



**International Rivers Network**  
Linking Human Rights and Environmental Protection

## **Hydropower Development in the Mekong Basin: Nam Theun 2 and the need for better planning processes**

Prepared for Mekong Integrated Policy Package Working Group

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### **I. INTRODUCTION**

The Mekong region is undergoing a rapid expansion of hydropower development on both the Mekong mainstream and tributaries. Hydropower development in the basin is proceeding in a haphazard and unregulated fashion, threatening the integrity of the Mekong river ecosystem and the livelihoods of its 65 million inhabitants. Most of the plans are being developed without any consultation with local communities, NGOs and other members of civil society, without any opportunity for public debate, without any assessment of the cumulative impacts of the proposed developments on the hydrology and ecology of the Mekong River Basin, and without consideration of other options for meeting the region's energy needs.

Nam Theun 2 is the largest hydropower project under development in Laos and has been lauded by the World Bank, the Asian Development Bank (ADB) and other project investors as a model project that will pave the way for best practice hydropower development in the region. In 2005 the project received support from the World Bank and other investors, becoming the first major dam approved by the World Bank in a decade. At the time of project approval, then-World Bank President James Wolfensohn said: "We have spent the best part of a decade studying the project and evaluating the risks. In fact, we have been advised by some independent experts that we have studied it for too long, and been too focused on possible risks... Our decision, after a lot of deliberation, is that the risks can be managed."

But is Nam Theun 2 a model for how to plan and build sustainable hydropower projects? Halfway through the construction period, are the risks being managed adequately? If not, why not? This paper will seek to answer these questions by examining Nam Theun 2's planning and implementation process and drawing lessons for future energy planning and development in the Mekong region.

The paper starts with an overview of hydropower development in the Mekong Basin and identifies some recent trends and key concerns with current decision-making processes and project implementation. The paper then examines the planning process for Nam Theun 2 and outlines problems with implementation of the project's social and environmental mitigation and compensation measures two years into construction. Finally, the paper makes recommendations as to why a new planning process is needed for the region: one that integrates environmental, economic and social factors and would allow for coordinated development that would be in the best interests of both the region's inhabitants and the river basin's fragile ecosystem.

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## II. REGIONAL INTEGRATION AND HYDROPOWER PLANS IN THE MEKONG

For decades, hydropower developers have had their eye on the Mekong River Basin. Mekong River-damming plans date back as far as the mid-1950s when foreign engineers envisaged a cascade of seven dams on the mainstream of the lower Mekong River and identified numerous smaller projects on its tributaries. The projects were supposed to bring development and prosperity to the region by supplying vast amounts of electricity and diverting water for irrigation. While these plans never came to fruition, largely due to the years of war and political instability, they have had a profound influence on the energy path proposed for the region today.

In the early 1990s, as many of the Mekong countries were coming out of years of isolation, the ADB established its Greater Mekong Subregion (GMS) program. One key element of the program was encouraging regional cooperation in the energy sector, by which the ADB meant establishing a regional power market fueled mainly by hydropower. The foundation of the “Mekong Power Grid” plan was laid by ADB consultants in 1994<sup>2</sup> and subsequently expanded upon through a series of ADB-financed studies. The plan envisages a network of high-voltage transmission lines linking the Mekong countries and opening up mountainous regions mostly in Laos, Yunnan province of China, and Burma to hydropower development. Through the Mekong Power Grid plan, the ADB has expended enormous effort and investment in encouraging regional power trade between Mekong countries and in promoting private sector involvement in the power sector. However, progress has been slow, and it seems increasingly doubtful that the grid will be implemented as planned.. What’s more, the Mekong Power Grid plan has never been proven to be economically viable, does not take account of cumulative social and environmental impacts, and has been prepared without the participation of diverse stakeholders.

Despite the ADB’s years of heavy involvement in the energy sector both as a financier and a governmental advisor, the ADB has never supported a truly comprehensive and participatory assessment of the region’s energy needs and the best options for meeting these needs. As such, the planning process to date falls well short of international standards in energy planning, such as Integrated Resources Planning now common in many developed countries, and the ADB has until now missed an important opportunity to encourage a comprehensive planning model that would take into account social, environmental and economic factors. Environmentally sustainable and socially responsible solutions to meeting the region’s energy needs do exist, although at present they are not a part of any regional energy plan. For example, the potential for energy efficiency measures to significantly reduce the need for energy in Thailand and Vietnam is high, and several promising and competitive renewable energy options exist for the region, such as biomass, solar, wind and micro-hydro, yet at present the benefits of these options remain poorly recognized and as such under-developed.

Meanwhile, all the governments in the region are pushing forward with their own plans for hydropower development. Most of the plans are being developed without any consultation with local communities, NGOs and other members of civil society, without any opportunity for public debate, without any assessment of the cumulative impacts of the proposed developments on the hydrology and ecology of the Mekong River Basin, and without consideration of other options for meeting the region’s energy needs. What is clear is that hydropower development is having, and will have, a serious impact on the ecological integrity of the Mekong River Basin. Through blocking the migration of fish and the transport of sediment, and through changing the natural flood-drought cycle of the rivers, dam construction will have a significant impact on the

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<sup>2</sup> Norconsult, *Subregional Energy Sector Study for the ADB*, Asian Development Bank, Manila, 1994

health of the Mekong River Basin and the livelihoods of the 60 million people that depend on the Mekong River and its resources.

### III. THE CURRENT STATE OF PLAY IN THE REGION

While the 1997 Asian financial crisis put a lot of hydropower plans temporarily on hold, today the region's booming economies and growing demand for energy have led all countries to once again pursue ambitious hydropower programs as important components of their power development plans. Despite the significant ramifications of uncoordinated large-scale water infrastructure development on international rivers such as the Mekong, these hydropower plans are being developed in the absence of any regional planning mechanisms or decision-making frameworks.

The Mekong River Commission (MRC), formed in 1995 to sustainably develop the Mekong River basin and based on the recognition of the importance of regional cooperation, has been unable to effectively handle the comparatively few projects with transboundary impacts to date and appears ill-equipped to manage the massive scale of investment planned for the near future. Instead, most countries – acting under the imperative to secure new power supplies that are perceived as an issue of utmost national importance - are pursuing their own projects with little consideration of transboundary impacts, no consultation with riparian countries, and are struggling to enforce their own domestic laws governing hydropower construction, let alone meet best practice international standards such as the World Commission on Dams.

China has plans to develop a cascade of eight dams on the Upper Mekong mainstream in Yunnan Province. Two of these projects have already been completed, and at least three more are under construction. While most of the power from these projects will be consumed in China, recent reports have indicated that Thailand is considering importing hydropower from China starting in 2017. The projects are being developed without any consultation with downstream countries (China is not a member of the MRC) and without any publicly-available studies on their potential downstream impacts. No environmental impact assessment has been made publicly available within China for any of the projects, and there has been no assessment of the cumulative impacts of these projects on the ecology and hydrology of the Mekong River. China's Upper Mekong dams are already having an impact on water levels and fisheries in Northern Thailand and Laos, where people are reporting a 50% decline in fish catch since the second project, Dachaoshan, was completed in 2003. Once the bigger projects in the cascade are operational, far-reaching downstream impacts are expected as the natural flow regime is changed, the transport of sediment blocked, and the quality of water affected.<sup>3</sup>

Laos, which contributes about a third of the Mekong's flow, is undergoing a dam-building boom. In its bid to become "the battery of Southeast Asia", the government has signed deals with foreign investors to build more than thirty dams on Mekong tributaries, and is even considering two projects on the mainstream. Power from these projects would be sold to neighboring Thailand, Cambodia and Vietnam. Laos already sells power to Thailand from three hydropower projects, will start selling power from Nam Theun 2 in 2009, and has signed a memorandum of understanding to sell at least 5000 MW of power to Thailand by 2015. While not all of the proposed projects for Laos will move forward, those that do will have serious impacts on the health of the river ecosystem and the livelihoods of hundreds of thousands of Laotians who depend on rivers for fish, agriculture, water supply, transportation and other aspects of their

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<sup>3</sup> For further information on this see Milton Osbourne, *River at Risk: the Mekong and the Water Politics of Southeast Asia*, Lowy Institute, Sydney, 2004, available at [www.lowyinstitute.org/Publication.asp?pid=160](http://www.lowyinstitute.org/Publication.asp?pid=160)

lives.

Vietnam also has plans to build up to 48 new dams by 2025, many of which are already under construction. Dam cascades are being built on two major Mekong tributaries, the Se San and Srepok Rivers, the impacts of which are being experienced by ethnic minorities living in Vietnam and by Cambodian villagers living downstream. Vietnam has paid no compensation to the tens of thousands of Cambodians living downstream who have been affected by the Yali Falls Dam and four other projects on the Se San River. Approximately 55,000 people have suffered from daily erratic water fluctuations, widespread flooding, illness due to poor water quality, loss of riverbank gardens, and diminished fish stocks. Dam-induced flooding has killed at least 39 people. Whilst the downstream impacts were acknowledged by the Vietnamese Government in 2000, there has been little progress in addressing downstream impacts. After years of protests from affected villagers, this year the Vietnamese government agreed to participate in consultations with affected villagers over the impacts of planned dams on the Se San and Srepok Rivers, yet it is unclear what impact these consultations will have on project plans or on villagers' requests for compensation.

Cambodia is about to commit to an extensive domestic hydropower development program, financed with the support of the Chinese government and facilitated through the technical expertise of Chinese construction companies. To date, deals have been reached on two major hydroelectric projects and numerous others are being studied. In justifying its hydropower program, the Cambodian government claims it is trying to balance the need for environmental and social protections against the need for electricity to support its economic development. Civil society groups in Cambodia, however, have expressed concern over the loss of Cambodia's natural heritage and questioned the approval process, which has been conducted behind closed doors without the participation of local communities and other concerned stakeholders.

Burma has a massive but largely unexploited hydropower potential that its neighbors Thailand, China and India are keen to develop for power export. Burma has twelve projects under construction and plans to build up to 15 more in the near future. While not in the Mekong Basin, these projects, on the Salween, Irrawaddy, and other major river systems in Burma will have a profound impact on the thousands of people who will be forcibly displaced by the military regime, often at gunpoint, or forced to work on the construction sites. These projects will also threaten areas of high conservation value, including one of the last major undammed rivers in mainland Southeast Asia, the Salween River.

#### **IV. NEW ACTORS AND THE NEED FOR INTERNATIONAL STANDARDS**

Changes to the regional financial investment environment mean that the ADB and World Bank – traditional actors in supporting energy development in the region – are becoming increasingly marginalized. Instead, energy and construction companies from Vietnam, China, Thailand, Japan and Malaysia are developing, funding and building large dams. Armed with the support of private banks from their own countries (now flush with cash following Asia's economic revival) and the promise of government guarantees through their export-import banks, these dam-builders are fast displacing the western corporations and multilateral banks that previously dominated the region's hydro scene.

Most of these new actors are yet to adopt international social and environmental standards in their operations, leading to poor planning processes and project outcomes. Given the growth in regional investment, and the rising prominence of regional companies and financial institutions, these new actors should join the international community by agreeing to and adopting

international standards in their operations in order to ensure positive development outcomes. Such standards include the OECD Common Approaches for Export Credit Agencies, the Equator Principles for private banks, and corporate responsibility frameworks such as the International Hydropower Association's Sustainability Guidelines. Financial institutions and companies that have adopted these standards internationally have done so to reduce project risks and improve outcomes.

Thai and Chinese companies and financial institutions are becoming particularly prominent in developing hydropower projects in the region. As Thailand's economy and demand for power has grown, so has the eagerness of its state-owned utility, the Electricity Generating Authority of Thailand (EGAT), to import electricity from proposed hydropower schemes in neighboring countries – namely Laos, China's Yunnan Province and Burma. Thai power companies are important investors in many of these regional projects, typically backed by Thai commercial banks and Thailand's export credit agency, the Thai Exim Bank.

While the Thai Exim Bank is an increasingly keen supporter of large infrastructure projects in the region, it does not have an environmental policy and its activities are generally unaccountable to civil society. Thai Exim Bank has not yet adopted the Common Approaches on Environment and Officially Supported Export Credits, agreed upon by OECD countries, which outlines environmental and social standards governing projects supported by export credit guarantees or loans of greater than US\$15.3 million.<sup>4</sup> Furthermore, buoyed by the release of Thailand's new power development plan in June 2007, Thai commercial banks are also willing financiers of major energy projects, but none have yet signed up to the Equator Principles, a set of voluntary environmental and social standards that have been adopted by 51 private banks around the world.<sup>5</sup>

In addition to the Thai Exim Bank, the China Export Import Bank, China's official export credit agency, is also becoming an important player in the Mekong region, as are a number of China's major State Owned Enterprises, often with the Bank's financial backing. China Exim is closely aligned with the strategic overseas interests of China's government, on whose behalf it may offer concessional loans and export credits, especially in implementing China's "Going Out" policy. For example, in Laos, the majority of funds for the US\$135 million Xeset 2 dam project now under construction was provided by China Exim in the form of export credits to Electricité du Laos, the project's operator. And in Cambodia and Burma, several Chinese companies are involved in developing highly controversial projects, including projects on the Salween River.

China Exim's environment policy, prepared in November 2004 but only publicly released in May 2007, contains only basic provisions, and the institution has not adopted the OECD Common Approaches.<sup>6</sup> Overall, the Bank's operations remain unaccountable to the general public – a policy increasingly questioned because of its support for numerous controversial projects worldwide, such as the Merowe Dam on the Nile in Northern Sudan.

The growth of these new actors in the hydropower sector in the Mekong region presents a challenge for civil society groups working to ensure the sustainable and equitable development of the Mekong region. Whereas the development banks must at least pay lip service to their safeguard policies, the new commercial banks and export credit agencies that are now involved in financing hydropower projects are not bound to such standards and are also not obliged to

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<sup>4</sup> See <http://tinyurl.com/2umuxm>

<sup>5</sup> See <http://www.equator-principles.com/>.

<sup>6</sup> See <http://tinyurl.com/2e8a44> for a copy of the policy.

develop projects through processes open to public scrutiny. It is hoped that these actors will realize that it is in their best interests to adopt international environmental and social standards, as so many other private banks and export credit agencies have done in the past. In the meantime, development banks and governments could adopt better planning processes upfront, such as comprehensive options assessment, that would result in better decisions being made on the best options for meeting the region's energy needs.

## **V. LAOS AND THE NAM THEUN 2 HYDROPOWER PROJECT**

Nam Theun 2 (NT2) is the largest hydropower project under construction in Laos and has been marketed as a model dam project and a panacea to Laos' development woes. As such, the project offers interesting lessons for hydropower development in the region more generally. The \$1.45 billion project is being developed by the Nam Theun 2 Power Company Limited (NTPC), which includes Electricité de France, the Electricity Generating Company of Thailand, Ital-Thai Development and the Lao government. More than 90 percent of Nam Theun 2's 1070 MW of electricity will be sold to neighboring Thailand.

Nam Theun 2's development was contingent upon World Bank support, as private banks looked to the World Bank's guarantees to underwrite their investment for such a massive project in risky Laos. In 2005, after several years of deliberations, the World Bank and the ADB approved loans and guarantees for NT2. With the World Bank and the ADB's endorsement, other lenders - such as the European Investment Bank (EIB), the Nordic Investment Bank, the Swedish, Norwegian, French and Thai export credit agencies, Agence Française de Développement, and a number of private banks - committed to finance the project. Construction had already commenced a year earlier, in 2004, and is expected to be concluded in 2009.

At the time of project approval, the World Bank and ADB claimed that the project would generate revenue that the cash-strapped Lao government could use for poverty alleviation, that its implementation would help build the capacity of the Lao government to manage hydropower projects, and that the risks of the project could be successfully managed. The banks also claimed that NT2 had been extensively studied, that it had achieved public acceptance in Laos through an extensive consultation and participation process, and that revenue from the power company to protect the watershed area (the Nakai-Nam Theun National Protected Area) would help conserve one of mainland Southeast Asia's most significant intact tropical forests.

On the other hand, civil society groups including International Rivers Network, Environmental Defense, Mekong Watch, TERRA and Probe International launched a concerted campaign against World Bank support for the project, fearing that the project's risks would outweigh its benefits and that the Lao government did not have the political will or capacity to manage a project as large and complex as Nam Theun 2.

### **About Nam Theun 2**

Nam Theun 2 is a trans-basin diversion which will dramatically alter not one, but two river basins. A 39-meter high dam will block the Nam Theun River to form a 450 square kilometer reservoir. On the Nakai Plateau, 6,200 indigenous people are being forcibly displaced to make way for the project's reservoir. In addition, habitat for the endangered Asian elephant and other critically endangered wildlife will be flooded. The Theun River provides habitat to more than 80 species of fish, including at least 16 endemic species, which will be affected by the transformation from a free-flowing river to a reservoir.

Once the reservoir has been filled, water will be directed down a 350-meter drop to the power station, before being transferred to the Xe Bang Fai. Both the Nam Theun and the Xe Bang Fai are tributaries of the Mekong River. Around 120,000 people living along the Xe Bang Fai River will be affected by increased water flows, resulting in major fisheries and aquatic resources losses, erosion, flooding and sedimentation. In addition, 2,000 households or around 10,000 people are affected by NT2 construction activities, losing land, assets, and access to natural resources.

The Nam Theun 2 Power Company committed to giving \$30 million over the project's 25-year concession to protect the watershed area, the Nakai-Nam Theun National Protected Area. This was hailed by the World Bank and other project promoters as the best opportunity for ensuring the protection of this globally significant conservation area. However, as will be described below, protection of the National Protected Area is already faltering due to illegal logging and mining.

### **Flaws in the Nam Theun 2 Planning Process**

While project promoters claim that the planning process for Nam Theun 2 was a model for future hydropower development and could be used to strengthen the government's capacity to manage hydropower projects in the future, the reality is very different. An analysis by International Rivers Network and Environmental Defense in 2005 found that the project's planning process violated six of the seven strategic priorities of the World Commission on Dams, including priorities on gaining public acceptance, comprehensive options assessment, and sustaining rivers and livelihoods.<sup>7</sup>

#### *a. No true participation*

The World Bank and other project promoters claimed that the project had achieved public acceptability in Laos through consultation processes that occurred throughout the project development period. However, the political climate in Laos does not allow for genuine participatory processes. Access to independent sources of information is restricted, there is no independent media and there are no independent local NGOs. The government continues to commit serious human rights abuses, and critics have been arrested and imprisoned. The legal system is at a rudimentary stage of development and there is no independent judiciary, making it impossible for affected communities to bring legal actions to protect their rights. In such a political environment, it is difficult to see how a truly open and participatory decision-making process could take place.

The participation processes that did take place were severely flawed. While Nakai Plateau villagers were consulted on numerous occasions over the years, the decision to build the dam was made and logging on the Plateau commenced well before those affected were involved in any participation processes. Most of the discussions with villagers occurred in the context of improving resettlement outcomes, rather than debating whether or not the project is appropriate or desirable. Affected communities never had access to independent legal or other professional support.<sup>8</sup>

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<sup>7</sup> International Rivers Network and Environmental Defense, *An Analysis of Nam Theun 2 Compliance with World Commission on Dams Strategic Priorities*, by Shannon Lawrence and Aviva Imhof, February 2005, available at <http://www.irn.org/programs/mekong/namtheun.php?id=NT2WCDAnalysis2005.html>

<sup>8</sup> *Ibid*, p.4,

Discussions with villagers living along the Xe Bang Fai were only initiated in mid-2004 and many people were not consulted prior to project approval.<sup>9</sup> Most of the 1,500 families living downstream along the Nam Theun River who will be affected by decreased fisheries as a result of reduced flows were not consulted prior to project approval. And consultations with villagers whose lands and assets were to be acquired permanently or temporarily for project construction were only initiated at the end of 2004 and were not completed prior to project approval.<sup>10</sup> As a result, the compensation process for downstream villagers and those who have lost their land to construction activities has been highly flawed in its implementation.

*b. Lack of a comprehensive options assessment*

The World Bank had been promoting the dam as an income generator for Laos since 1986. Yet no participatory, comprehensive assessment of alternatives to hydropower as a means for generating foreign exchange has ever been completed for Laos. The claims that Nam Theun 2 is the best means of protecting the watershed area, of providing sustainable livelihood options for Nakai Plateau villagers, or even of generating foreign exchange for Laos, are not based on a comprehensive and participatory analysis of alternatives.

There is no evidence that Nam Theun 2 is the best option for meeting Thailand's needs for energy either. A study commissioned by the World Bank but never publicly disclosed shows that feasible demand side management, energy conservation measures, and renewable energy generation in Thailand would "exceed the output of NT2 and would provide energy to the customer at a cost approximately 25% less than NT2."<sup>11</sup> Yet this study apparently did not play into the decision-making process at the World Bank.

*c. Poor quality studies*

Project proponents have made much of the fact that there were scores of studies conducted over the decade-long project development period, resulting in Nam Theun 2 being one of the most studied dam projects ever developed. However, technical reviews of project documents conducted prior to project approval found serious gaps and flaws in baseline data and analysis.<sup>12</sup> Many of these documents were required as part of the due diligence process of the World Bank and ADB prior to project approval, yet the Banks proceeded to approve the project despite these significant flaws. As predicted by IRN and other NGOs prior to project approval, during the project development period many livelihood programs have proven unworkable, and the plans are being redrafted midstream (see below for more information). Some of the major flaws in the studies included:

- The project's hydrological data and analysis was so deficient that it was impossible to predict how much water is available for power generation.
- The data used to characterize the baseline water quality in the project area was wholly inadequate, and as result, accurate predictions of the water quantity and quality changes that will occur in the reservoir and downstream rivers were not possible.
- The official prediction of impacts on fisheries for the downstream rivers was based on only three field surveys, all conducted during the dry season. As a result, the Environmental

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<sup>9</sup> *Nam Theun 2 Social Development Plan*, November 2004, Vol 1, Ch. 4, p. 26.

<sup>10</sup> *Nam Theun 2 Environmental Assessment and Management Plan, Addendum, Riparian Release Study*, January 2005, Vol 4, Ch. 6, pp. 2-3.

<sup>11</sup> "Nam Theun 2 Hydropower Project: Impact of Energy Conservation, DSM and Renewable Energy Generation on EGAT's Power Development Plan," August 28, 2004.

<sup>12</sup> International Rivers Network and Environmental Defense commissioned 10 technical reviews of project documents in late 2004. The reviews are available at <http://tinyurl.com/2pep53>



Assessment and Management Plan (EAMP) likely underestimated the number of fish species present in the Xe Bang Fai, and contained no study of fish migrations in either the Nam Theun or Xe Bang Fai river basins.

On the Nakai Plateau, developers promised to triple resettlers' incomes within seven years. To achieve this, they promised new irrigated farmland and fruit trees, new livestock and community forestry operations, and a reservoir fishery capable of supporting over 1,000 fishermen. Prior to project approval, NGOs warned that the agricultural plans for the Nakai Plateau were inappropriate, and that the fisheries and community forestry components were unrealistic. Unfortunately, as will be discussed in the next section, these warnings have come true.

### **Problems with Project Implementation**

International Rivers Network has been conducting regular visits to the project area to meet with affected communities, project officials, World Bank and Asian Development Bank staff and other actors. Through field interviews, careful review of project documents, and information from project insiders, IRN has found that Nam Theun 2 is another two-speed large infrastructure project, where construction proceeds apace while social and environmental programs lag dangerously behind.<sup>13</sup> Livelihood restoration programs for resettled villagers on the Nakai Plateau, downstream villagers along the Xe Bang Fai, and villages affected by downstream channel construction are all at risk. NT2-affected villagers have been increasingly open in expressing their frustration and concern about the future.

#### *Illegal logging and mining in the Protected Area*

One of the selling points of the Nam Theun 2 project was that NTPC would provide US\$30 million to protect the watershed and the biologically diverse Nakai-Nam Theun Protected Area. However, the World Bank, the Asian Development Bank and the Nam Theun 2 Panel of Experts (official project monitors) have all acknowledged that illegal logging and mining are threatening the watershed area.

In its February 2007 report, the Panel of Experts (POE) reports that the National Protected Area is "bleeding rosewood".<sup>14</sup> According to the Panel, the NANCY Company tasked with clearing valuable timber from the reservoir area before it is flooded is allegedly "laundering" illegal rosewood from the protected area. The POE also describes a significant mining operation that is threatening the integrity of the area.<sup>15</sup>

The fact that there are already serious threats to the watershed area even before NT2 construction has been completed does not bode well for the future conservation of the area. The Nam Theun 2 reservoir will actually increase access to the National Protected Area, making illegal logging and poaching even more difficult to control in the coming years.

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<sup>13</sup> IRN's latest "Nam Theun 2 Trip Report and Project Update", released in May 2007, is available at [http://www.irn.org/pdf/namtheun/NT2TripReport2007\\_full.pdf](http://www.irn.org/pdf/namtheun/NT2TripReport2007_full.pdf).

<sup>14</sup> p.27. The report is available at <http://tinyurl.com/2ee2xa>

<sup>15</sup> Ibid.

### *Poor environmental management during construction.*

The Nam Theun 2 project was supposed to demonstrate best practice in terms of environmental management. However, the construction companies involved (which include NTPC shareholders Electricité de France as the Head Construction Contractor and Ital-Thai Development as the principal civil works contractor) have repeatedly been cited for environmental violations, including road-building negligence leading to excessive deforestation, failure to control dust, erosion and sedimentation leading to water quality problems and respiratory difficulties for villagers.<sup>16</sup>

The most recent report of the Lenders' Engineer, an official monitoring body, states: "As noted in our previous report, for a project which is intended to set a benchmark of world's best practice against which future projects can be assessed, the environmental performance still falls significantly short of this benchmark in many areas and in some aspects still barely meets 'business as usual' levels."<sup>17</sup>

### *Awaiting Downstream Disaster?*

The Xe Bang Fai River will receive large amounts of additional water from the Nakai Plateau reservoir after it passes through the power station and the downstream channel. According to independent research, more than 120,000 people<sup>18</sup> in the Xe Bang Fai area will be negatively impacted by the Nam Theun 2 project. NTPC says<sup>19</sup> it is planning for the worst-case scenario along the Xe Bang Fai, which means 85% fish losses, increased high frequency floods in the Xe Bang Fai and its tributaries, erosion of riverbanks and loss of riverbank gardens, major water quality problems, and transportation difficulties for downstream villages.

NTPC has initiated a Downstream Livelihoods Restoration Program which is currently being piloted in less than 10% of the affected villages with only two years left until NT2 operations begin. Villagers are already complaining about some aspects of the program, including the reliance on a savings and credit scheme that could plunge them into a cycle of debt. The time remaining before NT2 operation seems to be extremely short to learn from the pilot projects, fix problems or introduce new approaches, and replicate initiatives in more than 200 villages. In addition, NTPC's \$16 million Downstream Program budget is inadequate to compensate more than 120,000 villagers for a lifetime loss of the fisheries they depend on, let alone to provide livelihood alternatives and flood and erosion protection. Using NTPC's figure of 75,000 affected people, that leaves only \$200 per person for compensation and mitigation.

### *Resettlement Setbacks*

In May 2008, the NT2 dam is supposed to be closed so that reservoir filling can begin, and all villagers must be established in their new resettlement sites by then. The resettlement program has been fraught with delays, missing its original deadline to have all villages resettled by the

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<sup>16</sup> This has been outlined in reports of the Lenders Engineer, who were hired by the project lenders to monitor and report on progress in meeting the project's construction, financial and social and environmental targets. The quarterly reports are not public but IRN has obtained copies of them.

<sup>17</sup> PB Power, Lenders' Engineer Quarterly Site Visit Report #8, April 2007, Part C, p.9.

<sup>18</sup> These numbers are based on a survey conducted by independent experts (Shoemaker, Baird and Baird, *The People and their River*, 2001). NTPC asserts that only 75,000 people in 221 downstream villages will be affected by NT2.

<sup>19</sup> Pers. Communication, Olivier Salignat, Nam Theun 2 Power Company, March 8, 2007.

2006-2007 dry season. As a result of these delays, NTPC began moving people to temporary houses in their new villages in April 2006 under what has been called “transitional resettlement.”<sup>20</sup> Many of the 550 families that have been moved will spend their second wet season in temporary houses due to problems with timber supply and permanent housing construction.

The Panel of Experts notes that “lower priority continues to be given to livelihood development to the extent that it is unlikely that the Household Income Target will be reached by the beginning of year 5 of the Resettlement Period, as required by the Concession Agreement.”<sup>21</sup> The Panel of Experts also warns that “for a range of reasons, the forestry and agricultural livelihood programs are unlikely to meet their originally planned targets before impoundment.”<sup>22</sup>

Due to the poor quality of soil on the Plateau, NTPC has had to abandon the agriculture plans for resettlers that were outlined in the 2005 NT2 Social Development Plan and a new approach is still being defined. Buffaloes, a critical “living bank” for villagers, will need to be sold due to the shortage of grazing land and fodder. According to the Panel of Experts, the Nakai Plateau cattle and buffalo population will need to be reduced from approximately 5,000 to 2,000,<sup>23</sup> but NTPC has not disclosed any strategies for buffalo reduction.

The Village Forestry Association (VFA), one of NTPC’s primary livelihood options for resettled villagers, is also under threat. The VFA is now being run by a former Ministry of Agriculture and Forestry official and several VFA positions have reportedly been given to district representatives. This appears to have resulted in the government agencies taking responsibility for harvesting the timber. Revenues from timber harvesting on resettlement lands have reportedly not reached the VFA accounts. While the short-term success of the VFA is being undermined, its long-term potential has also been eroded. Illegal logging in the community forest area has reportedly removed all the big, valuable trees that were supposed to provide each resettled family with dividends.

In addition, neither the company nor the Lao government has committed to clear biomass from the reservoir area before it is flooded, despite promises made in the Environmental Assessment and Management Plan. Leaving the biomass in place will lead to lower dissolved oxygen levels in the reservoir, causing fish kills in the reservoir and downstream and leaving the reservoir’s water unsuitable for irrigation or for household use.

## **Nam Theun 2 Lessons Learned**

The fact that Nam Theun 2’s social and environmental programs are already running into major difficulties raises concerns about the commitment of the project developers and the Lao government to deliver on earlier promises, as well as the feasibility of the promises made to justify the project in the first place. If the World Bank, ADB and other project lenders are unable to ensure compliance with key social and environmental obligations while the project is still under construction, it is difficult to see what leverage they will have to ensure that commitments are met once the project has been completed and electricity is being generated. At that stage,

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<sup>20</sup> For more details regarding the transitional resettlement process, see the IRN NT2 Trip Report September 2006, available at: <http://www.irn.org/programs/mekong/namtheun.html>.

<sup>21</sup> McDowell et al, p. 11.

<sup>22</sup> Ibid., p. 9.

<sup>23</sup> Ibid., p. 11.

the Lao government and NTPC will have even fewer incentives to meet their obligations to affected communities and the environment.

Furthermore, the World Bank's promises that Nam Theun 2 would provide a model for more sustainable hydropower development in Laos are also ringing hollow. The government's National Policy on the Environmental and Social Sustainability of the Hydropower Sector in Lao PDR<sup>24</sup>, enacted at the time of NT2 project approval, is still not being implemented. Even a basic provision of the policy, that environmental impact assessments for hydropower projects should be disclosed, is not being followed. In response to repeated IRN requests for EIAs of several projects currently under development, the Lao government's Science Technology and Environmental Agency has said that the documents are confidential.

The problems inherent in the planning and implementation of Nam Theun 2 point to broader problems with the process for deciding upon and implementing hydropower projects in the Mekong region. Firstly, the preponderance of non-democratic regimes in the region make it difficult for meaningful participatory processes to be undertaken, due to the lack of true freedoms of speech and assembly in countries like Laos, Vietnam and Burma. Because of the political situation, it is difficult for affected communities to access independent information about the risks of particular projects, or to organize against projects if they feel they will not benefit from them. These countries also have rudimentary legal systems and few laws granting basic rights to citizens. This lack of rule of law makes it impossible for affected communities to seek redress when their rights are trampled on, or to challenge decisions taken by the government on whether or not to proceed with a particular project. They also make it difficult to ensure that project agreements and commitments to affected communities and the environment are upheld. This leaves affected communities vulnerable to exploitation, allows the government and the private developers to avoid paying the true costs of their developments, and leads to poor project outcomes for both communities and the environment.

Second, even though Nam Theun 2 was perhaps the most studied project under development in the region, the Environmental Assessment and Management Plan contained serious gaps in baseline data and inadequate analysis. The Social Development Plan included livelihood development schemes that are now proving unrealistic and unworkable. Other studies, such as hydrology and water quality, were based on insufficient data to back up their conclusions. This illustrates a more fundamental problem inherent in hydropower planning around the world: it is up to the project developers to commission and endorse the environmental impact assessment and other studies. EIAs are done by consultancy companies who often have vested interests in presenting all environmental impacts as "manageable" and seeing that the hydropower project gets built. They know that they will not get another contract if they do not speak positively of the proposed investment.

Finally, Nam Theun 2 points to the limited leverage that international institutions such as the World Bank and Asian Development Bank have once a project is under construction. Short of withdrawing financial assistance from the country, which they are notoriously reluctant to do, the Banks have difficulties ensuring compliance once funds are disbursed and construction has begun. The combination of these factors makes large hydropower projects an extremely risky operation for both affected communities and the environment in the Mekong region.

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<sup>24</sup> Available at <http://www.poweringprogress.org/updates/news/press/2005/National%20Policy.pdf>.

## **VI. MOVING DECISION-MAKING UPSTREAM**

All of the problems outlined above point to a need to move decision-making upstream. Large infrastructure projects such as dams centralize investment and control in the hands of powerful state owned utilities, large private power companies, and government agencies which are generally unaccountable. The very significant social and environmental impacts of hydropower projects mean that it is difficult to implement a sustainable project without a high level of accountability and transparency. Furthermore, a well-developed legal system through which affected communities' rights' can be defended, and conservation and environmental laws can be upheld, is essential.

The fact that so many hydropower projects are under development in the region without there ever having been a comprehensive assessment of all the different options for meeting the region's energy needs points to a serious failure on the part of the ADB, World Bank, Mekong River Commission and other regional bodies that have consistently promoted hydropower in the region. Uncoordinated hydropower development at this stage without due attention paid to the cumulative and regional impacts of these developments will threaten the integrity of the Mekong river ecosystem and the livelihoods of millions of people who depend on the Mekong River for fish, water supply, agriculture and transportation.

In order to ensure that developments take place that are economically, environmentally and socially sustainable, the donor community must encourage governments to undertake a comprehensive options assessment process before a decision to move forward with any particular project is undertaken. Such a process should be undertaken for the region as a whole to determine the best options for meeting the region's energy needs, taking into account social and environmental factors as well as economic factors (that is, internalizing the social and environmental costs of all proposed options). In addition, in the case of Laos, where hydropower developments are being promoted for national development and foreign exchange generation, a comprehensive options assessment process would be useful for deciding the best options for meeting the country's development needs while protecting the rights of its citizens and the country's bountiful natural resources.

The recommendations of the World Commission on Dams provide a framework for how such a comprehensive options assessment process would be undertaken. For the purposes of this paper, the following discussion will focus on what a comprehensive energy options assessment for the Greater Mekong Subregion could look like.

The first step would be to form a multi-stakeholder steering committee, composed of regional governments, donors and civil society, that would oversee and implement the regional energy needs and options assessment. The multi-stakeholder steering committee ensures transparency and inclusiveness that lends legitimacy and buy-in to the process by all participating stakeholders. Once formed, the initial task of the multi-stakeholder steering committee would be to develop the terms of reference and define an agreed-upon methodology for a participatory regional energy needs and options assessment process.

The next step would be to undertake a critical and comprehensive analysis of demand projections, in particular for Thailand and Vietnam - the two major energy consumers in the region. The demand projections would be discussed in an open public forum with opportunity for public comment and input. After coming up with a realistic demand growth scenario for the region, the next step would be to look at all available options for meeting the region's energy needs. As is increasingly the norm in other parts of the world, increasing the efficiency of energy

## Alternative Energy Options for Thailand

A number of studies by the Thai government, the World Bank, and Thai utilities have established that Thailand has significant potential for a variety of clean, cost-effective, decentralized power options. Using the comparatively conservative figures in these studies, and by adjusting the demand projection to a more realistic level, Thailand could readily meet its future growth in energy demand through a mixture of energy efficiency/demand response, much greater reliance on renewable energy, and decentralized Combined Heat and Power (CHP) generation. Estimates by the Thailand Ministry of Energy from 2003 show that Thailand's feasible potential for generating energy from biomass is 5000 MW, from solar PV more than 5000 MW, wind 1600 MW and micro and mini-hydro at 700 MW.

None of these options are radical. Distributed generation accounted for more than a quarter of electricity generated by new power plants globally in 2005, and is the fastest growing trend in electricity. Distributed plants are generally *faster to build* than megaprojects. And decentralized alternatives typically produce power where and when needed, reducing the burden on the grid.

An ever-strengthening movement of civil society organizations and community groups are calling for reform of Thailand's power planning process. They are advocating for an integrated resource planning (IRP) process, as applied in the USA and Europe. In IRP, demand-side management and clean decentralized energy competes on an equal footing with conventional centralized energy plants. Electricity infrastructure investments are chosen based on the criteria that they provide reliable electricity services at the lowest overall economic *cost to society* (including social and environmental costs as well as risk), rather than the lowest commercial cost to investors. Major decisions are made through a process that includes informed, rigorous and meaningful public participation. A competent, fair, and independent energy regulator would oversee the process.

Source: Chris Greacen, *Decentralizing Thai Power: Towards a Sustainable Energy System*, Greenpeace Southeast Asia, Bangkok, 2006. Available at <http://tinyurl.com/38y5u3>

use and production should be investigated as well as looking at new supply options. Analysis would also be conducted to identify where decentralized renewable energy options would be more practical and economic for meeting local needs than a major investment in expanding the grid. Since the power grid has not been fully developed in Vietnam, Laos, Burma and Cambodia, there is huge unexploited potential for decentralized energy in these countries. There is also significant potential for on-grid renewable energy technologies in all the GMS countries.

These potential options would then be weighed-up, taking into account social, environmental and economic factors, and ranked on the basis of a multi-criteria analysis. Strategic impact assessment would be a useful tool at this stage of the process. Those alternatives that have unacceptable social and environmental impacts would be screened out at this stage. In addition, as part of the analysis process, a cumulative impact assessment of various planned development scenarios would be undertaken in order to ascertain the impacts of a series of projects planned for the region. The result of this analysis would be made available in local languages in the region, and stakeholder forums convened to decide which options should proceed to the full investigation stage. Public hearings would be organized to provide input into

the multi-stakeholder forums. Another series of stakeholder forums would be organized following the full investigation stage to select the final energy strategy.

If done in accordance with WCD principles, such an options assessment process would identify the best energy options for the region and decrease the potential for future conflicts over energy development. A Comprehensive Energy Options Assessment process for the GMS should be undertaken before further investments are made in a regional power grid and numerous hydropower projects that may not be the most efficient and sustainable method of meeting the region's energy needs.

## **VII. CONCLUSION**

The next decade is critical for the health of the Mekong River Basin and its 65 million inhabitants. If proper planning processes are put in place now, the Mekong region could be developed while protecting its greatest asset: the river. Large dams have a poor history of development in the Mekong Basin. Even the model project for the region, Nam Theun 2, is running into serious problems halfway through its construction. Given the difficulties in mitigating the impacts of large dams and ensuring that affected communities are beneficiaries rather than victims, it is essential that a new planning process be undertaken: one that would objectively analyze the social, environmental and economic impacts of planned developments and come up with the best options for meeting the region's energy needs while protecting its ecosystems and the rights of its citizens.

A comprehensive options assessment process would likely prioritize options that decentralize investment and control to the local level, rather than centralizing control at the government level. In the energy sector this would mean prioritizing demand side management and energy efficiency measures and decentralized and combined heat and power generation options for Thailand and Vietnam (the two major consumers of power in the region). In the case of developments for Laos, it would mean smaller-scale community-based development options rather than large centralized revenue-generation options such as hydropower.

While the potential for sustainable and equitable development of the region is possible, what remains to be seen is whether governments and multilateral development banks have the courage to promote a new way forward: a way that combines effective protection of the river basin with prosperity for the river basin's 65 million inhabitants.