, downstream channels, roads, and houses. This package will be contracted to Ital-Thai Development, one of the Thai partners in the consortium. The conditions are that the price is comparable to ICB, and that Ital-Thai will subcontract part of the works to local Lao companies.

According to NTEC, the rationale is that Ital-Thai, being one of the members of the consortium, has a long-term commitment to the project, and will therefore ensure the highest standards are used in construction. However, Ital-Thai's reputation in Thailand has been tarnished due to its involvement in an elevated train project in Bangkok which has been plagued by safety problems, cost and time overruns.¹⁵

2. The guarantee

The World Bank's proposed guarantee is a mechanism to protect lenders from loss of income as a result of sovereign

risks relating to “government credit and performance, including interference with the project, non fulfillment of government obligations under its (BOT) concession contracts, foreign exchange convertibility, expropriation, civil wars, etc.”¹⁶

The World Bank will provide up to \$94 million to commercial lenders in the event of GoL default on any of the above conditions. The government will have to agree to a counter guarantee, which means that if the guarantee is called and the World Bank is forced to pay, the Lao government must pay the Bank all outstanding costs, plus a fine. For this, the government would most probably have to take out an IDA loan from the Bank.

Included in the risks covered by the guarantee is breach of contract. This implies that no subsequent government during the 25 year contract period can change any aspects of the concession agreement, even if it feels that the present contract limits or infringes upon Lao PDR’s national sovereignty.

The World Bank is offering no parallel guarantee mechanism for the people or Government of Lao PDR from the multiple risks they face in dealing with the private sector. Under the proposed guarantee arrangement, the Lao government has little legal or economic recourse if the benefits promised by the private sector do not materialize.

3. Environmental Impact

Anticipatory logging of the reservoir area

The Nakai Plateau hosts an abundance of diverse plant and animal species, including 17 globally threatened species, 14 globally near-threatened species and an additional 23 species regionally at risk or that show a national historical decline. Either alone, or in combination with the watershed area — the Nakai-Nam Theun NBCA — the Nakai Plateau supports the most important populations currently known in Lao PDR for 5 bird species, elephant and tiger.¹⁷

Since 1990, the military-run logging company, the BPKP, has cleared more than one million cubic meters of old-growth tropical pine wood from the reservoir area on the Nakai Plateau, despite the fact that the dam may never be built. This has had an enormous impact on the Plateau ecosystem. As far back as 1995, the Wildlife Conservation Society noted that “this logging operation has resulted in many new roads and new settlements”, which has had “major negative impacts on its wildlife importance.”¹⁸ In addition, the logging has steadily eroded the natural resource base of the people living on the Nakai Plateau. In 1996, the BPKP moved 51 families out of reservoir area.

The World Bank, in its 1995 Aide Memoire stated that

“Bank policies preclude our supporting the project if project execution has already begun ... Any resettlement activities relat-

ing to the project should not begin until the Bank has reached a decision on whether or not to support it ... The Government will need to demonstrate clearly that logging has been brought under control.”

Since that time, logging has intensified on the Plateau, and visits to the project area in February 1998 confirmed that logging was still proceeding at a rapid rate. According to NTEC, about half of the inundation area had already been logged by mid-1998.¹⁹

Building the dam to protect the watershed

The dam’s proponents claim that the Nakai Plateau is so degraded by logging that it is not worth saving, and that the dam should be built to provide revenue which the Lao government can use to conserve the NBCA. NTEC has promised to provide \$1 million per year for the duration of its concession for management of the NBCA. This view is supported by the World Bank and international conservation groups such as IUCN — The World Conservation Union and the Wildlife Conservation Society (WCS). In fact, the World Bank has even gone so far as to justify the project on the basis of purported environmental and social benefits it will bring to the local area claiming, for example, that “the NT2 project presents a long sought opportunity to ... accelerate the development of environmental and social programs so that the Government can address the environmental costs of Nam Theun 2 and invest in the long term environmental protection of the watershed and surrounding areas.”²⁰

This argument is untenable. The Nam Theun 2 is clearly not a rural development, poverty alleviation or environmental conservation project — it is a huge dam built for revenue generation, and as illustrated below it will have a serious impact on the NBCA as well as on the environment and livelihoods of people living in three river basins in central Laos — the Nam Theun, Xe Bangfai and Mekong.

In fact, the dam has already acted as a barrier to grant funding for conservation of the NBCA. Conservation of the Nakai-Nam Theun NBCA was being considered for grant funding from both the Global Environment Facility and the Dutch government until it became clear that the Bank was seriously considering backing Nam Theun 2 and flooding around 40 percent of the Plateau.

Impact on biodiversity

The dam will affect biodiversity in several ways, all identified by WCS in 1995, including:

- Loss of habitat to inundation. At least 165 km of large

river, a similar length of perennial streams and 450 sq. km of associated habitat on the Plateau will be inundated. According to WCS, the loss of slow-flowing rivers and streams amounts to possibly 80 percent of this habitat type within the Nam Theun catchment. Roughly 60 species of birds and mammals would be adversely affected by inundation, and three or four species may become extinct.

- Increased encroachment and logging of the NBCA. The construction of about 120 km of new roads and upgrading of about 100 km of existing roads for NT2 will require further clearfelling of forest areas and exacerbate wildlife poaching and encroachment. The easier access to the NBCA that the reservoir and the roads will afford will likely lead to increased hunting, logging and habitat destruction inside the NBCA.²¹
- Disruption of seasonal movements. The flooding will cut off traditional migration routes within and across the

reservoir area as well as impede the crossing of rivers by young mammals. It will also fragment populations of many wild animals which are currently contiguous between the NBCA and areas to the south and west. When animals cannot freely migrate as before, it leads to increased inbreeding, weakening of the gene group, shortened life spans, and increased vulnerability to disease.

One of the main mitigation measures proposed by project proponents IUCN and WCS has been a 620 square kilometer corridor intended to link the Nakai-Nam Theun NBCA with Khammouane Limestone NBCA to the south and west. However, according to a World Wide Fund for Nature Thailand Project Office report, the real value of the corridor may be “greatly overstated” because the southern third of the corridor will in fact be flooded by the dam.²² In addition, the structure of the reservoir means that many species will be prevented from moving along the corridor because formerly small streams will essentially become “obstructive fingers of water” which “extend kilometers from the shoreline of the reservoir proper.”²³

More than one million cubic meters of timber have already been logged from the Nakai Plateau



Impact on Fisheries

The Theun River provides habitat to over 80 species of fish, including at least 16 of which are endemic. More than one million people in central Lao PDR depend on fish from the Nam Theun, Nam Kading, Nam Hinboun, Xe Bangfai and Mekong rivers and their tributaries for more than 60 percent of their protein intake. Fish also represent an important source of supplemental income.²⁴ Fisheries impacts will be experienced in three separate locations: downstream of the dam in the Nam Theun/Nam Kading, upstream of the dam and in the reservoir, and along the Xe Bang Fai. It is unknown what the impact will be on the Mekong mainstream.

Downstream of the dam, NTEC has guaranteed a minimum release of only 2 cubic meters per second, between one tenth and one-hundredth of the water volume naturally available in the Nam Theun. Dr. Maurice Kottelat, a fish-

eries specialist hired by NTEC, found that “A permanent low water level will have a negative impact on the fish as it will drastically reduce the available food sources, reduce the number of hiding places and increase the predation (by other fish as well as terrestrial animals and humans) and their sensitivity to diseases; all these, together can lead to the extinction of the native fish community.”²⁵

Dr. Kottelat finds that the dam will block fish migrations in the Nam Theun river. NTEC claims that this will have a negligible impact as fish migrations have already been blocked by the Theun-Hinboun dam further downstream. However, Dr. Kottelat states that “the problem remains for those species migrating only along the Nam Theun (between the lower Nam Theun and the Nakay Plateau or the headwaters) as these migrations are not affected by the Theun-Hinboun project.”²⁶



Nam Theun 2 dam site

The reservoir will result in a large body of still water — a habitat to which many riverine fish species have difficulty adapting, or simply cannot adapt and die out. Dr. Kottelat states that there is “a great likelihood that many species will simply disappear from the reservoir.”²⁷ As many of the native species will not be able to survive in the reservoir, the Environmental Assessment and Management Plan claims that fish stocks will be increased through the introduction of new species. However, Dr. Kottelat warns against this, stating that:

“very few of these introductions have had the expected results and especially very few resulted in a real increase of fisheries productivity. But most of them have had very negative impacts on the native aquatic communities including . . . extinction of native species (and sometime extinction of the subsistence fisheries), introduction of pathogens . . . and habitat destruction.”²⁸

Tyson Roberts, a fisheries biologist who has also studied NT2’s impact on fisheries, states that in “virtually all old established reservoirs originating in large tropical rivers the initially high fish biodiversity has declined precipitously and is typically only 20-40 percent of that of the wild river reach that has been replaced.”²⁹

In the Xe Bangfai, the additional 210 cubic meters per second of water will lead to an increase by about 2 meters of the dry season minimum water level. According to Kottelat, “several habitats will definitively disappear, some may be displaced and others will be altered.” He goes on to state that “the increased water level will be accompanied by an increased water velocity, and possibly different water temperatures and chemistry. Our knowledge of the life history and ecology of these fishes is still too limited to allow a prediction of the possible impact of these changes.”³⁰

4. Impacts on local livelihoods

Consultation with affected peoples

Approximately 4,500 people are expected to be directly displaced by the Nam Theun 2 dam. Primarily Lao Theung (Animist) and Lao Loum (Buddhist) ethnic groups, these populations have undergone two other displacements over the last half of this century.³¹

Reports from the Nam Theun area suggest that “consultation” has consisted largely of telling local people that the dam will be built and that they will benefit from it. Consultants have visited all of the affected villages and promised better livelihoods for the villagers.

“The governor asked for our cooperation to leave our homes. But he nicely promised to give us new homes and a good road in the village. He said every house would have electricity. Well, we have no television, no refrigerators and we don’t know yet

what we can use that electricity for. But it might be good to have it,” says Thiang, a villager who will be relocated by the dam. “If we had a choice we would stay and protect the forest. We feel very sad to lose the forest. But what can we do?”³²

The Louis Berger team, who undertook the Economic Impact Study for the project, witnessed one “public forum” held in a town downstream of the dam site. The meeting was attended by World Bank staff and senior NTEC representatives, as well as Resettlement Committee (RC), Provincial and District representatives. The team state that:

“several fluent Lao speakers complained that the RC representative failed to translate negative comments or concerns made by local citizens about the dam project. Likewise a very senior NTEC representative attending the meeting complained that local citizens were receiving misinformation about the dam’s probable impacts.”³³

Resettlement documents for Nam Theun 2 recognize that the numerous different ethnic groups to be directly affected by the project should be defined as indigenous peoples according to World Bank criteria.³⁴ World Bank Operational Directive 4.20 on indigenous peoples states that:

“The Bank’s policy is that the strategy for addressing the issues pertaining to indigenous peoples must be based on the informed participation of the indigenous peoples themselves.”

A successful development plan for indigenous peoples should include “. . . full consideration of the options preferred by the indigenous people affected by the project” and “mechanisms . . . for participation by indigenous people in decision making throughout project planning, implementation and evaluation.”

The World Bank’s International Advisory Group, appointed to advise the Bank on its handling of social and environmental issues on the project, stated it “has doubts about the effectiveness of consultations on the ground with the most vulnerable populations, particularly women and ethnic minorities (as required under OD’s 4.20 and 4.30). Its own direct contacts with these groups, though not extensive, suggest that the level of comprehension of project proposals and their impacts is low.”

During the stages of preparation for Nam Theun 2, the most basic requirements for informed participation in decision making have not been met. It is difficult to see how this project could, at any point in the near future, be in compliance with Bank policies on the need for genuine and informed participation on the part of indigenous peoples.

The most recent report produced by NTEC on public consultation and participation in the Nakai Plateau states that in general villagers “responded positively to the presentation and hoped for an improvement in their lives” but

that “there is a growing scepticism and a need for action to restore dwindling confidence that the project will one-day be realised.”³⁵ People’s expectations on the Plateau have clearly been raised by the activity surrounding the project and they are presumably experiencing a great deal of uncertainty over their future. The promise of the dam has precluded alternative development programs and options for the villagers, leaving them in a highly vulnerable position whether or not the dam proceeds.

The Resettlement Action Plan

NTEC has made much of the fact that the estimated cost of resettlement and compensation is \$32.1 million. This amount is expected to cover relocation of families on the Nakai Plateau, as well as compensation for villagers living along the Nam Phit and Xe Bangfai. However, of this amount, over \$9 million is for construction of the re-regulating pond and downstream channel, costs which arguably should be included as part of the overall construction costs.

The resettlement plan for families living on the Nakai Plateau are certainly far more comprehensive than in any other hydropower project in Lao PDR. Twenty thousand dollars has been budgeted per family. The plan includes assistance with moving and building new houses along the banks of the reservoir, a forestry management program, a livestock improvement program, a reservoir management and fisheries development program, an agriculture development program and a regional health program.

Up to 40,000 people living along the banks of the Xe Bangfai and Nam Phit could be affected due to increased flooding and reduction in fish species. NTEC estimates that floods are expected to be 40 to 50 cm higher and to last for one to one and a half days longer. The area floods every two or three years on average and this frequency could be expected to nearly double.³⁶ By all accounts this has been the least studied area in the project.

Compensation for the 19 villages in the upper and middle Xe Bangfai is budgeted at \$1.5 million. However, there is no budget for compensation of the more than 100 villages in the lower Xe Bangfai as NTEC claims the project will have little net effect on villages. NTEC assumes that more water means more fish, without considering what the changes to the natural cycle may mean for the native fish species in the river.

The experience at Theun-Hinboun hydropower project (see Chapter 2 above) shows that impacts of a trans-basin diversion scheme are likely to be significant, and that many of these impacts cannot be mitigated. It is quite clear that a great deal more attention needs to be paid to how this project will affect communities living along the Xe Bangfai, the Mekong between the confluence of the Nam Kading and Xe Bangfai, and upstream along the Nam Theun.

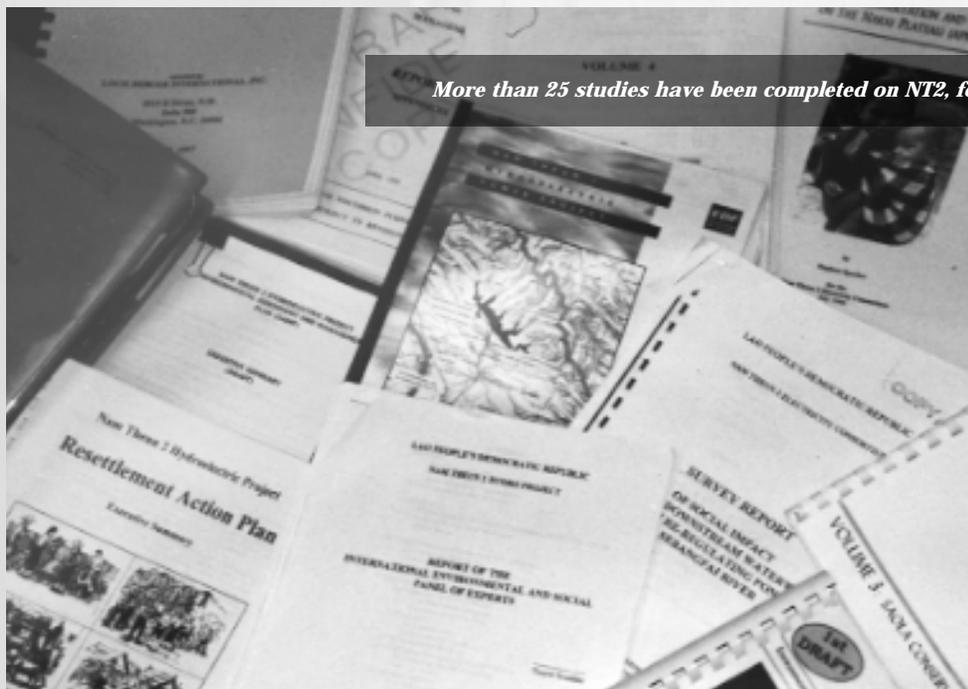
D. CONCLUSION

Nam Theun 2 has soaked up an enormous amount of Lao government human and financial resources since the late 1980s. More than \$3 million of precious government revenue has been spent on innumerable studies to assess the impacts of the project, while today the economic crisis has rendered many of these analyses obsolete. While the World Bank claims that the project is helping to strengthen Lao government agencies and procedures, the opposite in fact appears to be happening — the project is diverting government resources away from other projects (see other chapters in this report for details). Meanwhile, the natural resource base of the 4,500 people living in the proposed reservoir area has been steadily eroded as a result of anticipatory logging from the project.

Despite all the risks involved in Nam Theun 2, the World Bank continues to claim that the dam will be built regardless of the World Bank’s participation. The World Bank alleges that its involvement in the project assures that at a minimum its environmental and social guidelines will be followed, and that the dam will be better with the Bank’s involvement than without it. This argument is unfounded. World Bank assistance is necessary because the high economic and political risks of the project make it unpalatable to financiers unless the World Bank is involved. The project is clearly only viable with public subsidies and guarantees. Both NTEC and commercial banks recognize this, otherwise they would have proceeded long ago without World Bank support.

Nam Theun 2 shows that such a large project absorbs too many resources, costs an enormous amount of money to prepare, and does not provide any returns until well into the future. With EGAT’s uncertain future power demands, it is not even certain that the Lao government will find a buyer for the power.

More than 25 studies have been completed on NT2, forming a pile over a meter high



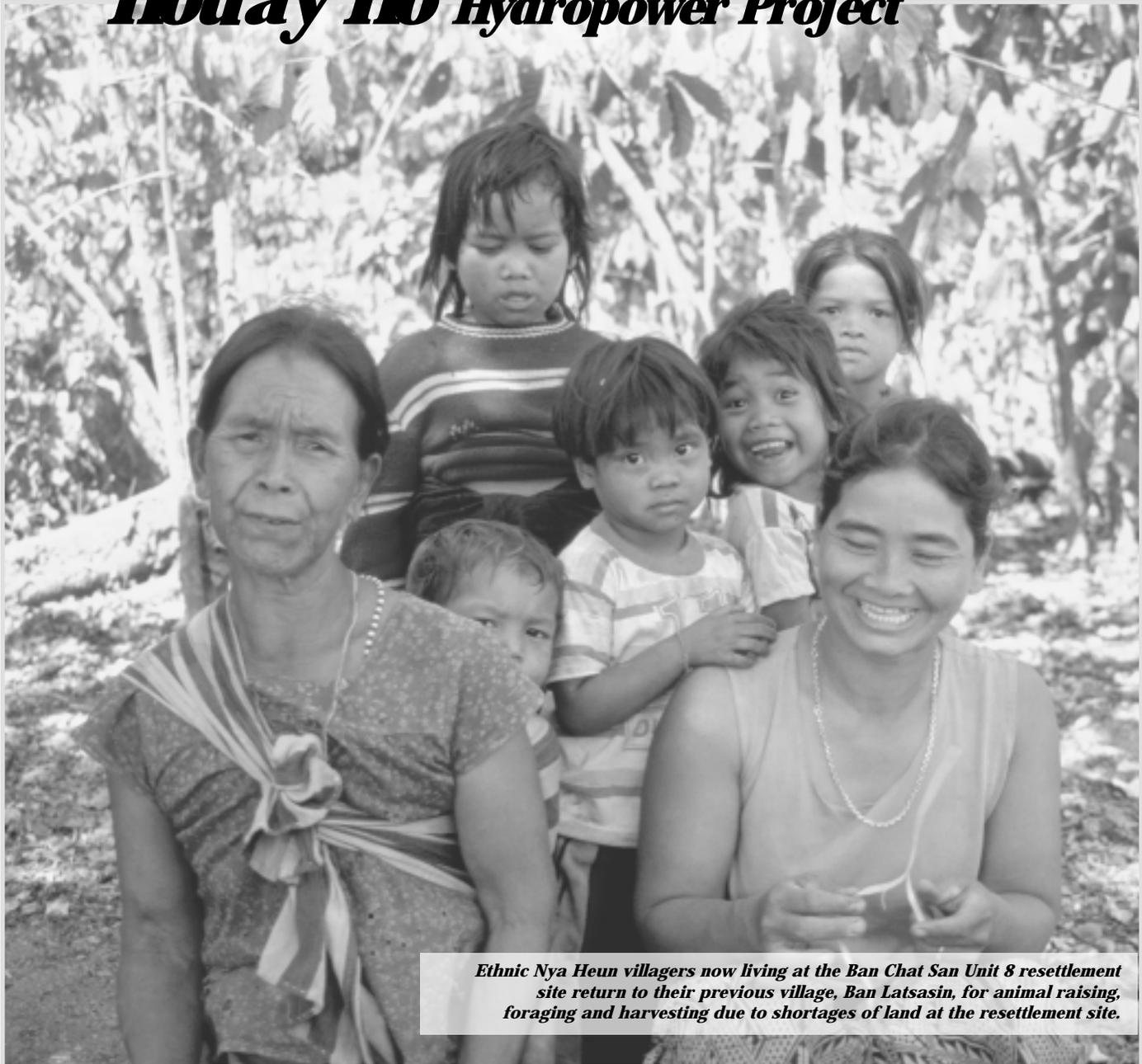
15 This has been reported extensively in the *Bangkok Post*, for example February 3, 1998, March 10, 1998, March 26, 1998, April 7, 1998, June 10, 12 and 13, 1998.

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- 3 In November 1998, NTEC announced that the project specifications had been amended to provide a maximum of 900 MW of intermediate peaking power instead of 681 MW of base load power, in accordance with EGAT's requirements. NT2 will have four generators operating 16 hours a day and one unit for the remaining 8 hours, instead of having three units running 24 hours a day plus a spare generator. NTEC claims that the new operating regime uses and discharges the same overall volume of water.
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- 5 Watcharapong Thongrungs, "Lao bids for NT2 power delivery to Egat", *The Nation*, November 19, 1998.
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- 8 The cost of the project has varied between \$1.2 billion and \$1.5 billion. As of November 1998, NTEC was claiming the cost to be \$1.2 billion in 1998 dollars.
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- 12 Louis Berger, op cit, p.43.
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- 14 The three packages are: 1. All underground works, including tunnels and powerhouse. 2. All equipment for the powerhouse, that is, turbines, generators etc. 3. The transmission line.
- 17 Wildlife Conservation Society, *Results of a Survey of Terrestrial Wildlife in the Area to be Affected by the Proposed Nam Theun 2 Hydroelectric Project*, Vientiane, June 5, 1995, p.4.
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- 27 Ibid, p.43.
- 28 Ibid.
- 29 Tyson Roberts, *Fluicide: An Independent Environmental Assessment of the Nam Theun 2 Hydropower Project in Laos, with particular reference to aquatic biology and fishes*, Bangkok, December 1996, p.32.
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Chapter 5

Houay Ho Hydropower Project



Ethnic Nya Heun villagers now living at the Ban Chat San Unit 8 resettlement site return to their previous village, Ban Latsasin, for animal raising, foraging and harvesting due to shortages of land at the resettlement site.

Houay Ho is a 150 MW trans-basin diversion scheme located in Champassak and Attapeu Provinces of southern Lao PDR. Houay Ho is a joint venture between Korean company Daewoo, Thai company Loxley, and the Lao government, and was financed entirely from Daewoo's balance sheet. Construction began in 1995 and was completed at the end of 1998, but the project will not begin selling power to Thailand until September 1999.

A. MAIN CONCERNS

A review of project documentation and a field visit by a researcher to the area during February 1998 found the following main points of concern:

- The project's financial viability is uncertain as a result of construction cost overruns and the Asian economic crisis, which has resulted in much lower than expected revenues for the project's developers and the government of Lao PDR.
- The concession agreement between the outside developers and the Lao government was signed without proper review or legal advice for the Lao government and is reported to be weighted heavily in the company's favor. It appears there will be few or no benefits from the project flowing to the government.
- The project has extremely poor resettlement and compensation practices and there has been minimal consultation or input from local people. This is having severe impacts on a small and vulnerable ethnic minority group whose traditional homeland is in the project area.
- Project implementation has resulted in extensive logging and destruction of natural resources without apparent benefit to either local citizens or to Lao society.

B. BACKGROUND AND DESCRIPTION

In 1993, Korean conglomerate Daewoo began negotiation with the Lao government regarding development of the Houay Ho site. In July 1993, the Tasmanian company HECEC was awarded a contract by Daewoo to conduct a feasibility study for Houay Ho. Daewoo's concession to build and operate the project was finalized in early 1994 and Houay Ho became the first privately financed joint venture BOT hydropower project in Lao PDR. Daewoo has a majority 60 percent stake in the project. Other partners are Loxley Public Company Ltd., a leading Thai trading company, and Electricité du Laos, both holding 20 percent stakes. Daewoo used its own resources to finance the project and carried out the construction. A power purchase agreement for sale of the electricity to Thailand was signed with EGAT in October 1995. Thailand is committed to buying 126 MW of power from Houay Ho beginning September 1, 1999 at a price of 4.22 cents/KWh.

An EIA was carried out by the Swiss consulting firm Electrowatt but was not completed until project construction was well underway. Both the HECEC and Electrowatt studies were lacking in detailed information about the peo-

ple and environment of the project area. The various impacts of the project on the culture and livelihoods of the Nya Heun people were discounted, overlooked or treated superficially and there was no analysis of the impacts that widespread logging would have on the area.

The main project area, including the dam and reservoir, is on the Houay Ho stream on the eastern edge of the Bolovens Plateau in Champassak province of southern Lao PDR. A headrace tunnel shaft brings water from the reservoir through the Phou Louang ridge and down a 236 meter high escarpment to a powerhouse located in Attapeu Province. The water then enters the Xe Kong River.

Construction began in November 1994, and the dam was completed at the end of 1998. The main dam and headrace tunnel shaft were completed in April 1997 and soon after the reservoir started to fill.

C. PROJECT ISSUES AND ANALYSIS

1. Project Viability in Doubt

Despite a concession agreement weighted heavily in its favor, recent events have severely affected the project's financial viability. The *Financial Times* on April 6, 1998 reported that Houay Ho has been plagued by cost overruns, is not believed to be profitable, and is understood to be for sale by Daewoo. Sithe Pacific Holdings, a subsidiary of New York-based Sithe Energies Ltd, considered buying Daewoo's share in the project, but reportedly decided against it due to the few economic benefits promised by the project. Daewoo is now apparently looking to adjust its shareholding structure to make it possible to bring in a new partner.¹ Both Daewoo and Loxley are facing economic problems at home as a result of the financial crisis, contributing to their desire to make a fast sale (see Box 6).

The construction of the transmission line incurred substantial cost overruns and delays due to a dispute with EGAT over its configuration. The Asian economic crisis is also partly responsible for the project's financial difficulties. In April of this year, the Lao Government asked EGAT to renegotiate the power purchase agreement due to expected foreign exchange losses as a result of the depreciation of the Thai baht. In August 1998, EGAT agreed to pay 55 percent of the electricity purchase price in US dollars, instead of the 50 percent stated in the original contract. The remaining portion will be paid in baht. However, it is doubtful whether this will make much difference to the project's viability, given that the consortium had wanted EGAT to pay the full price in dollars. EGAT earlier refused a request from Daewoo to advance the

start-up date for power sales by 8 months due to the project's earlier than expected completion.

In addition, there are reports that the reservoir has a high leakage rate, raising questions about the project's ability to store enough water to achieve projected power generation levels, and the structural integrity of the dam.

2. Lack of Economic Benefits for Lao PDR

It is now widely acknowledged by both government officials and outside observers that the Lao Government will receive few benefits from the project as a result of inequitable contractual agreements which heavily favor the foreign investors in the project. Foreign hydropower consultants report that the Lao government had no legal representation while negotiating the concession agreement. While the actual agreement has not been made public, sources report that the Lao government will not receive any revenue at all from the project for at least its first 10 to 12 years. Daewoo, which awarded itself the construction contract without international competitive bidding, reportedly gets to reclaim all of its investment first before Lao PDR receives any share of the project revenues. There also does not appear to be any significant taxes or royalties flowing to the Lao government during this period.

3. Impacts on Local Livelihoods

Resettlement and compensation measures for Houay Ho have been carried out with little outside scrutiny using extremely poor standards. This has resulted in needless suffering and a severe drop in living standards for the affected people.

Moving the Nya Heun people

The area of the Houay Ho Project, and the neighboring Xe Pian-Xe Namnoi Project, are in the traditional homeland of the ethnic Nya Heun people. The Nya Heun are a Lao Theung (midland Lao) ethnic group which has its own distinctive cultural traditions and Mon-Khmer language, considered to be "highly endangered".² The 1995 census reported the total

Nya Heun population of Lao PDR at 5,552. The Nya Heun are known by other Lao Theung groups as a strong and independent people. While they suffered greatly from the bombing and fighting which occurred during the US war in Indochina, they never fled their homelands.

The government asserts that the Nya Heun need to be removed from the area due to the environmental impact of their farming practices. However, the only monograph-length ethnographic study³ ever conducted in southern Lao PDR makes it clear that the Nya Heun are not nomadic

"Our village was not flooded by the dam but we were told we must move here anyway. We were supposed to receive 15 kilos of rice per person for three years. But we have received nothing for the last five months and we do not have enough to eat. There is no land to grow rice here, only a little coffee. Fishing is also difficult, we must walk many kilometers to reach the stream."

Nya Heun ethnic group villager from Ban Thong Yao interviewed at Ban Chat San Unit 8 resettlement site, Houay Kong, Champassak Province, February 22, 1998.

BOX 6: Daewoo and Loxley on Shaky Ground

Daewoo Corporation

Daewoo Corp. is one of South Korea's largest "chaebols," or conglomerates, whose business includes such diverse areas as electronics, textiles, construction and pesticide production. Since the onset of the Asian financial crisis, eight chaebols have collapsed in South Korea, and the financial health of Daewoo is so risky that in December 1997, Moody's Investors Service lowered its credit rating to junk bond status, making it difficult and expensive for Daewoo to borrow more.

Since 1990, Daewoo has poured billions of dollars into a huge array of global investments ranging from an auto factory in Uzbekistan to a textile mill in Sudan. Much of this expansion has been funded by debt, resulting in a high net debt to equity ratio. In May 1998, Daewoo announced massive restructuring plans in an effort to raise \$7 billion by 2000 through asset sales and mergers. Daewoo plans to reduce the number of its subsidiaries from 37 to 20. Daewoo also hopes to raise foreign capital through offering stakes in its core businesses and by listing its overseas car electronics subsidiaries on stock markets in the UK, France and Mexico.

Loxley Public Company

Founded nearly 60 years ago, Loxley is one of Thailand's largest general trading and investment groups. In 1996, the company began aggressively pursuing investments in overseas power markets. However, the economic slowdown has forced Loxley to scrutinize its local and international investments to avert corporate risks. Some businesses will be sold as part of the group's corporate restructuring scheme. It has been reported that the company will focus most international activity on improving the competitiveness of existing ventures, and that Loxley is keen to sell its share in Houay Ho.



Houay Ho dam and reservoir slowly filling

slash and burn cultivators who damage primary forest, but rather have fixed settlements — typically beside flowing rivers in forested upland areas — and that they have well-developed knowledge of forest resources and employ methods to protect primary forest. As the Nya Heun depend heavily on the forest, restricting their access, whether by resettlement or logging, has a significant impact on their livelihoods.

Resettlement of the Nya Heun because of Houay Ho began in 1994. While only a couple of villages were in the direct inundation area, others located in the watershed have also been moved. A resettlement site, “Ban Chat San Unit 8”, was established near Houay Kong in Pak Xong District of Champassak Province. The site is located on land that in the past had been used by people from three neighboring ethnic Laven villages for upland crops, live-stock grazing, and other subsistence activities. This site is

being used for people moved because of both the Houay Ho and Xe Pian-Xe Namnoi projects and so observations concerning this site relate to both projects.

A total of 12 villages from both project areas are to use the site. Four villages — Ban Thong Yao, Ban Nam Hanh, Ban Nam Tieng, and Ban Latsasin — were initially moved. Four additional villages from the Xe Pian-Xe Namnoi project area joined the same site in 1996-97. Another four villages, including one ethnic Laven village, were scheduled to be brought to the site in 1998 and housing for them is currently under construction. According to older provincial statistics, these 12 villages include a total of 445 families comprising 2,146 people. Other reports indicate that over 600 families will eventually be relocated to this site so the actual total may be closer to 3,000 people. When the four additional villages are moved, over 40 percent of the entire Nya Heun ethnic group will be living at the Ban Chat San Unit 8 camp.

While officials and some of the village headmen claim

that the move has been positive, the vast majority of villagers interviewed outside of the presence of such officials have a very different story. They report that there was no discussion or consultation about moving. They received orders “from above” that they were to move and were told it was because they were destroying the forest and the land was now to be a protected area. The Houay Kong site is outside the traditional Nya Heun lands which dismayed many of those resettled. During February 1998, the researcher visiting the site found a sense of anger, frustration, and desperation among many of the Nya Heun villagers interviewed.

“We don’t know . . . we feel we have been lied to . . . if we were lowland Lao it might be different but they don’t care about the Nya Heun people . . . We cannot go on like this or we will die . . . we can’t survive at Ban Chat San but we also are not allowed to return to live here . . . so we don’t know what to do . . . it will be the end of the Nya Heun people”

*Elderly woman interviewed at Ban Latsasin
February 23, 1998.*

Shortages of land

The initial feasibility study estimated that three hectares of non-paddy land per family would be needed for basic self-sufficiency but noted that only one third of that amount was actually available. While provincial officials claim that there is “plenty of land” available,⁴ villagers interviewed at the site report that all they had were small plots of land adjacent to their houses. Additional land for growing coffee had been promised but this was “delayed.” No land for growing a subsistence rice crop was available.

In order to survive, many people who were moved from villages in the watershed, but outside the inundation zone, must still travel back to their old village sites where they have more space to tend animals, raise upland crops, grow vegetables, and

forage in the forest. Special permission must be received from local authorities for them to make these trips. There have been reports that many families have now left the relocation site and

have tried to move back to their former villages but that this will not be tolerated by the government.

As part of the ADB’s Se Kong-Se San and Nam Theun River Basins Hydropower Study, a social-environmental consultant team visited the Houay Kong resettlement site in September 1997. They found that people were worse off due to the project and were very critical of how resettlement has been handled. Their trip report refers to the site as “an already serious situation of imperiled livelihood” and states that “this resettle-

ment site appears to be a disastrous combination of too many people on too little land with too little external support.”⁵

Other Livelihood and Health Impacts

Beyond the shortage of land and poor access to forest and river resources, those relocated to Ban Chat San Unit 8 have also suffered from an inadequate water supply. Most of the wells initially drilled at the site are either dry or contain water of poor quality. A gravity-fed water system was constructed but provides too little to support the large population at the site. When visited in September 1997, 42 families were found to be depending on one shallow well for drinking water.

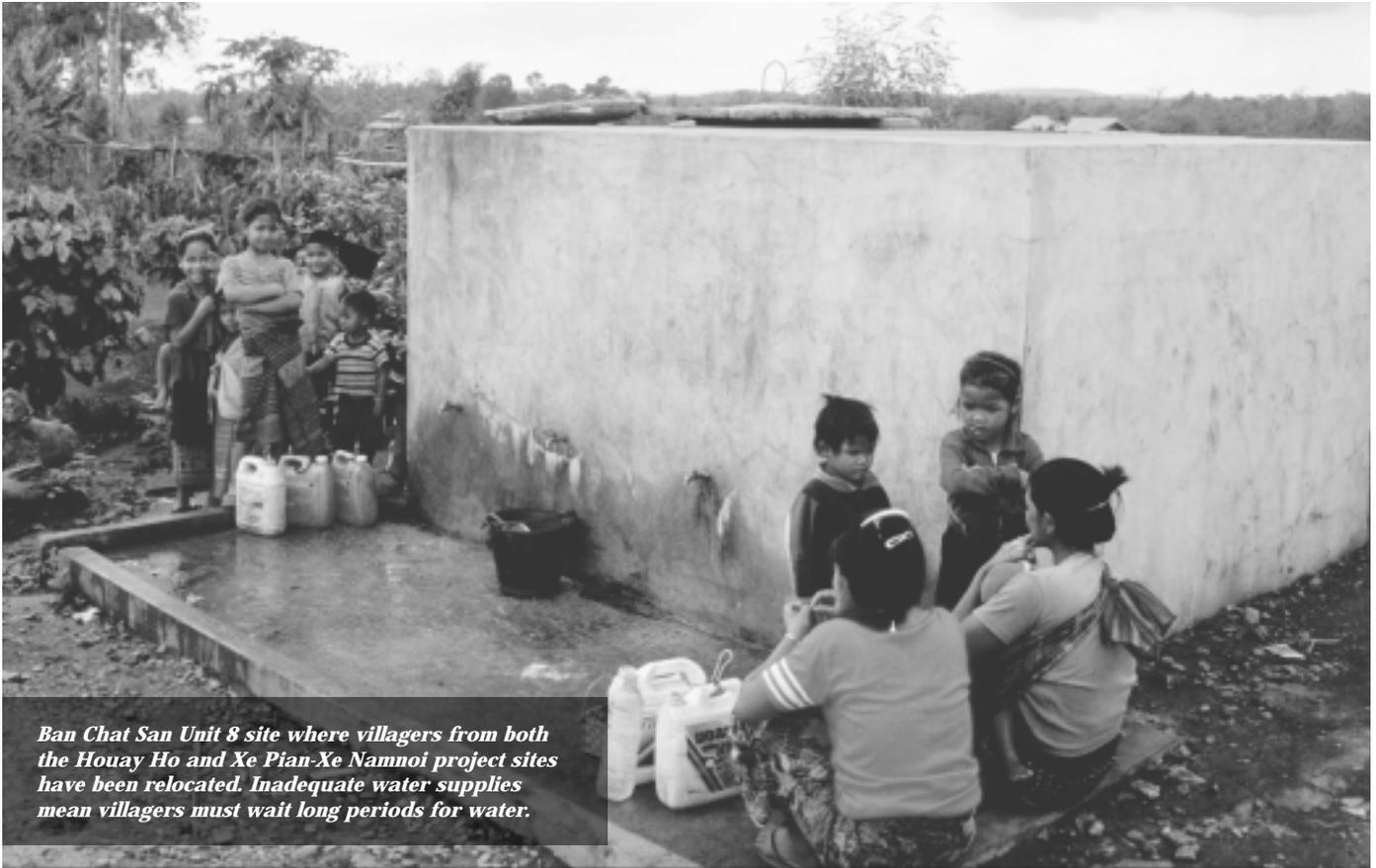
BOX 7: NGOs ASSISTING HYDRO DEVELOPERS

The official Khaosan Pathet Lao news agency announced in 1995 that the international NGO World Vision had presented \$102,000 to Champassak Province for the relocation of 448 families at 12 villages for the Houay Ho project. World Vision has been providing housing materials, agricultural implements, animals, and medical supplies as well as training in health and agriculture.

By contributing its own resources to the project, World Vision has in effect been externalizing costs that, in accordance with widely accepted international principles, should be paid for by the developers. Funds have been provided for this four-year project through World Vision Korea. A World Vision project coordinator in 1996 reported that Daewoo had given funds to World Vision Korea to support the work at Ban Chat San Unit 8, but in March 1998 the incumbent project coordinator denied this.

Other NGO representatives in Lao PDR, some of whom are being asked by provincial partners to get involved in internal resettlement programs, have expressed a concern that World Vision’s involvement at Ban Chat San Unit 8 sets a poor precedent for NGO involvement in resettlement in the country. Other development and relief agencies working in Lao PDR have been reluctant to participate in similar projects due to concerns that they may help legitimize a flawed process in which, despite their assistance, the affected people will be left in a situation of long-term dependency and vulnerability.

World Vision staff justify their involvement as within their mandate of working with “the poorest of the poor.” However, the country representative of World Vision Lao PDR has been quoted as describing the provincial approach to the resettlement at Ban Chat San Unit 8 as “one likely to create a situation of passive dependency.”⁹ Responsible program staff in Vientiane seldom visit the site and do not appear to be aware of the plight of the relocatees.



Ban Chat San Unit 8 site where villagers from both the Houay Ho and Xe Pian-Xe Namnoi project sites have been relocated. Inadequate water supplies mean villagers must wait long periods for water.

Several villagers mentioned that there were serious tensions between relocatees and the established neighboring villages of Ban Houay Kong and Ban Nam Tang although this was denied by officials and one village headman. The neighboring villages are ethnic Laven, a group with which the Nya Heun have historically had poor relations.⁶

In Attapeu, the provincial office of the Attapeu Lao Women's Union has reported with concern that 15 Lao Theung local women have become prostitutes for the Houay Ho dam workers. This is the first time prostitution has been recorded in the area and raises the possibility of AIDS being introduced in an area with very poor public health services.

4. Inadequate Compensation

The official policy is that those people resettled are to receive a standard rice ration for three years following

their resettlement. Visitors to the site, however, report that the villagers have not received their allotted rice rations

"We were supposed to receive rice rations from the project for three years following our resettlement. But we have only received a very small amount and nothing since October of last year. Now many of us are very hungry and we must return to our old village to harvest some upland rice and collect forest crops. We were told that many things would be provided to us after we moved but we have received little."

Group of four villagers interviewed at Ban Latsasin on February 23, 1998.

and that this is causing great difficulty for the oustees. Despite official statements to the contrary, the consultants for the Se Kong-Se San and Nam Theun River Basins Study heard reports that villagers had not received their rice rations for several months. Noting that the community was exposed to a grave risk of malnutrition, the consultants wrote that "if our informant is accurate, this situation is a human rights emergency which requires immediate attention at a high level in Vientiane."⁷

Unfortunately, as of February 1998, the situation appeared to have deteriorated. Five separate interviews with resettled villagers at Ban Chat San Unit 8 in late February 1998 confirmed that they had not received any rice rations since October 1997. Villagers spoke of hunger and food short-

ages at the site. Some villagers stated that they were having to borrow money from money lenders in Pak Xong in order to buy rice to survive. Many villagers were angry at the situation and implied that assistance meant for them had been diverted elsewhere.

Daewoo reportedly made payments to the province to support the resettlement program. However, these funds have clearly been inadequate. The Daewoo project manager was quoted as saying that the company felt that too many people had been moved from the watershed.⁸ This may have occurred because local officials had per-person budgets for resettlement which provided an incentive to resettle more people, given the province's policy of resettling minority groups into lowland areas. Also, there have been reports that Daewoo's funds have been used to resettle people out of the Xe Pian and Xe Namnoi watershed areas, areas more connected to the Xe Pian-Xe Namnoi Project. At this stage, Daewoo is thought to have been relieved of any further responsibility to assist relocatees or provide compensation to people impacted by the project.

Resettlement has also occurred at the powerhouse site on the eastern side of the Phou Louang range in Attapeu Province. An Attapeu provincial official confirmed in

February 1998 that a large area of land, which included the land of two villages, Ban Khoumkham and Ban Mixay, was given to the project by the province. According to this official, no compensation at all was provided to the villagers who lost land. They were just told to leave and most have now done so. In September 1997, the social-environmental consultant team visited one of these villages,

Ban Khoumkham, and reported that the villagers appeared to have received very minimal compensation — some housing materials but nothing else.

5. Destruction of Natural Resources

Forest destruction has occurred through the building of approximately 38 km of new access roads and the widening of 100 km of existing roads. Observers have noted that the construction work was carried out in a careless and destructive manner. The road from the dam site down

“We were told we must move because we were destroying the forest. But then they started building the dam, building roads, and cutting the trees.”

A Nya Heun village leader interviewed on February 23, 1998.



Forest destruction along the transmission line corridor for Houay Ho

the escarpment was initiated without any apparent plan. After hacking through many kilometers of pristine forest, the Daewoo contractors came to an impassable 200 meter drop and had to carve out a whole new route more closely following the Xe Namnoi River. Observers also noted the needless dumping of construction sediment into rivers.

More calculated was the logging that has gone on within and around the inundation area and along the transmission line route. HECEC's 1993 feasibility study claimed that "there is only limited timber potential in the reservoir area and this may be uneconomic to exploit."¹⁰ Thai newspapers, however, have reported that over 100,000 cubic meters of wood was removed from the reservoir area and brought across to Thailand. Thai logging companies were given the concession by the central government.

Observers of the project have noted that logging occurred in areas beyond the actual reservoir inundation zone. The corridor for the transmission line is wider than normal, opening up a larger area for logging. A Korean Daewoo engineer interviewed in February 1998 conceded that the 50-meter wide corridor was "very wide" but maintained that this was part of the original plan drawn up by Electrowatt and not something that "just happened."

It has also been reported that there were few controls on workers and loggers who worked on the project and that they have been responsible for increased hunting in the project area.

D. CONCLUSION

While some details remain obscured, it is clear that Houay Ho, even before it begins operation, is already a disaster for the affected local people and a mistake for Lao PDR as a whole. The project is widely acknowledged as an embarrassment and a bitter lesson for the country, even among hydropower proponents within the Lao government. Daewoo now appears to be ready to pull out and leave the pieces for others to pick up, although the company will be hard-pressed to find a buyer given the dubi-

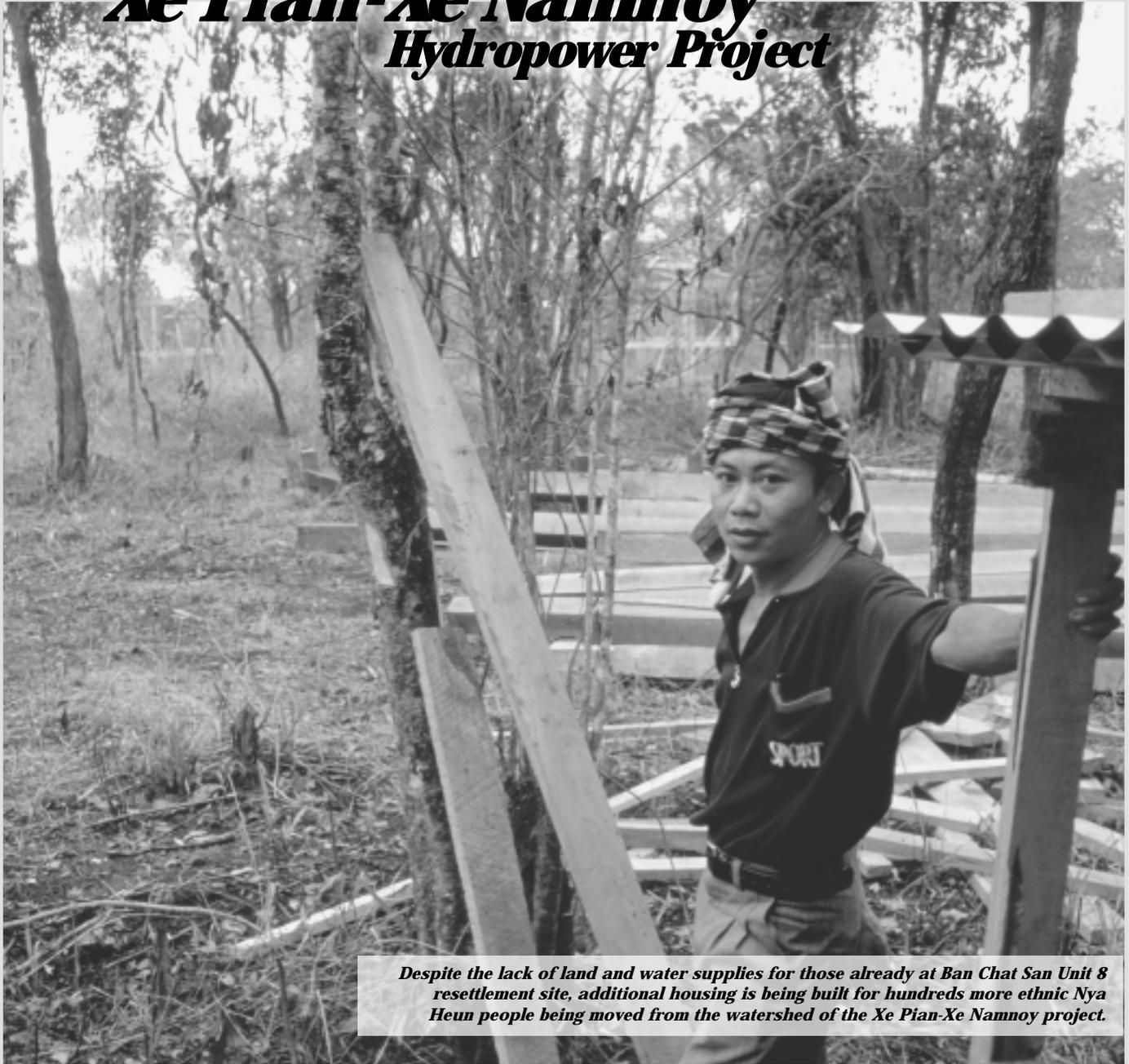
ous financial viability of the project. But the legacy of a sacrificed river basin, damaged livelihoods and a destroyed environment will remain for many years to come. At best, perhaps, the experience with Houay Ho has already provided some lessons for Lao decision-makers on how not to do a project. It certainly points to the need for a slower, transparent, and more rational decision-making process, broader input, and much improved recognition of the needs and rights of local communities affected by the development of large infrastructure projects.

It is also imperative that immediate steps be taken to address the critical water shortage and food security situation for those already resettled to the Ban Chat San Unit 8 site. Further resettlement of uplanders to the already overcrowded site should be reconsidered, and those Nya Heun that have been resettled against their will should be given the option to move back to their homelands.

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Chapter 6

Xe Pian-Xe Namnoy Hydropower Project



Despite the lack of land and water supplies for those already at Ban Chat San Unit 8 resettlement site, additional housing is being built for hundreds more ethnic Nya Heun people being moved from the watershed of the Xe Pian-Xe Namnoy project.

While less known than the nearby Houay Ho Hydropower Project, the Xe Pian-Xe Namnoy Hydropower Project is a much larger (438 MW), more expensive (over \$1 billion), and complex project in a remote area of the southeastern Bolovens Plateau in Champassak Province. South Korea's Dong Ah Construction Industrial Group has been the main partner in this joint venture BOT project. Currently, the project is stalled while Dong Ah, also facing financial difficulties at home, waits for Thailand to give the green light for negotiation of a power purchase agreement.

A. MAIN CONCERNS

In February 1998, IRN staff and researchers visited the project sites in Attapeu and Champassak provinces and interviewed staff, local government officials and villagers, and collected additional information from project reports and Lao and foreign staff of aid agencies working in the region. This investigation found these major points of concern relating to the Xe Pian-Xe Namnoi Project:

- Decisions to implement this project were made in a non-transparent manner with no input from local officials or citizens. The EIA lacked important information and the overall decision-making process was plagued by various conflicts of interest.
- While its own future is in doubt, this project is already having major impacts on local people's livelihoods and has led to the forced resettlement of ethnic "Nya Heun" minority communities from the watershed and inundation areas. There are inadequate resources allocated to assist with this resettlement and the affected people are experiencing threats to their food security and overall livelihoods.
- If the project proceeds, impacts on many other villages are expected, mainly through the loss of fishing resources. It is unlikely that local people will be compensated for these losses.
- Due to the Asian economic crisis, the project has been suspended and may possibly be abandoned. If this occurs it is unclear who will take responsibility for mitigating the social disruption and ecological damage that has already occurred.

B. BACKGROUND AND DESCRIPTION

Following in the footsteps of Daewoo, Dong Ah came to southern Lao PDR in 1993 with an interest in hydropower construction and operation. In February 1994, Dong Ah signed a memorandum of understanding with the Lao government to develop the project, taking a 55 percent equity stake while the Lao government was to have a 45 percent stake. In March 1996 this agreement was amended, with Dong Ah taking a 45 percent stake, the Lao government 35 percent, and unspecified Thai partners 20 percent, all operating as the "Lao Dong Ah Company Ltd" joint venture. The feasibility study, including the EIA, was carried out by Swiss consulting firm Electrowatt, beginning in December 1994. The electricity generated from the project was to form part of the sec-

ond memorandum of understanding signed between the Lao government and EGAT in June 1996.

The project consists of multiple dams and stream diversions. The Houay Makcham stream is diverted into the Xe Pian River. The Xe Pian, together with the Houay Liang River, is then dammed and the water diverted through an eight kilometer canal into the Xe Namnoi River. A 78 meter high dam is to be constructed on the Xe Namnoi creating a reservoir in excess of 30 square kilometers. Water in the reservoir will be diverted through a 13 kilometer canal and headrace tunnel through the Phou Luang ridge and down to a powerhouse at the base of the escarpment in Attapeu Province. From there, the water enters the Houay Pouk, which flows into the Xe Kong River a few kilometers downstream from the Attapeu provincial town.

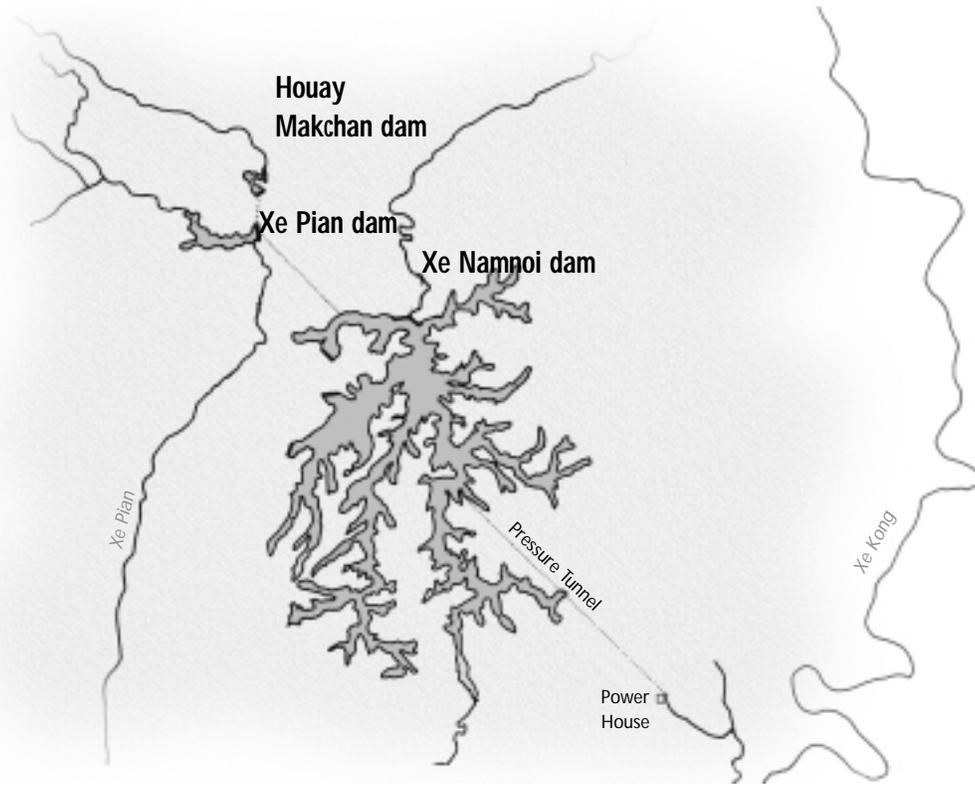
A major conflict has occurred over the routing of the transmission line. For future Lao hydropower projects EGAT only wants to accept power at three points: Savannakhet in the south, Vientiane in the center, and Hong Sa in the north. Dong Ah had reportedly wanted to build their own transmission line to Chong Mek in Thailand but may have to use the Southern Lao transmission line being developed by Austral-Lao Transmission, the developer of the Xe Kaman 1 Project. This would increase the cost and reduce Dong Ah's potential profit from the project.

Problems and Delays Now Plaguing Project and Dong Ah

Despite the lack of a power purchase agreement or final concession contract, Dong Ah went ahead with project preparation during 1996-98, spending millions of dollars on infrastructure development. By mid-1997, a total of 45 kilometers of permanent and 9 kilometers of temporary access roads had been built into the project area. Vehicles and heavy equipment were brought on-site and a large base camp near the Xe Namnoi dam site and smaller camps at the other sites were constructed. These camps can house over 2,000 workers.¹

However, the project has become a victim of the Asian economic crisis. Dong Ah has not been able to successfully negotiate a PPA with EGAT. EGAT reportedly offered the very low price of 3.2 cents/KWh, rising slightly after the first two years, but faced with falling domestic demand for electricity, EGAT later announced that they will not need the power from this project until at least 2006.

In February 1998, as the likelihood of gaining a PPA further receded, the Lao government reportedly told Dong Ah to "wait for 2-3 years"² before proceeding with the project. Soon after, there were reports that the main Thai construction sub-contractor for the project had gone bankrupt and



that Dong Ah had withdrawn all of its personnel from the site. It appears that Dong Ah may now be completely abandoning the project. The Lao government reportedly is now looking for new partners to replace Dong Ah.

be economically costly to Dong Ah — were dropped. Consultants involved in writing the WCS studies were never allowed to see the final EIA and they were neither consulted nor informed about the changes to their

C. PROJECT ISSUES AND ANALYSIS

1. Conflicts of Interest Lead to Poor Project Decision-Making

The EIA produced by Electrowatt provided inadequate information for Lao government officials to make a sound decision on the project. Electrowatt, while conceding that there are no guidelines in place for conducting EIAs in Lao PDR, claimed to follow World Bank standards in conducting the Xe Pian-Xe Namnoi EIA.³ However, in reality Electrowatt appears to have distorted information in the EIA in order to present a favorable picture of the project.

In 1995, Electrowatt hired the Wildlife Conservation Society to conduct fishery and wildlife surveys of the project area. While some of the findings and recommendations in the WCS studies were included in the Electrowatt EIA, others — particularly ones that would

reports made by Electrowatt. In some cases, the exact opposite of the WCS findings were recorded in the EIA. None of the follow-up studies recommended for implementation in advance of project approval were ever initiated.

As at Houay Ho, Dong Ah intended to carry out the construction itself rather than using international competitive bidding.

As a construction company, Dong Ah may have a self-interest in inflating these costs.

2. Impacts on Local Communities and the Environment

Resettlement

The project is already being used as an excuse to resettle eight mostly ethnic Nya Heun villages from the inundation and watershed areas. All eight villages are being reset-

“At our old village we could fish and gather food from the forest easily. Here it is very difficult. We are short of food. We cannot fish around here, we have to walk about 15 km from here to find fish.”

Resettled villager from Ban Don Khong interviewed at Ban Chat San Unit 8, February 22, 1998.

tled to the Ban Chat San Unit 8 camp at Houay Kong, the same site used for those displaced from the Houay Ho project. According to staff from the Champassak Province Rural Development Committee, the province's goal is to move all people living in both the inundation zone and the watershed area. Four ethnic Nya Heun villages in Pak Xong District were moved in early 1997 — Ban Don Khong, Ban Keo Khunmueng, Ban Nam Leng, and Ban Xe Namnoi. As of late February 1998, preparations were underway to move four more villages beginning in May — Ban Nam Kong, Ban Houay Soei, Ban Nong Panuan (ethnic Laven), and Ban Houay Chote.

Local officials and village headmen all confirm that this is a forcible resettlement and that there was no consultation involved. The villagers were informed by provincial and district authorities that they must move and they had no say in deciding where they would go or the design of the resettlement site. Some observers believe that the push for resettlement, even given the delay in the project, relates to the province's objectives of resettling ethnic minority people out of upland areas and that the project is being used as justification for the quick implementation of this policy in the area (see box 9 on page 60). As reported in the Houay Ho case study, recent visitors to the Ban Chat San Unit 8 site have found that conditions for those relocated are appalling.

Dong Ah apparently has not paid for any of this relocation. Reportedly, resources provided by Daewoo for Houay Ho have been used to resettle people from the Xe Pian-Xe Namnoi watershed. Champassak officials have in the past requested funds from Dong Ah to assist in resettlement but they are apparently not contractually obligated to do so and it is unknown whether any funds have been provided. Local officials have spoken of rumored mismanagement and "loss" of funds that were supposed to support the Ban Chat San Unit 8 site.

Loss of Fishing Resources

The 1995 Wildlife Conservation Society fisheries study predicted that at least 19 villages, and possibly many more, would lose their fish resources as a result of the project. Some of these villages get 60 to 80 percent of all their animal protein from fish. The report's central recommendation, not mentioned by Electrowatt in their EIA, was to drop the Xe Pian dam and diversion from the overall project due to the severe damage it would cause to the fisheries, wildlife and forests of this rare and valuable area as well as the impacts that would be experienced on the lower Xe Pian.⁴ The report also recommended generous compensatory water flows to lessen the downstream

impacts in the Xe Pian and Xe Namnoi and it pointed out the need for a longer-term study before proceeding with the project in order to assess compensation for villagers. However, no additional study has taken place and should the project proceed, these 19 villages will likely be severely affected.

Loss of Agricultural Lands

A number of villagers, mostly ethnic Oye minority people from Ban Lanyao Tai, have had paddy land confiscated for the access road, powerhouse, and construction camp areas in Attapeu Province. The construction camp is located on what villagers say is sacred land that has been used for burials and other ceremonies. Reports of the amount of villager land confiscated vary from 27 ha to 50 ha. According to provincial officials, the affected villagers received "a very small amount" of rice in compensation. They are also to be provided with other substitute land. However, this land is not developed as paddy and it will be the responsibility of the villagers to develop it, a process that will likely take several years. During that time no further compensation is planned.

Neighboring Oye villagers interviewed in February 1998 stated that the Ban Lanyao Tai villagers had initially been promised 500 kip per square meter in compensation for their

BOX 8 DONG AH: TROUBLE AT HOME AND ABROAD

Teetering on the brink of bankruptcy, Dong Ah Construction Industries, one of Korea's leading builders, has been kept afloat by taking out hundreds of millions of dollars of loans over the last year. Dong Ah Construction Industries is the remaining part of the beleaguered conglomerate Dong Ah Group, which was dismantled in May 1998, selling off or merging all its other affiliates.

Dong Ah is facing a financial crunch because it has failed to receive payments for overseas construction projects and because sales of its apartments have been sluggish. In May 1998 the government, concerned about job losses, forced Korean banks to issue \$400 million of emergency loans to the company.

In addition to the company's financial woes, Dong Ah has been plagued by numerous scandals. In October 1994, the company was responsible for a bridge collapse that killed 32 people during rush hour when some cars plunged into the Han River in Seoul. In December 1995, the chairman of the Dong Ah Group, Choi Won-suk was indicted on charges of bribing former South Korean president Roh Tae-woo. Dong Ah reportedly provided bribes in excess of \$20 million. Despite these incidents, Dong Ah was awarded a contract to construct tunnels for the now-canceled Bakun hydroelectric dam. In 1997, the Bakun tunnels collapsed, killing at least 10 workers.

land. However, they subsequently received only 200 kip per square meter. The villagers became very dissatisfied and discussed the idea of refusing compensation payments and making an appeal to the province. A sympathetic provincial official confirmed this account. Neighboring villagers suspect the affected people were pressured into cooperating, by either provincial or company officials.

3. Compensation and Mitigation

While the Electrowatt EIA makes reference to the social disruption and economic losses that will be caused by the project and notes that significant compensation will be required, at present the developers do not have any policies in place to address the needs for compensation or to independently monitor mitigation activities. It is unclear what responsibility, if any, Dong Ah will take for funding compensation and mitigation measures. The head of the Attapeu Province office of STENO stated in February 1998 that as part of the Lao government receiving 35 percent equity in the project, the government will assume complete responsibility for the resettlement and compensation of affected villagers.⁵ Whether or not this is true, the fact that responsible provincial authorities have this understanding illustrates the current confusion surrounding these issues.

Local officials discount or downplay concerns about the

need to compensate villagers for their livelihood losses. In direct contrast to the conclusions of the WCS report, Attapeu provincial officials stated that they do not believe

that fishing is important for the villages in the Houay Pouk area and that no compensation will be required. These officials were not able to say on what basis they made their assessment and they seemed to have little appreciation of the basis of local livelihoods. In Champassak, provincial officials claim that the move of the Nya Heun people to the Ban Chat San Unit 8 site is a positive one and will help them become “civilized.” No acknowledgment is made of the land shortages, water supply problems, loss of fisheries, and lack of promised rice aid from which they are suffering.

4. Destruction of Forests and Loss of Endangered Wildlife

The project will flood 38 square kilometers of land, much of which is rare valley-bottom forest that is important habitat for many endangered animal species.⁶ Only 140 ha of commercially attractive trees are believed to be in the inundation areas. The 1995 WCS wildlife study and the Electrowatt EIA recommended that no commercial logging

“We were told that if we moved to the resettlement site, we would be given enough land to grow crops and also receive rice for three years. But we have not received the rice and the land is not enough so we have to leave to find work or look for food elsewhere. It seems like we will not be able to survive here.”

Villager from Ban Don Kong interviewed at Ban Chat San Unit 8 resettlement site, February 22, 1998.

Headquarters for Dong Ah at the Xe Pian site. Dong Ah has already invested millions of dollars in the project but due to the regional economic crisis, has not been able to negotiate a power purchase agreement. Work on the project has now halted.



be allowed as part of clearing the reservoir area. This is due to the difficulty of monitoring logging companies to ensure that they remain in their concession area and do not log parts of the Xe Pian National Biodiversity Conservation Area. One visitor to the area in early 1998 observed logging which he was informed was related to the project, but widespread logging has not yet commenced.

The 1995 WCS wildlife survey highlighted the possible impacts of the project on the Xe Pian NBCA and the potential loss of many globally and regionally significant endangered bird and animal species.⁷ In addition to the reservoir flooding, the survey mentioned concerns over minimal downstream water flows and the impacts of building roads in remote areas. The WCS survey acknowledged that many of the losses would be irreplaceable but also made specific recommendations for minimizing the impacts such as controls on hunting by project workers, additional studies before beginning the project, and the appointment of an independent specialist to monitor adherence to the mitigation measures. In February 1998, visitors to the powerhouse camp site were told by the Korean site manager that project workers were hunting around the site. He then invited the visitors to go tiger hunting with him.

D. CONCLUSION

The experience with the Xe Pian-Xe Namnoi Project points to fundamental flaws in the ways that large infrastructure projects are being developed in Lao PDR. Between two and three thousand extremely vulnerable ethnic minority people have had their lives severely disrupted and their economic and cultural well-being threatened without adequate compensation, all for a project that may not even be completed. Many kilometers of access roads

have been built into remote wilderness areas, endangering the survival of many rare and threatened wildlife species and making the areas more vulnerable to illegal logging.

With a total project cost of over \$250 million for Houay Ho and an estimated \$1 billion plus for Xe Pian-Xe Namnoi, it is particularly unconscionable that affected villagers at the Ban Chat San Unit 8 site are not even receiving their minimal promised rice rations, the total cost of which would only be a few thousand dollars per month. The current situation is clearly unacceptable on economic, ethical and humanitarian grounds.

Hopefully, the delay in moving forward with the project will give Lao decision-makers some time in which to carefully think out many of the issues raised above. If the project does go ahead it will be particularly important to ensure that Dong Ah or any other future developers are obliged to fully fund the actual costs of all mitigation measures and not leave these as the sole responsibility of the Lao government.

- 1 Dong Ah Construction Company Ltd., *Welcome to Se Namnoy Site*, Champassak, Lao PDR, 1997.
- 2 According to a Champassak Province Rural Development Committee official interviewed in February, 1998.
- 3 Electrowatt, *Xe Pian-Xe Namnoy Hydropower Project Feasibility Study, Volume II: Environmental Impact Report*, Zurich, Switzerland, June 1995, pp. 1-9.
- 4 Roberts, Tyson and Baird, Ian, *Rapid Assessment of Fish and Fisheries for the Xe Nam Noy-Xe Pian Hydroscheme in Southern Lao PDR*, Wildlife Conservation Society, Vientiane, Lao PDR, May 10, 1995, p.14.
- 5 Personal Communication, Mr. Say Song, Director, Attapeu Provincial office of STENO, February 17, 1998.
- 6 Wildlife Conservation Society, *Results of a Survey of Terrestrial Wildlife in the Area to be Affected by the Proposed Xe Nam Noy-Xe Pian Hydroelectric Project*, Vientiane, Lao PDR, May 18, 1995, pp.15, 38.
- 7 *Ibid.*



Ban Chat San Unit 8 resettlement site.

Chapter 7

Xe Kaman 1 Hydropower Project



The Ban Pa-am resettlement site is located on a branch of the old “Ho Chi Minh Trail” and was heavily bombed during the war. The site is littered with unexploded ordinance, posing a danger to villagers forced to clear their own land.

The 468 MW Xe Kaman 1 Hydropower Project would be located in eastern Attapeu Province in the far southeast of Lao PDR on the Xe Kaman River, one of six major tributaries of the Xe Kong River. The project is being developed by Austral-Lao Power (ALP), a company spun off from HECEC, a former Tasmanian state-owned company that was privatized in 1996. The project, which is moving forward despite the lack of a power purchase agreement, is suspected of being a logging scheme in disguise.

A. MAIN POINTS OF CONCERN

IRN staff and a researcher visited the project area in February 1998. Additional information has been gathered from other recent visitors and independent researchers, aid workers, project reports, and interviews with officials and concerned observers in Vientiane and elsewhere. This investigation found the following main points of concern:

- The project is closely associated with a massive resettlement scheme that aims to depopulate an entire district of its ethnic minority citizens in order to allow foreign investors access to the rich natural resources of the area.
- The project, which is moving forward despite the lack of a power purchase agreement, is in all probability a logging scheme in disguise. Whether or not the dam is actually built, ALP stands to gain lucrative revenues from logging the reservoir and various management and construction contracts, including the Southern Lao Transmission Line project.
- If the dam does go ahead, the reservoir would take up to 7 years to fill without any compensatory flow downstream. More than 10,000 Lao citizens living downstream would be severely impacted — losing fishing resources, fresh water supplies, riverbank vegetable gardens and impeding river transportation.
- The process by which ALP gained the concession lacked transparency and appears to have violated established Lao government laws and procedures for the granting of concession agreements for large infrastructure projects.
- The Lao government, as part of its equity share in the project, may have to assume responsibility for resettlement and compensation costs for thousands of people living in downstream areas. ALP appears to have little or no obligation to assist with these costs.
- Severe damage to the Dong Amphan National Biodiversity Conservation Area, a protected area “of global importance,” and to the proposed Phou Kathong NBCA, will occur from the implementation of Xe Kaman 1 and related development projects in the area.

B. BACKGROUND AND DESCRIPTION

Xe Kaman 1 was identified as one of three “priority projects” in a master plan study of the Xe Kong river basin completed by JICA in 1995. If built, the 468 MW project

would be a 187 meter concrete-faced rockfill dam, the second highest of its type in the world. The estimated cost of the project, excluding the transmission line, is approximately \$500 million dollars.

A related project, for which ALP also has the concession, is the Southern Lao Transmission System Project. This would entail building a high capacity electrical transmission line from Savannakhet to Thailand. All future hydropower projects built in southern Lao PDR would be required to use this line for transmitting electricity to Thailand.

The project is located in a remote area of Xansay District in Attapeu Province, close to the Viet Nam and Cambodian borders, and near to the wartime Ho Chi Minh Trail. The Xe Kaman River is an important tributary of the Xe Kong River, entering it at the Attapeu provincial center. The Xe Kong flows on into Cambodia and eventually joins the Mekong River, providing 20 percent of its flow at their confluence.

The dam project was part of an April 1994 MoU signed between the GoL and Tasmania’s state-owned Hydro-Electric Commission Enterprises Corporation (HECEC). At that time, HECEC received strong support from the Australian government and their embassy in Vientiane.¹ In June 1995 a supplemental MoU was signed between the two parties giving HECEC a 75 percent share and the Lao government 25 percent. Delays then occurred as HECEC went through a process of privatization, being sold to some of its top executives and split into two companies. One of these companies, Austral Lao Power (ALP), gained the development rights to Xe Kaman and the Southern Lao Transmission System Project while the other, HECEC Australia Pty Ltd, is involved in hydropower consultancy work.

ALP is a management company but has formed a consortium using the title “Austral Lao Power Private Limited Company.” Until recently, the largest shareholder in this consortium was Idris Hydraulic, a Malaysian logging company, with a 35percent ownership share. Idris dropped out of the project in early 1998, reportedly due to financial problems related to the Asian economic crisis. Three Thai-based companies are believed to split a 35percent stake and the Lao government retains a 25percent stake. ALP itself holds only 5percent but retains the management contract for the project. It is unclear who has taken up Idris’ stake in the project.

It is not known how ALP have been bankrolling their operation. ALP staff claim that they have financing through the London-based Hong Kong-Shanghai Banking Corporation for the dam itself and for guarantees, but this has not been confirmed.

In November 1994, the Tasmanian consulting firm Gutteridge, Haskin and Davies (GHD) produced a draft *Initial Environmental Examination* of the Xe Kaman 1

and the Southern Transmission Project. This report was put together in a short time mainly based on a few helicopter flights over the project area. A series of *Environment and Society* reports have subsequently been prepared by GHD but no detailed EIA has yet been completed for the project. GHD is reportedly due to complete the EIA by sometime during 1999. Despite this, and the lack of a power purchase agreement, a concession agreement between the Lao government and ALP was signed on November 15, 1997. ALP received the rights to build and operate the Xe Kaman project and the Southern Lao Transmission line on a 30 year BOT basis as well as exclusive rights to log the Xe Kaman reservoir.

According to ALP literature, HECEC Australia is still involved in the project as a hydrology consultant.² The Brazilian firm Companhia de Projetos e Obras (CBPO) has reportedly been engaged by ALP as the main construction sub-contractor. The Australian construction company John Holland was to have been a partner with CBPO but they have reportedly now dropped out of the project.

Resettlement has already commenced in both the watershed and inundation zone and preparations for logging and road building are underway. As of April 1998, no construction work had yet started. However, ALP has established a project office at the Attapeu provincial center and is engaged in survey and preparation work at the site. A new ferry slip has been built for crossing the Xe

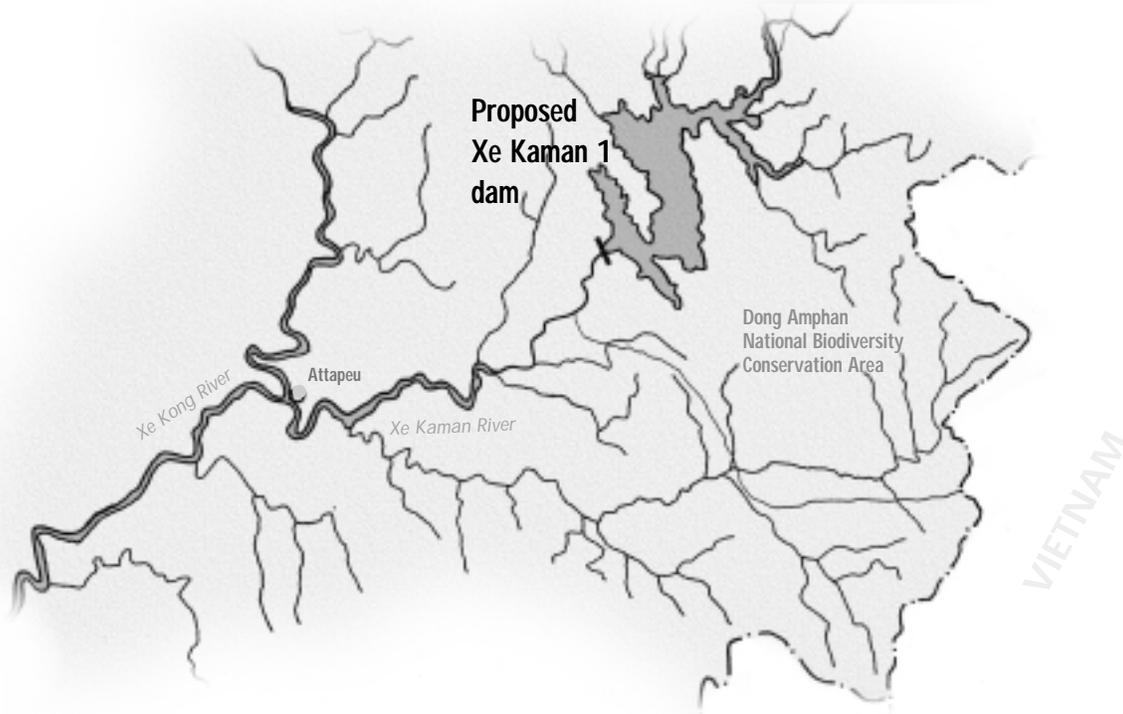
Kong River at Attapeu in order to handle the large increase in truck traffic expected during the logging of the reservoir and construction of the dam. Improvements of the road to the construction site and reservoir area have now begun. Wide scale logging does not appear to have started as of yet although survey and preparation work for logging is ongoing. According to ALP staff in Attapeu, logging will begin "very soon."³ Timber extraction for 1998 was planned for 10,000 to 12,000 cubic meters, initially coming from areas cleared for roads and construction sites. ALP reportedly has a trial contract for 6,000 cubic meters of wood with the same Thai company that logged Houay Ho and will be able to log through the rainy season.

C. PROJECT ISSUES AND ANALYSIS

Serious questions exist about the Xe Kaman 1 Project which raise doubts about ALP's agenda and whether the project is in the best interests of the country. The approval process has been so flawed and the conflicts of interest so obvious that even many supporters of hydropower development in Lao PDR — within and outside of the government — privately express their dismay with it. Sources within Electricité du Laos and the Hydropower Office suspect that the venture is mainly an excuse for logging and doubt whether ALP intends to go ahead with the actual dam construction.



Resettlement site near Ban Pa-am for the first group of villagers resettled for the Xe Kaman 1 project.



1. Granting of Concession Agreement

Lao regulations for the granting of hydropower concessions state that an EIA (which also addresses resettlement and socio-economic issues) must be prepared by the developers and approved by STENO, the Ministry of Agriculture and Forestry, the Hydropower Office, and the Ministry of Finance before a project development agreement and concession is granted.⁴ This enables the Lao government to make a more informed decision on project approval and better negotiate mitigation measures with the developer.⁵

ALP's EIA for Xe Kaman is not even scheduled to be completed until 1999. However, in November 1997, the Foreign Investment Management Committee (FIMC) signed the concession agreement with ALP. The unusual process of approval for Xe Kaman has disturbed many Lao and foreign observers in the country and raised suspicions about how ALP managed to sign a concession agreement without following established procedures. Dissatisfaction with the process includes many within the Lao government at both the provincial and central levels.

2. The Logging Agenda

The military logging company DAFI has reportedly estimated that there are 2.2 million cubic meters of standing timber in the area, the value of which is \$190 per cubic meter.

Attapeu Province officials have estimated there are 420,000 cubic meters of timber in the inundation area. It is unknown which is the correct estimate. Much of this is old growth primary forest which has never before been commercially logged. The forest includes a wide variety of tropical hardwood trees "many hundreds"⁶ of years old. According to a 1995 study of the Xe Kaman area by the Protected Areas Division of the Department of Forestry, "it will be next to impossible to mitigate the loss of the regionally valuable forests and wildlife habitat which will be submerged if the Xe Kaman 1 project goes ahead."⁷

Several signs point to the likelihood that Xe Kaman is primarily a logging venture and that ALP will end up logging the reservoir area whether or not the Xe Kaman dam goes ahead:

- This is believed to be the first concession agreement in Lao PDR to grant the developers the rights to the timber in the inundation zone.
- Preparation for logging is already underway and logging is scheduled to start without a power purchase agreement or project financing in place.
- Hydrological analysis of the Xe Kaman catchment indicates

"It is true that we worry that this may be a logging project in disguise."

EdL official, Vientiane, March 1998.

that the planned reservoir size is too large for the volume of water available. The reservoir would take 5 to 7 years to fill, and once the turbines went into operation, the reservoir would never again reach its full supply level. ALP's proposal for a 468 MW dam is much larger than what JICA and the ADB-funded Se Kong-Se San and Nam Theun River Basins Hydropower Study rated as appropriate for the site (255 MW). Many observers believe the higher dam proposed by ALP is a ploy to create a larger estimated inundation area, thereby increasing the size of ALP's logging concession.

- A clause in ALP's concession agreement requires them to keep money in escrow to reimburse the government for the environmental damage caused by logging if the dam is not built, indicating developers and the government believe there is a reasonable likelihood that the dam will not be built.
- The Malaysian logging company Idris Hydraulic was to be a major ALP partner. Their main interest in backing

Xe Kaman was almost certainly the potential lucrative logging revenues.

While ALP's actual intentions remain unknown, it is clear that the concession granted to them sacrifices some of the most valuable old-growth forest conservation areas in the country without providing any guarantees that benefits will accrue to Lao citizens or the Lao government.

3. Resettlement

There are large discrepancies in the figures given by ALP, provincial officials, and other reports concerning the number of people who will have to be resettled due to the project. In their public presentations, ALP has stated that 812 people living in nine villages will have to be moved. In February 1998, the director of the Attapeu Province Rural Development Committee (APRDC), which has direct responsibility for the resettlement, stated that 412 families living in 13 vil-

"We were told that if we came down to this place we would be provided with many kinds of assistance such as land clearing, housing, water supply and others. Now we are told that the government has no budget to help us. The others who are supposed to move here are now reluctant to come but are being told they should come anyway."

Recently resettled villager at the Ban Pa-am resettlement site, February 18, 1998.



Recent arrivals to the Ban Pa-am resettlement site must clear their own land.

lages, a total of 2,472 people, will have to be moved.⁸ These are almost all midland Lao Theung people, mainly of the Alak, Taliang, and Yae ethnic groups. Many are in a vulnerable situation as they have had very limited contact with the market economy or lowland Lao culture. Villagers interviewed as part of the 1995 Protected Areas Division study did not want to move out of the watershed. They are currently able to find enough to eat and worry that if moved, their access to land, river and forest resources will be greatly reduced.⁹

In their public relations efforts, ALP has claimed they will use “world class standards” for mitigating the social and environmental impacts from the project. However, as recently as February 1998, with resettlement already underway, the director of the APRDC did not know what, if any, responsibility ALP will have in paying for resettlement costs. He said this is still under negotiation and did not know whether this was included in the concession agreement. The understanding of other provincial officials, including the director of STENO, is that the Lao government will have full responsibility for all resettlement. This would be in accordance with earlier claims by HECEC that it would be the responsibility of the Lao government to relocate people from the reservoir area.¹⁰

Aid workers familiar with resettlement in Lao PDR and the situation in Attapeu believe it is unrealistic to expect that the Lao government will have the resources to properly compensate and resettle villagers for a project of this size. A visit in February 1998 to a resettlement site confirmed that inadequate resources are available and that resettlement is proceeding under very poor conditions.

A site for 50 families has been designated adjacent to the existing Ban Pa-am village, approximately nine kilometers below the dam site. Twenty families have been brought to the site so far, mostly from the area close to the current Xansay district headquarters. The area is secondary forest alongside a seasonal stream that has little dry season flow. No assistance with land clearing has been provided: the people were given the land and told to work on it themselves. This is particularly problematic as the site, located right on the old Ho Chi Minh Trail, is believed to be strewn with unexploded ordinance (UXO). Despite a nationwide program to identify and remove UXO from areas such as this, no assistance is being given, forcing those resettled to risk their lives as they clear land for their houses and gardens. All that has been provided to the relocatees are some roofing materials.

While relocatees are supposed to be given access to cultivation land, there is no suitable land available anywhere nearby. Many villagers at Ban Pa-am, who themselves moved to the area as much as 20 years ago, report

that they must walk more than one hour to reach their wetland rice fields. No funds have been made available to provide access to drinking water and the villagers must get water from the stream. Villagers at the site were disillusioned and said they did not want their relatives to join them unless they received more assistance. They were also worried about the amount of agricultural land available. They had been told that the project would provide assistance with all their needs and with land appropriate for paddy production. They agreed to move on that basis but now find that no funds or appropriate paddy land have yet been allocated to assist them.

A consultant team looking at social and environmental issues relating to hydropower development for the Se Kong-Se San and Nam Theun River Basins Hydropower Study was told at a provincial briefing in September 1997 that 233 families who had been living in the Xe Kaman watershed area were moved in 1996 and 1997 to the sites of Ban Dat Saeng and Ban Po, also without any assistance from ALP. The team’s trip report was highly critical of this resettlement, remarking that “the fact that these people have been moved well in advance of even a contract to build any hydropower facility at Se Kaman 1 suggests that an instance of ‘pre-emptive population removal’, a practice frowned on by the International Development Banks, is underway.”¹¹

The quality of the other proposed resettlement sites for those to be moved from the Xe Kaman watershed appear to be extremely poor. They are located in areas where current residents already complain about a shortage of arable land. Access to fresh water is limited. Visitors who have observed these sites believe it is unlikely that relocatees would be able to maintain a standard of living anywhere approaching what they currently have, even if substantial outside investment was made in the sites — something that appears unlikely.

4. Other Socio-Economic Impacts

There are more than 10,000 people, mostly of lowland Lao, Lave and Kaseng ethnic groups, living along the banks of the Xe Kaman downstream from the project site, plus many thousands more who live further away but still use the river on an occasional basis. GHD’s initial environmental examination made almost no mention of negative impacts on downstream areas should the dam be built.¹³ Their subsequent First Environment and Society Report acknowledges that there will be impacts but is vague in quantifying them or in suggesting concrete compensatory measures.¹⁴

The report by the Protected Areas Division of the Department of Forestry notes that most local people in the

area derive a majority of their protein from fish and that many also rely on fishing for cash income. This report predicts severe impacts on the livelihood of people living along the Xe Kaman downstream from the dam if it is built.¹⁵

It will reportedly take seven years to fill the reservoir once the dam is closed, during which time there will be almost no downstream flow.¹⁶

While this period will be particularly damaging, the negative impacts are likely to continue to be severe in subsequent years as fish migration is blocked and water levels in the Xe Kaman River are permanently altered.

The consultants for the Se Kong-Se San and Nam Theun River Basins Hydropower Study state that “if this dam were to be built, it would regulate 10 percent of the drainage of the whole of the Se Kong Basin, and cause very severe dry season flows as far downstream as the junction with the Mekong.”¹⁷

To date, there has been no serious attempt to assess the economic value of the expected losses or to determine

how local people to be impacted by the project should be properly compensated. Indeed, it is unlikely that compensation could even begin to account for the great losses that will be experienced by villagers living downstream of

the project. If this situation is not addressed before construction commences, local citizens will in effect end up subsidizing the project’s foreign investors.

5. Impacts on Wildlife Conservation

Implementation of the Xe Kaman 1 hydropower project is

likely to have a serious impact on one of the most remote remaining wilderness areas in mainland Southeast Asia. In addition to the Dong Amphan NBCA, located south of the Xe Kaman River, parts of the proposed Phou Kathong NBCA, located to the north of the Xe Kaman River, will also be inundated.

“We come here to fish everyday. We eat fish everyday and can sell some in the market for income. If the fish disappear because of the dam we will have a great difficulty.”

Villager fishing in Xe Kaman River at Xaisetta District town, February 18, 1998.

BOX 9: Internal Resettlement in Lao PDR

The nationwide policy for internal resettlement of mostly ethnic minority people out of highland areas is causing increasing international concern. In the mid-1990s, the Lao government announced plans to stop shifting cultivation by the year 2000 through stabilizing agricultural systems and resettling shifting cultivators — mainly ethnic minority people — out of upland areas. Such resettlement has been carried out to varying degrees in post-revolutionary Lao PDR for many years, often due to security concerns. However, the policy to stop shifting cultivation by the year 2000 requires a massive increase in internal resettlement, possibly affecting more than 800,000 people, a fifth of the country’s population. While many observers acknowledge that these goals are unrealistic, based on false assumptions, and beyond the capacity of the country, a substantial amount of resettlement is taking place.

Some observers liken the internal resettlement push in Lao PDR to the 1800s in North America and Australia when European settlers, coveting the land and natural resources traditionally used by Native or Aboriginal people, forced them onto reservations lacking basic resources. In Lao PDR, the upland areas which form the traditional homelands of many minorities are increasingly coveted by Lao urban elites and their foreign investment partners due to the potential for natural resource exploitation. As it was in an earlier era in North America and Australia, such resettlement is justified with rhetoric that promises great benefits for those resettled, including modernization, access to health and education and “civilization.”

Resettlement for the Xe Kaman project is occurring in the context of sweeping resettlement plans that Attapeu Province officials have for Xansay and Phouvong Districts. Provincial officials speak openly of a plan to resettle the ethnic minority people from most of the 46 villages of Xansay District so that the area can be leased out to foreign corporations for plantations, logging, the Xe Kaman project, mining, and other resource extraction activities. The only villages that would be allowed to remain in the upland watershed would be those living beside prospective construction and industrial projects that would need a source of cheap labor. Observers familiar with the situation in the province, as well as resettlement occurring elsewhere in Lao PDR, believe that this course of action could lead to a human rights disaster.

A recent report issued by UNDP/UNESCO notes that such resettlement has often been poorly planned and implemented, resulting in a severe decline in living standards for those resettled. Adequate resources to implement the policy are lacking and problems have included deteriorating food security due to a shortage of agricultural land, the loss of access to forest and river resources, an inadequate water supply, and health concerns. There have also been problems of “cultural disruption” as people are taken out of their traditional homelands and forced into the lowland market economy. Some villages have experienced up to a 30 percent mortality rate following resettlement.¹² In neighboring Xe Kong Province, officials are reportedly reassessing this policy. In Attapeu, however, the push for resettlement is accelerating.

The inhabitants of the Xe Kaman watershed are indigenous peoples including Taliang, Alak, and Yae communities. All of these communities are upland, forest-based peoples whose deep knowledge of local biodiversity and forest ecosystems could readily be adapted and employed in the use of biodiversity conservation and watershed management within Xe Kaman catchment.

Dong Amphan NBCA is considered by wildlife and conservation experts to be one of the most important of the 18 NBCAs in Lao PDR. Dong Amphan and adjacent areas are home to many globally threatened or endangered animal species including tigers and other large cats, elephants, bear, sambar deer, otters, various primates, and many bird species. Xe Kaman 1 would flood the Xe Kaman lowlands and its extensive tracts of old growth evergreen and semi-evergreen forests including the area of greatest conservation value in the entire Dong Amphan/Phou Kathong area.¹⁸ There will be no way to mitigate the loss of this forest. The 1995 Protected Areas report predicts that reduced fishing stocks downstream from the dam will have harmful impacts on food supply for the endangered Irrawaddy dolphins, which live further down in the Xe Kong and Mekong and have been known to migrate up into the Xe Kaman.

Other impacts can be expected from opening up access to this previously inaccessible and remote area. This may include illegal logging and hunting, an influx of migrants, and other development projects related to the dam project. One such project has already been approved. In March 1998 the *Vientiane Times* reported that a Thai logging company, Santisouk Forestry, would build a road from the Xe Kaman dam site to the Vietnamese border. This road would pass right through the Dong Amphan NBCA. After building the road, and presumably logging extensively along the route, the company will bill the Lao government \$10 million for providing this “service.”

D. CONCLUSION

The process and structure of the Xe Kaman concession appears to have left Lao PDR vulnerable to actions by ALP and its backers that would not be in the country’s best interest. ALP appears to have more interest in the value of the logging and management contracts and their ability to maintain a key dealmaker role — parceling out construction and supplier contracts on a murky and non-transparent basis — than in the project’s long term profitability as a hydropower scheme.

Resettlement has started and is taking place at great risk to the livelihoods of those relocated. It is unlikely that the developers will properly fund mitigation measures including compensation for people resettled or otherwise impacted by the project. For some impacts, such as the damage to the Dong Amphan NBCA, and the livelihoods of downstream communities, no mitigation will be possible.

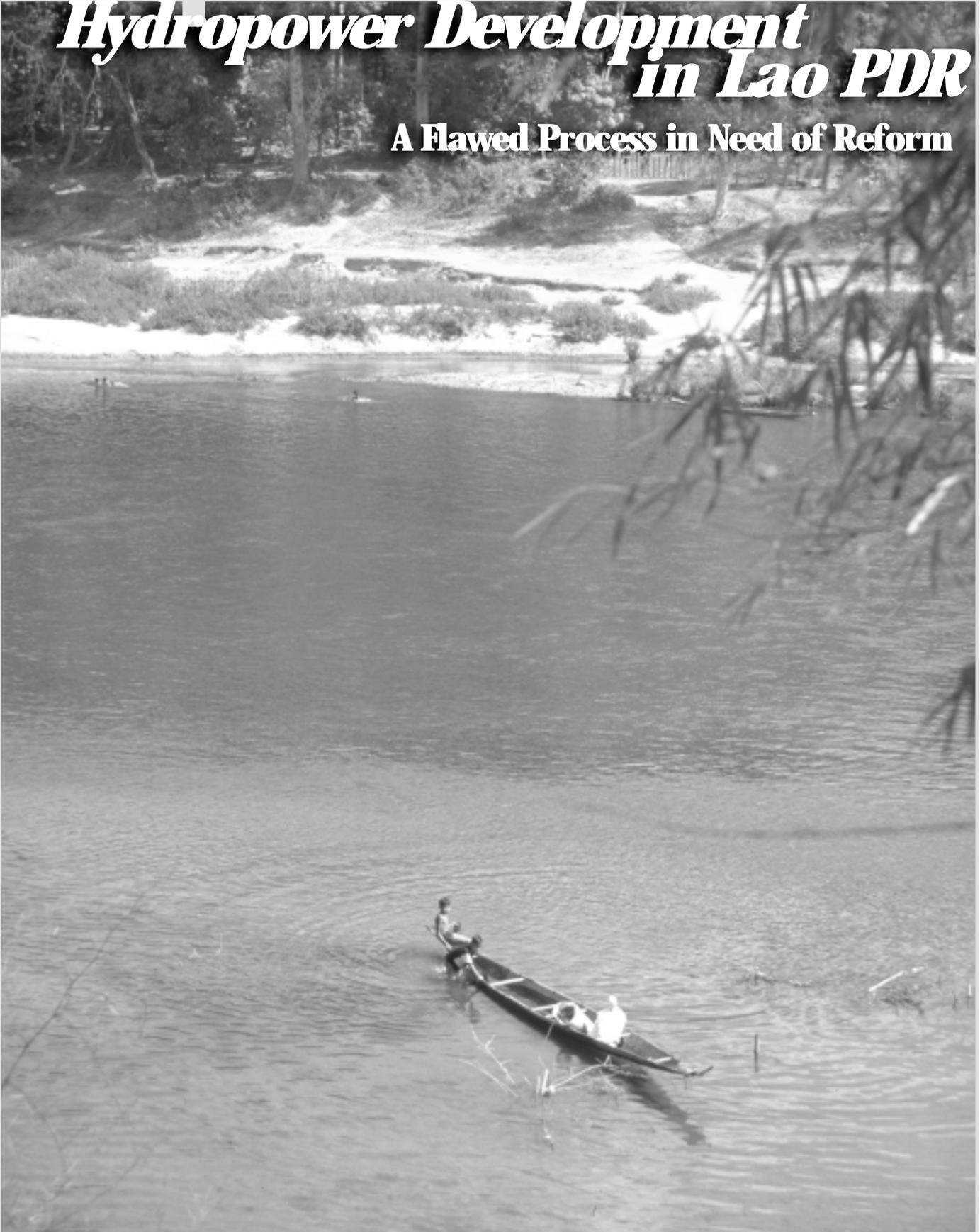
The experience to date with Xe Kaman 1 demonstrates that the current development process is leading to the approval of projects that are not in the best interests of either local people in the area or the country as a whole.

- 1 “Xe Kaman 1 hydroelectric dam: Very Private”, *Watershed*, Vol. 3, No. 2, November 1997-February 1998, p.47.
- 2 Based on ALP brochure examined by IRN staff at ALP office in Attapeu in February 1998.
- 3 Personal Communication, Mr. Phouvong Thammavongsa, ALP Administrative and Technical Manager in Attapeu, February 20, 1998.
- 4 Lao Peoples’ Democratic Republic, *The Electricity Law*, Effective August 29, 1997 and *Prime Minister Decree on Environmental Protection*, Article 9.
- 5 UNDP/UNESCO, *Basic Needs for Resettled Communities in the Lao PDR*, Vol. 1, Vientiane, June 1997, p.55.
- 6 Personal Communication, Mr. Sisavanh, Director, Attapeu Province Rural Development Committee, February 16, 1998.
- 7 Protected Areas Division, *Investigation of the Xe Kaman and Xe Xou Rivers*, Department of Forestry, Vientiane, January 1995, p.15.
- 8 Personal Communication, Mr. Sisavanh, Director, Attapeu Province RDC, February 16, 1998.
- 9 Protected Areas Division, op cit.
- 10 Coleman, Misha: “Tasmanian dam-builders in Lao PDR: A profile of HECEC,” *Watershed*, Vol. 2, No. 1, Jul-Oct. 1996, p.46.
- 11 Dennis, John, *Field visit to the Se Kong Basin, September, 1997: Summary of sociological findings*, for the Se Kong-Se San and Nam Theun River Basins Hydropower Study, Vientiane, Lao PDR, October 9, 1997, p.8.
- 12 UNDP/UNESCO, op cit, pp.22-35.
- 13 Gutteridge, Haskins & Davey Pty. Ltd, *Initial Environmental Examination of the Xe Kaman No. 1 and Southern Transmission Project*, Hobart, November 1994.
- 14 Gutteridge, Haskins & Davey Pty. Ltd., *First Environment and Society Report*, Hobart, June 1996, p. 46.
- 15 Protected Areas Division, op cit, p. 10.
- 16 Sir William Halcrow and Partners, *Se Kong-Se San and Nam Theun River Basins Hydropower Study — Initial Environmental Examination*, Asian Development Bank, Manila, 1998, p.3-12.
- 17 Ibid.
- 18 Davidson, Peter, et al., *A Wildlife and Habitat Survey of Dong Amphan NBCA and Phou Kathong Proposed NBCA, Attapu Province, Lao PDR*, Wildlife Conservation Society, Vientiane, 1997.

Chapter 8

Hydropower Development in Lao PDR

A Flawed Process in Need of Reform



The case studies detailed above represent a broad cross-section of hydropower development in Lao PDR. There are some similar and very fundamental problems with all of the projects. Some of the key issues include:

A. RESETTLEMENT

Hydropower is increasingly being used as a pretext to resettle ethnic minorities from upland areas to lowland areas, in keeping with the government's policy of resettling shifting cultivators by the year 2000. Anticipatory resettlement is occurring in many watersheds and inundation zones, long before it is certain that a dam will be built.

The GoL's practice of resettling shifting cultivators demonstrates a lack of understanding of the highly sophisticated rice cultivation techniques of these people. As the consultants in the Se Kong-Se San and Nam Theun River Basins Hydropower Study have recognized,

"The lack of appreciation of the ecological and social roles, and the complexity, of true traditional swidden cultivation, despite its vital economic role within these mountain states, is a concern . . . The practise of moving people out from future hydropower scheme catchments, as advocated by some, appears to be based on a lack of appreciation of the role of upland agriculture in the current dynamics of these watersheds, and incapacity to visualise what will happen after not only the ecologically dramatic intrusion of a hydropower installation into formerly dynamically stable locations, but also uninformed intervention into the human ecology of the area."¹

While the country's overall population density is low, almost no spare arable land exists and opportunities for creating new farmland, even with substantial investment, are very limited. The general policy of stabilizing shifting cultivation is already putting increased pressure on lowland areas. Hydropower projects flood large areas of lowland valleys and finding acceptable alternative locations for those displaced is increasingly problematic. The budget constraints of the Lao government preclude investment in resettlement programs at anything approaching what would be required to meet the most minimally acceptable international standards for resettling large numbers of people.

In any event, forced resettlement has an extremely poor record globally. In almost all of the resettlement operations for which reliable information is available, the majority of people have ended up with lower incomes, less land than before; fewer work opportunities, inferior housing, less access to the resources of the commons, poorer nutrition, and impaired physical and mental health.²

At Houay Ho, Xe Pian-Xe Namnoi, and Xe Kaman 1, resettlement is taking place under very poor conditions, causing hardship and suffering for the ethnic minority

groups who have been forced to move. A lack of arable land and fresh water supplies, coupled with an unfamiliarity with wet rice cultivation and separation from ancestral lands, has resulted in food shortages and increased rates of morbidity and mortality for those resettled.

The costs of resettlement and other compensation is typically included as part of the Lao government's equity contribution to a hydropower project. Due to budget constraints and differing priorities, however, resettling and compensating local people will invariably be inadequately funded, resulting in deteriorating standards of living. This has already been demonstrated at the Houay Ho, Xe Pian-Xe Namnoi, and Xe Kaman project sites. The Theun-Hinboun case also demonstrates that it is ill-advised to limit the liability of the private developers for sharing in the true costs of project mitigation. The local people end up bearing the costs themselves as the Lao government is unable or unwilling to allocate sufficient resources to provide proper compensation.

B. INADEQUATE COMPENSATION

Hydropower projects in Lao PDR are proceeding without adequate efforts to document the livelihoods of people living downstream and upstream from the dam site prior to construction nor to provide for sufficient compensation for livelihood losses occurring as a result of the dam. These impacts have been best documented in the Theun-Hinboun case study, where villagers reported substantial declines in fish catches, flooding of vegetable gardens, transportation difficulties and freshwater shortages. In this case, as the project was a trans-basin diversion scheme, villagers were affected in three different areas: downstream from the dam site in the Theun-Kading river basin, in the headpond (reservoir) area, and in the Nam Hai/Nam Hinboun, where the water is diverted after going through the power house.

These impacts will be common to all trans-basin diversion schemes, and different impacts will be experienced by non-diversion schemes. In the case of the Xe Kaman 1 project, should it go ahead, downstream villagers will be left without access to water for seven years while the reservoir is filling. When the dam is in operation, villagers will be subjected to wildly varying water levels in the river according to dam operation times.

What is certain is that in all hydropower projects in Lao PDR, wild fisheries will be severely affected. The Mekong River Basin is home to one of the most biologically diverse populations of freshwater fish in the world, second only to the Amazon. Many species are highly migratory, undertaking seasonal migrations within the mainstream, and between the mainstream and its tributaries. Fish are of

crucial importance to the means of livelihood security and economy of local communities, and a major source of dietary protein for people in Lao PDR.

A dam obstructs the migration of fish species, and may destroy fish populations in both the tributary on which it is constructed, as well as in the Mekong River. It is simply not possible to mitigate these impacts, as demonstrated in the case of the Pak Mun dam in Thailand, where a \$1 million fish ladder has proved ineffectual.

Failure to ensure that private developers are held responsible for paying their fair share of the compensation costs of a project means that the Lao government, or local communities, will end up subsidizing private developers. These costs could be significant, further impairing the economic viability of a dam project. It is also important to recognize that compensation will never substitute for an unobstructed riverine ecosystem.

C. UNRESTRICTED LOGGING AND ACCESS TO PROTECTED AREAS

Hydropower projects are being used as a pretext for logging of reservoir areas, long before a decision to build a dam has actually been made. In the case of Nam Theun 2, the military-run logging company, the BPKP, has logged more than one million cubic meters of timber on the Nakai Plateau to clear the reservoir area even though the dam may never be built. Dam proponents now justify building the project on the basis that the Nakai Plateau is so degraded from logging that it is not worth saving. At Xe Kaman 1, all indications are that the dam may never be built, and that the project is in fact an elaborate logging scheme in disguise. In this case the Lao government is foregoing lucrative logging revenues in anticipation of future proceeds from electricity sales that may never eventuate. Meanwhile, some of mainland Southeast Asia's last remaining tropical rainforest, together with an array of rare and endangered species, may be sacrificed.

The construction of roads and bridges into previously remote areas also facilitates increased hunting and logging. This is of particular concern as many hydropower schemes are often situated in protected areas of high conservation value. As described in the Se Kong-Se San and Nam Theun River Basins Hydropower Study, "Forest resources, as roads are built, change from being a common resource with direct benefits largely for local communities to an open access resource which outsiders quickly appropriate, often displacing local access to a large extent."³ The lack of laws recognizing the rights of these communities to the forests results in further impoverishment of upland forest dwellers, who increasingly need to compete with outsiders for limited resources.

D. ENVIRONMENTAL IMPACT ASSESSMENTS: A MUCH ABUSED TOOL

At present the Environmental Impact Assessment (EIA) is the main tool available to Lao government decision-makers to ensure that all of the social and environmental costs of a project are known and accounted for. EIAs in Lao PDR are carried out by hydropower consultancy companies with vested interests in ensuring that the project proceeds, mainly because they stand to gain further lucrative contracts once the project goes ahead. In Lao PDR, as in many other countries, the process of conducting EIAs is flawed in several fundamental ways:

- Inappropriate objectives: EIAs are prepared late in the process of project approval, well after a project MoU has been signed and, in many cases, logging of the unin-





ation area has already begun. This often makes a project a fait accompli before an EIA assesses its social and environmental costs.

- **Capacity constraints:** Within the country, there is insufficient capacity to critically review EIAs, which are highly complex documents, always produced in English, and rarely translated into Lao.
- **Limited Scope:** The initial EIAs produced in all six projects examined in this report have downplayed or ignored the impacts that the project is likely to have on the livelihoods of people living downstream of the project sites. They have also failed to look at the cumulative impacts of developing multiple projects in the same river basins. This allows developers to externalize costs that should be a fundamental part of the project's costs.
- **Lack of public consultation:** EIAs are produced without meaningful public awareness or input. Not only local citizens, but local officials at the provincial and district level, are left out of the process. This is contrary to widely accepted international principles and the regulations of almost all international donors and the multilateral development banks.
- **Lack of Monitoring and Enforcement:** Even when EIA documents do make specific recommendations, the developers are not obliged to follow them and often do not. While particularly blatant in the cases of Xe Pian-Xe Namnoi and Houay Ho, this has been a problem common to other hydropower projects and it will likely remain a serious concern as future projects are implemented.
- **Consultant conflicts of interest:** Companies hired to produce EIAs (as well as other assessments, evaluations and studies) almost always have conflicts of interest and “pro-project” biases which make it difficult or impossible for them to produce credible documents. In many cases the consultants have a direct interest in seeing a project move ahead through either ownership structures or because they stand to benefit from management and other technical contracts. This has been the case with Norconsult at Theun-Hinboun, and with Lahmeyer and Sogreah at Nam Leuk. Invariably, these firms provide unrealistically positive portrayals of the projects — omitting crucial information and ignoring or downplaying concerns about the potential negative impacts of projects. While this problem is not unique to Lao PDR, other countries have more established systems for open review of EIAs, ensuring at least some public scrutiny of the work of consultants.

E. LACK OF APPROPRIATE REGULATION

At present, the same institution, Electricité du Laos (EdL), is investing as a partner in joint venture BOT hydropower projects and is also responsible for regulating these projects. The financial interest that EdL has in maximizing profits from projects in which they are joint venture partners creates a conflict of interest with their role as regulator. This places a constraint on EdL's ability to negotiate a risk allocation which is in the best interests of the Government and Lao PDR. In northern — and increasingly in developing — countries these roles are generally separated through the creation of an independent regulatory body.

An independent regulatory agency should have the capacity to establish and enforce licensing and environmental assessment procedures. Gráinne Ryder of Probe International has suggested that in order to promote sound investment decisions, a rigorous environmental assessment and licensing procedure be enshrined in law so that compliance with its requirements — i.e. time frame, standards, and procedures for compensation — are legally enforceable. She recommends that, at a minimum, such a licensing process would include:

- early and effective public notification to allow incorporation of public views and to ensure public scrutiny of the developers' proposal;
- access to information, in the relevant languages, concerning the undertaking;
- public participation in the hearing process;
- consideration of the “no-go” option, that is, the consequences of maintaining the status quo;
- the right to review a decision;
- the rights of those most affected to have the greatest say in the final decision; and
- the right to legal remedies if damages occur.⁴

It is clear that more work needs to go into developing a regulatory regime for Lao PDR that is fair, efficient and ensures the greatest possible benefits for the Lao people. Continued unregulated development will only cause further problems along the way.

F. CONCLUSION

The economic uncertainty of hydropower in Lao PDR, coupled with the significant impacts that such schemes are having on the economy, environment and people of Lao PDR, point to the need for a fundamental rethinking of the country's economic development strategy. There is clearly a need for a reassessment of the best use of the scarce financial and human resources in the country, including the benefits from possible investments in areas such as tourism, agriculture and non-timber forest products as alternatives to hydropower. The fact that such an assessment has never been done points to the one-sided advice of the World Bank, ADB and other development agencies.

Far-reaching reforms are needed in order to ensure that any future hydropower development in Lao PDR is in the best interests of the country as a whole. Initiating such a process of reform will require substantial political will on the part of Lao decision-makers and the inclusion of people within the country that until now have been unable to participate in the hydropower debate. In the meantime, it is irresponsible of the Asian Development Bank, the World Bank, and other donors to be pushing ahead with the funding of individual hydropower projects as “aid” in Lao PDR.

Firms proceeding with private financing also need to be challenged. As almost all Lao hydropower projects require some level of concessionary financing, projects completely privately funded have invariably involved either bad deals for the Lao government or hidden agendas on the part of the private developers.

Rather than being an obstacle, the slowdown in the development of hydropower in Lao PDR, brought about by the Asian economic crisis, can be seen as a window of opportunity for the Lao government and the donor community to reconsider the problems with the current path of hydropower development and to initiate changes. A means of properly addressing the above problems through a process of fundamental reform is needed to ensure a more sustainable and just path to future development for the people of Lao PDR.

1 Sir William Halcrow and Partners, *Se Kong-Se San and Nam Theun River Basins Hydropower Study — Initial Environmental Examination*, Asian Development Bank, Manila, 1998, p2-2

2 McCully, P., *Silenced Rivers: The Ecology and Politics of Large Dams*, Zed Books, London, 1996, p.77

3 Halcrow, op cit, p2-30.

4 Unpublished paper by Gráinne Ryder, *The Theun-Hinboun Public-Private Partnership in Lao PDR: Regulatory Failure and Recommendations for Reform*, Probe International, Canada, 1998.

Abbreviations and Acronyms

ALP: Austral-Lao Power Company
 ADB: Asian Development Bank
 APRDC: Attapeu Province Rural Development Committee
 BOT: Build, Operate, Transfer.
 BPKP: Bolisat Phattana Khet Phoudoi (Mountainous Areas Development Company)
 CCGT: Combined Cycle Gas Turbine
 CWE: China International Water and Electric Company
 EdL: Electricité du Laos
 EdF: Electricité de France
 EGAT: Electricity Generating Authority of Thailand
 EIA: Environmental Impact Assessment
 EMCO: Environmental Management Committee Office
 EVN: Electricity of Viet Nam
 GDP: Gross Domestic Product
 GHD: Gutteridge, Haskins and Davey Co Ltd.
 GoL: Government of Lao PDR
 HECEC: Tasmanian Hydro-Electric Commission Enterprises Corporation
 IBRD: International Bank for Reconstruction and Development
 ICB: International Competitive Bidding
 IDA: International Development Association
 IFC: International Finance Corporation
 IPP: Independent Power Producer
 IRDP: Integrated Rural Development Program
 IRN: International Rivers Network
 IUCN: International Union for the Conservation of Nature
 JICA: Japanese International Cooperation Agency
 Km: Kilometer
 KWh: Kilowatt hour

Lao PDR: Lao Peoples' Democratic Republic
 MDB: Multilateral Development Bank
 MoAF: Ministry of Agriculture and Forestry
 MoU: Memorandum of Understanding
 MW: Megawatt
 NBCA: National Biodiversity Conservation Area
 NGO: Non Government Organization
 NORAD: Norwegian Agency for Development
 NT2: Nam Theun 2 Hydropower Project
 NTEC: Nam Theun 2 Electricity Consortium
 OECF: Overseas Economic Cooperation Fund
 POE: Panel of Experts
 PPA: Power Purchase Agreement
 SAP: Social Action Plan
 SMEC: Snowy Mountains Engineering Corporation
 STENO: Science Technology and Environment Organization
 THPC: Theun-Hinboun Power Company
 TVA: Tennessee Valley Authority
 UNDP: United Nations Development Program
 US: United States of America
 UXO: Unexploded Ordinance
 WB: World Bank
 WCS: Wildlife Conservation Society
 WWF: World Wide Fund for Nature
All dollar figures are in US dollars.

Glossary of Lao terms

Ban Chat Sarr: resettlement site
Barr: village
Nam: river
Kip: Lao currency
Lao Theung: midland Lao ethnic groups
Lao Loum: lowland Lao ethnic groups



Photo: Elizabeth Price

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