

8th IAG REPORT

THE WORLD BANK APPROACHES TO SOCIAL, ENVIRONMENTAL, GOVERNANCE AND FINANCIAL ISSUES IN THE NAM THEUN 2 HYDROPOWER PROJECT

Lao PDR

April 2008

SUSTAINABILITY OF LIVELIHOOD



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EXECUTIVE SUMMARY

1. Introduction

The International Advisory Group for the Nam Theun 2 Hydropower Project (IAG-NT2) visited Lao PDR from February 2 to 16, 2008 for its 8th Implementation Review Mission. The detailed schedule of activities and the list of stakeholders whom the IAG met are found in Annex 1 and Annex 2, respectively.

The Mission came at a critical time for the development of the project. Sealing of the diversion tunnel was scheduled for mid-April with full impoundment to begin in June 2008¹. While attention was focused on meeting the requirements for impoundment and the physical resettlement of villagers was proceeding well, the plans to ensure sustainable livelihoods both on the Plateau and in the Downstream Areas were proving to be more problematic. The 8th IAG Mission Report focuses on these longer-term issues facing the project: sustainable livelihoods and their effect on poverty eradication.

2. Observations and Findings

The key observations are presented on a geographical basis (the Nakai Plateau, the Project Lands and the Downstream Areas, which include the Xe Bang Fai River and the downstream portion of the Nam Theun River) followed by thematic sections.

2.1. Nakai Plateau

- The remaining biomass before impoundment or the so-called residual vegetation below the Minimum Operating Level (MOL) may seriously and negatively affect the water quality and fishlife.
- Poor quality plateau soils undermine effective crop raising; some programs are attempting to address this deficiency, with varying levels of success.
- The significant loss of grazing areas requires a large reduction in the number of cattle and a longer-term reassessment of the role of animals in the economy of the plateau.
- The future of fishing on the plateau and downstream will be greatly affected by the closure of the dam. While the reservoir may experience a boom in

¹ As this report is being published, the requirements for proceeding with impoundment have been met and the diversion tunnel has been sealed.

fishing, many communities downstream will lose traditional river fisheries and will need alternative sources of protein. Reservoir fishing will bring with it significant issues of fisheries management and protection of the rights of resettlers.

- Resettled villagers generally recognize the benefits of housing and services accorded them in their new sites and express appreciation for the facilities. This is tempered by insecurity over adopting a new livelihood system based on an agricultural technology and market economy unfamiliar to them and not readily under their control.
- The Nakai plateau has the potential to be a significant tourist way station and, with the watershed and reservoir, a destination in its own right. Planning should begin now for developing sustainable tourism.

2.2. Project Lands

- Compensation issues remain contentious as a result mainly of communication problems early in the project.
- Although the local population want expanded irrigation systems for their paddy rice growing, there is cause for concern that local water-users may not be able to maintain the systems despite government support.
- Improvements in communication regarding compensation have come about through improved contacts at local levels and immediate resolution through village household consultations directly with project staff.

2.3. Downstream Areas

- Decisions on flood control and irrigation are critical to mitigate the negative impacts of the project downstream on the Xe Bang Fai.
- More attention needs to be paid to the voices and needs of women in developing the village economy.
- The Village Development Fund is a development vehicle and funds are released to the project affected households (PAHs) on the basis of certain criteria, usually a business plan. This facility does not replace the need to compensate individuals and communities affected negatively by the project.

2.4. Governance

- The Government of Lao PDR has taken some significant steps to strengthen agricultural education and extension services, which can provide support for sustainable development in NT2. The Prime Minister's decree on reservoir

management is a significant step forward for governance. Specifics need to be developed to ensure clear accountabilities of the different agencies involved.

- The World Bank has a big reputational investment in NT2. The IAG encourages the steps it is taking to take a wider and more collaborative role, through the Vientiane Country Office, in project implementation.
- The Nam Theun 2 Power Company, under its new CEO, has been making efforts to further strengthen its communications with the communities affected by the project.

2.5. Financial Management

- The proper allocation of the revenues flowing to the Government from the NT2 project to pro-poor projects depends on a major strengthening of the Government's budget decision-making and implementation systems. A comprehensive financial management improvement program is underway, but timing is tight and some major increases in capability are required to underpin it. An important early decision will be on eligible programs for application of the NT2 revenues.

3. Overview Issues

3.1. Monitoring

- **Water quality monitoring** is being carried out by NTPC in three strategic locations namely the reservoir, the Nam Theun River downstream of the Nakai reservoir, and along the Xe Bang Fai River. The Water Resources and Environment Authority (WREA) is also asserting its role in water quality monitoring and has agreed to enter into a contract with NTPC to monitor the quality and quantity of water in the project area. The water quality monitoring program needs to be assiduously followed-up along with the inclusion of other water quality parameters, if necessary, to provide timely information for predicting disasters such as fish kills and to assess the potential of the three strategic locations to support viable fish populations during project operation.
- **Socio-cultural and socio-economic monitoring** is partly addressed by the Living Standard Measurement Survey (LSMS). The results of the survey conducted in June 2007 have not yet been released. The information would have served as a useful tool to revisit the current parameters and household responses on income recording. Beyond income, achievements in living standards might well be measured by more qualitative criteria, like levels of

insecurity expressed by the former forest-cultivator Nakai households. How do they evaluate livelihood changes derived from their sudden immersion in an unfamiliar, settled-agriculture cash economy system that, however, also may be offering new benefits?

3.2. Communication with villagers

- **The grievance mechanism** would be more **effective** if built on existing or traditional conflict prevention and resolution mechanisms adapted to project realities. This also entails ensuring that community residents – men, women, and youth – participate actively in discussions on the resolution of grievances.

3.3. Lessons for the future

The Nam Theun 2 hydro project is an important signpost for the development of the future water resources of Lao PDR. It may also represent a critical turning point for the involvement of the IFIs and the international community in hydropower projects in developing countries. It can be either a beacon or a warning, depending on how the NT2 model evolves.

It is not too soon to be thinking systematically about what lessons can be learned from NT2 for these future projects. The IAG's 'recommended approach would emphasize the following elements:

- Thinking long: the time-horizon for understanding the environmental and human effects of a major project like NT2 are generational: a permanent monitoring system needs to run for at least 25 years from commissioning;
- Thinking broad: planning for water resource use needs to cover river basins, and extend beyond national boundaries; this applies as much to environment, economy and society as to hydrology; water resource planning also needs to take into account the emerging threats of climate change and its impact on precipitation and water management.
- Making sure that we understand as much as possible of the qualitative impacts on people of the often huge changes in their lived environment imposed by major dam projects, and how they can be mitigated; this will require a wider range of inquiry techniques than are currently in place, featuring levels of anxiety and insecurity as well as levels of satisfaction.
- Recognizing that planning for mitigation of the human and environmental aspects of hydro projects is much more complex and less predictable than the physical engineering of the dam and associated works: desired environmental and social outcomes need to be integrated into national energy strategies and translated into specific goals at the outset of project life cycles.

- Fully involving affected communities in project development through participatory planning from the outset and making sure that all stakeholders – villagers, government, local civil society groups, international development partners – are involved in assessing results and drawing lessons.

4. A Program of Action

In keeping with the focus of the 8th mission on medium- to long-term results, the IAG proposes a Program of Action for achieving project objectives. These are presented in Table 1. The issues and recommendations follow the geographical structure of this report and are addressed to the key implementing institutions, namely, the Nam Theun Power Company, the Government of Lao PDR, and the World Bank.

Some further guidelines in planning for the future are presented in Table 2.

Table 1. PROGRAM OF ACTION

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Plateau			
1. Water quality	a. Monitor water quality regularly in the three critical project areas: the reservoir, downstream of the Nam Theun River, and along the Xe Bang Fai River and tributaries. Establish an early warning system to minimize negative impacts of changing water quality on aquatic resources and livelihoods. Identify mitigation measures.	a. Establish close collaboration between WREA and NTPC to ensure a sustained water quality monitoring program in the Nakai reservoir, downstream of the Nam Theun and Xe Bang Fai Rivers until the confluence with the Mekong River. Clarify the respective responsibilities of the two entities. Initiate appropriate capacity building activities through local and international	a. Place the technical expertise in monitoring of the Bank's NT2 Team at the disposal of the NTPC and GOL to address ongoing problems as quickly as possible. b. Render assistance related to disclosure and regular reporting of the water quality, in collaboration with the GOL and featuring the participation of village and civil society organizations.

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Plateau			
	<p>b. Monitor the water quality of the reservoir and the downstream portion of the Nam Theun River before and after implementation of the fill and flush technique to determine its effectiveness and applicability to similar dam projects in the future.</p>	<p>training programs combined with on-the-ground efforts to learn-by- doing.</p> <p>b. Enable WREA to gain the expertise needed for interpreting, assessing and publishing water quality monitoring data, and establishing trends through time for predicting impact during project operation.</p> <p>c. WREA to prepare an assessment of training needs and a plan for capacity building over the next five years.</p>	
2. Sustainability of Livelihood	<p>a. Extend food aid and livelihood support to qualified plateau households on an open-ended basis for a few more years until acceptable levels of household sustenance have been regularly established through farming, fishing or other revenue generating activities;</p>	<p>a. Joint action with NTPC</p>	<p>Monitor the MAF's extension services, assessing their effectiveness in improving productivity and people's well-being while reaching linked constituencies like youth, women and older persons.</p>

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Plateau			
	<p>assess carefully the results of the LSMS which may trigger off new insights as to whether more drastic and creative approaches are required.</p> <p>b. Develop a capacity building program for men, women and youth in small-scale farm development that encompasses financial management, crop planning, marketing and distribution.</p> <p>c. Study how regional agricultural markets operate and create regional distribution centers compatible with the needs of new farm households.</p> <p>d. Explore possibilities for engaging villagers in contract farming, complete with skills and business training, exposing them to suitable models in neighboring countries</p>	<p>b. Same as above</p> <p>d. Same as above</p> <p>e. The Ministry of Agriculture and Forestry should be directly involved in enriching the soil with the participation of the farmers; draw on external financial support through the Swiss-funded Lao Extension for Agriculture Project (LEAP).</p>	

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Plateau			
3. Animals in the Plateau Economy	<p>a. Consider local meat processing, which would entail the construction of abattoirs in the Nakai plateau and the development of a local meat market.</p> <p>b. Purchase some of the excess cattle for meat to be supplied to villagers entitled to protein subsidies or as compensation for the loss of fish.</p> <p>c. Study the options for economic management of livestock and poultry on the plateau both for home consumption and for the market.</p>		
4. Reservoir Fishery Management	Joint action with GOL	Take the lead in developing the implementing rules and regulations, including specific provisions for policing the reservoir and authorizing a governance structure for the management of the fisheries program.	<p>a. Get actively involved in the preparation of the Reservoir Fisheries Development and Management Program.</p> <p>b. Bring in a participatory approach, as recommended in the Aide Memoire of the Joint IFI Review Mission of November 2007 so that villagers can have a stake in sustaining project</p>

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Plateau			successes.
5. Tourism Prospects		In line with the on-going study by the Ministry of Tourism and ADB to develop tourism in the region of the NT2 project, the application to have the watershed area declared a World Heritage Site needs to be pursued.	
Project Lands			
Compensation	Continue discussing with specific households their particular situations, in the process clarifying rights, opportunities and alternatives for achieving maximum satisfaction, based on mutually agreed and sustainable solutions		
Downstream Areas			
1. Water Quantity	Furnish information to and hold community discussions with all potentially affected communities regarding actions that will be taken to compensate for loss of fisheries and other negative impacts traceable to the construction		

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
Downstream Areas	and operation of the dam.		
	2. Compensation	Clarify the distinction between the provision of credit facilities in the community development program (which is a development opportunity) and the ways by which the NTPC will discharge its responsibility to compensate for damages and losses incurred by individuals, households and communities; discuss with the communities feasible approaches to the problem, and communicate agreements clearly to remove persisting uncertainties.	
Enhancing Women's Capacities and Participation	Joint action with GOL	Enable the Lao Women's Union (LWU) and the Lao Front for National Construction (LFNC) to formulate and implement programs at village levels that focus on women's	

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
		participation in local decision making processes and skills development.	
Financial Management		<p>a. Consider an element in eligible programs for small local poverty reduction projects developed through participatory planning at the village level.</p> <p>b. Ensure that additional expenditure on eligible programs is correctly targeted to poverty reduction.</p> <p>c. Include analysis and prioritization of eligible programs in the terms of reference for the forthcoming PER-IFA and link that to a mid-term review of the NESDP.</p> <p>d. Give priority in the Public Financial Management Strengthening Program (PFMSP) to the development of impact measures of the eligible programs.</p> <p>e. Ensure that adequate attention is paid to</p>	

ISSUES	RESPONSIBLE INSTITUTIONS		
	NTPC	GOL	World Bank
		strengthening Ministry systems for collection of output and impact measures as well as broader outcome measures.	

Table 2. PLANNING FOR THE FUTURE

Guidelines	Target Institutions: GOL, NTPC, WB, IFIs, LWU, LFNC, CSOs/NGOs
<ul style="list-style-type: none"> • Incorporate into monitoring schemes like the Living Standard Management Survey, qualitative assessments to complement quantitative measures; to allow greater understanding of affected persons' thinking. • Design a permanent monitoring system for economic, environmental and socio-cultural changes arising from NT-2, starting from 2010 and extending to at least 25 years after the end of the project; including a regular system of multi-stakeholder assessments, focusing on what worked, what didn't work, and why. • Integrate environmental and socio-cultural goals and other factors (the value of all services provided and foregone) at the outset of reservoir, river basin and country-wide planning for hydro developments; make provision for differential rates of implementation between environmental and socio-cultural changes over physical infrastructure components by starting the former at the outset of project planning; community participation and communication would be a starting point. • Enhance participatory processes in the affected villages, drawing in the support and skills of Lao mass organizations and civil society organizations both for planning and for lesson-drawing. • Integrate environment and socio-cultural factors in basin-wide and country-wide water resources planning, taking also into account the emerging threats of climate change and its impact on precipitation and water management, identified on an on-going basis and integrated into water resource planning and management. • Build capacities in river basin planning to optimize water management, water use, and benefits to the people while minimizing disruptions. 	

ACRONYMS

AFD	Agence Francaise de Development
CA	Concession Agreement
CIAT	International Center for Tropical Agriculture
COD	Commercial Operation Date
CSO	Civil Service Organization
DSIP	Downstream Implementation Program
EDF	Electricite de France
EMO	Environment Management Office
IFA	Integrated Fiduciary Assessment
IFIs	International Financial Institutions participating in NT2
LEAP	Lao Extension for Agriculture Project
LFNC	Lao Front for National Construction
LSMS	Living Standard Measurement Survey
LWU	Lao Women's Union
MAF	Ministry of Agriculture and Forestry
MOL	Minimum Operating Level
MPI	Ministry of Planning and Investment
NBCA	National Biodiversity Conservation Area
NESDP	National Economic and Social Development Plan
NGO	Non-Governmental Organization
NT2	Nam Theun 2 Hydropower Project
NTPC	Nam Theun 2 Power Company
PAH	Project Affected Households
PER	Public Expenditure Review
PFMSP	Public Financial Management Strengthening Program
POE	Panel of Experts
RMA	Revenue Management Arrangements
SAO	State Audit Office
STEA	Science, Technology and Environment Agency
UNDP	United Nations Development Program
VDC	Village Development Committee
VDF	Village Development Fund
WMPA	Watershed Management Protection Authority
WREA	Water Resources Environment Authority
WRMC	Water Reservoir Management Committee
XBF	Xe Bang Fai

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Figure 3. Heads of families in Ban Lao airing their views on compensation scheme in the Project Land

Figure 4. Drilling bore hole for domestic water supply

Figure 5. Consultation among women in Yangkham Village

Figure 6. Weavers in Keng Pe Village selling their products

8th IAG Mission Report

NAM THEUN 2 HYDROPOWER PROJECT

1. Introduction

The International Advisory Group for NT2 (IAG) visited Laos on its 8th Mission from February 2 to 16, 2008² (Annex 1). The Mission came at a critical time for the development of the project. Sealing of the diversion tunnel was scheduled for mid-April and full impoundment - closing the spillway gates and filling the reservoir to its full capacity - was scheduled to begin mid-June 2008³. At the time of our visit, there was a great deal of uncertainty that the required conditions for sealing the diversion tunnel and starting full impoundment could be met on time. Since then, the conditions have been met to the satisfaction of the Panel of Experts (POE) empowered to review these conditions, and impoundment is expected to proceed on schedule. While the immediate requirements for impoundment have now been met, and the physical resettlement of villagers is proceeding well, the plans to ensure sustainable livelihoods both on the Plateau and in the Downstream Areas are proving to be more complex. Our report focuses on these longer-term issues of sustainable livelihoods facing the project and the project's impact on poverty eradication.

During the visit, the IAG met a wide range of project stakeholders, including Ministers and officials of the Government of Laos (GOL), representatives of the Nam Theun Power Company (NTPC), international financial institutions (IFIs), other development agencies, and non-governmental organizations (NGOs). Several days were spent visiting the project site and talking to affected villagers. We are grateful to all those who gave us their time and provided the information that informs this report. A full list of those we met is attached as Annex 2.

2. Observations and Findings

2.1. Nakai Plateau

2.1.1. The biomass problem

Residual vegetation below the reservoir Minimum Operating Level may seriously and negatively affect water quality and fish life.

As our previous reports have indicated, the water in the reservoir will submerge a maximum area of 450 square kilometers, to an average depth of 8 meters. About

² Emil Salim was not able to participate in this mission.

³ As this report is being published, the requirements for proceeding with impoundment have been met and the diversion tunnel has been sealed.

half of this area is covered in grass, the rest in shrubbery and trees. This submerged biomass provides nutrients for phytoplankton that in turn furnish dissolved oxygen and natural food for the fish population. Since the organic material at the bottom of the reservoir will also use up oxygen as it decays, in some parts of the reservoir fish may die, especially in periods of upwelling when less oxygenated water from the deeper layer mixes with the water in the upper layer.

Similarly, significant water level fluctuations between the dry and wet seasons will affect water quality. The reservoir levels will fluctuate from a Minimum Operating Level (MOL) that will be permanently flooded to a maximum level, some 11 meters higher, during the wet season. Ideally, all vegetation in the area covered at the MOL should be cleared before impoundment, but virtually no one now believes this to be possible. NTPC is currently working with GOL on carrying out selective clearance of the permanently inundated areas. The priority is to clear areas around each of the new villages on the reservoir margin, creating channels that will give the villagers access to fishing in the reservoir itself. The company will clear more than this if there is time, but a good deal of vegetation will remain below MOL. The specific effects of this vegetation on water quality and fish life remain a major uncertainty of the project.

Some useful information emerged during the last rainy season, particularly in August 2007 when floodwaters filled an area of 200 km² equivalent to 40% of the maximum reservoir surface area of 450 km². As the World Bank's 2007 semi-annual report on the NT2 project pointed out, this partial filling provided an opportunity to obtain important information on reservoir hydraulics and ecology. During September, for example, fish died as a result of lack of oxygen in the downstream part of the reservoir. The exact extent of the fish kill is difficult to estimate: NTPC estimated it at a few tons. If the reservoir partly fills in a similar way in the next wet season, another fish kill is expected and can be tracked.

To reduce the effects of decaying vegetation on water quality, the company plans to flush as much dead and dying material as it can out of the reservoir and downstream of the Nakai dam into the Nam Theun river. This will be done by opening the dam gates during the rainy seasons of 2008 and 2009. Although it applied this "fill and flush" technique in August and October of 2007, no information was obtained on how much material was flushed downstream, nor what the effects of this technique were on improving water quality.

Overall, NTPC needs to monitor the effects of next wet season's fill and flush more closely, both in terms of its primary effect on water quality and its secondary effects on fish quality.

2.1.2. Poor soil quality for crop raising

Poor quality plateau soils undermine effective crop raising; some programs are attempting to address this deficiency, with varying levels of success.

The sustainable livelihood plan for the plateau introduces vegetable growing to villagers for home consumption and sale. Each household in the resettled villages has been allocated 0.66 hectares land for cropping. The company has sponsored the operation of demonstration farms by volunteer families with a lot of inputs such as efficient water supply and delivery system and fertilizers. But there has been little progress so far in extending cropping beyond these demonstration plots. The company is hiring contractors to help complete clearance for the household plots and expects to complete the work this April. The local Provincial and District authorities have undertaken to follow up on the clearing activities. Nevertheless, only a small number of the household plots are currently under any form of cultivation. In most resettlement villages, clearing and soil enrichment have not even started.

The company is also required to provide continuous irrigation to at least some part of each household plot, but irrigation systems are so far only in evidence on demonstration farms. Based on the World Bank's 2008 interim report on the NT2 project, NTPC is taking a cautious approach to irrigating these areas, given the costs entailed in deep-well pumping and surface distribution. The current plan is to irrigate about 1/3 of each plot at any given time, on a rotational basis. A final plan may not however be decided before December 2009.

A major part of the problem stems from the poor and porous soils of the plateau, which need to be enriched and watered before they can support intensive farming. In our 6th Mission Report, we noted that the soil in the resettlement areas is relatively acidic and does not hold water well, and is therefore not naturally suitable for food crops. Sustainable agriculture is not possible without appropriate cropping systems and fertility management. The soils can be made suitable for production of annual rain-fed and irrigated field crops, but only after liming and adequate fertilizer input. The process can take years.

Thus in the 6th Report we advised NTPC to offer extension services that would encourage and guide the villagers to experiment with other cash crops. Progress with cropping has been significantly delayed by inappropriate extension methods. In 2007, two advisers funded by the French aid agency, Agence Francaise de Development (AFD), initiated an agro-ecological approach to soil improvement. Villagers were advised to stop their planting activities to allow soil improvement through a combination of non-chemical methods. The advisers lacked sufficient knowledge of plateau soil conditions, of local cultural and social norms and the structure and linkages among GOL organizations to make the new program work effectively. Communication problems between the foreign advisers and the villagers as well as with the NTPC staff contributed to the difficulties. The French

scheme has been abandoned, but not before it delayed the introduction of cropping by up to a year.



Figure 1. Typical soil condition in the 0.66-hectare agricultural area

This unfortunate experience illustrates the necessity for support for villagers from experts with a familiarity with local conditions and what is possible in terms of farming on the plateau. Most importantly, there needs to be greater involvement of government on the ground in the development of sustainable livelihoods. As the Governor of Khammouane province sees it, NTPC does not have enough experience in working with people at the local level.

More recent developments in extension services seem to promise more success, because they are more in tune with local requirements. NTPC has recruited Lao experts with solid extension backgrounds and experience from other parts of Laos, including two officers seconded from the Ministry of Agriculture and Forestry to the NTPC's Environment and Social Team. This infusion of Lao talent has resulted in better coordination and development of formal institutional partnerships for extension services. NTPC is now looking for a partnership with the International Centre for Tropical Agriculture (CIAT) to develop more targeted demonstration activities in the various villages. The World Bank has also assisted with advice on techniques for soil sampling and trial design, information on suitable crop and forage species and details of further information contacts.

2.1.3. Reduced grazing land on the plateau

The significant loss of grazing areas requires a large reduction in the number of cattle and a longer-term reassessment of the role of animals in the economy of the plateau.

Cattle grazing areas will be lost to the reservoir and also by the construction of resettlement villages and the priority given to land for rice cultivation and crop planting. Much of the area traditionally used for grazing lies below the reservoir's MOL and will be lost after impoundment. In the dry season, cattle may be able to graze on some of the land between the high water mark and MOL, or "drawdown areas," totaling some 370 km². But this is only seasonal⁴. Indeed, the August 2007 floods, which raised water levels much higher than the MOL, killed off much of the grass and severely reduced the food supply for the existing herds. Villagers understand that they will have to sell off most of their cattle – a traditional asset - to reduce numbers to sustainable levels. Cattle herds are already decreasing through slaughter, live animal trade, or natural deaths.

The critical short-term issue now is how quickly villagers can decrease their herd sizes before their buffaloes actually face starvation. The company may be required either to buy excess cattle or as a temporary stop-gap measure, import feed onto the plateau until the cattle can be sold. NTPC has proposed building abattoirs on the plateau for the slaughter of buffaloes and to encourage selling of buffalo meat for local consumption.

In the longer term, the issue will be what part animals, including livestock, will play in the economy of the plateau, and whether new methods of animal husbandry will be required. In particular, wandering or grazing on common land may be less of a possibility and more attention will need to be given to methods of less extensive methods of livestock management. Raising other animals with short growth periods, such as poultry, including egg production, is also being suggested.

2.1.4. Fishing and fisheries management

The future of fishing on the plateau and downstream will be greatly affected by the closure of the dam. While the reservoir may experience a boom in fishing, many communities downstream will lose traditional river fisheries and will need alternative sources of protein. Reservoir fishing will bring with it significant issues of fisheries management and protection of the rights of resettlers.

⁴ The drawdown area will also not be fully available for agricultural activities until after October 2009 because project engineers and workers need to carry out tests on the dam structure. This will require their moving about in the area.

The Nam Theun River, its tributaries and inundated paddy fields are the villagers' current sources of fish, together with shellfish such as freshwater shrimp, crabs and snails. Impoundment will affect fish supply in different ways in the reservoir itself and downstream of the dam. On the Nam Theun downstream of the dam, water flows will be significantly reduced for many kilometers and fish will virtually disappear from the river. Downstream tributaries will be less affected, but overall the downstream villages will see a significant reduction in their fish supply.

For the resettlers on the plateau, the situation will be different. Once the reservoir is filled, notwithstanding the effects of left-over biomass on water quality and the large fluctuations in water levels during the wet and dry seasons, there should be ample opportunity for fishing. One NTPC study in fact predicted a surge in fish supply over the first few years of inundation. But the nature of fishing will change from traditional net-fishing along a river to the use of boats in fairly deep water. Some 650 small boats will be supplied to the resettled households for daily subsistence fishing in the reservoir. This calls for villagers to adopt new livelihood technologies, a process which adds to the anxieties and tensions of people already under stress.

Similarly, rights to fishing and fisheries management will become an issue: the resource will need to be managed sustainably, and access will have to be policed.

The GOL has taken the first steps towards establishing resettlers' rights to the fishery and a management regime with the issue of Prime Minister's Decree 24 in February of this year. The Decree establishes a Reservoir Management Committee, which can authorize sustainable use of some portions of land in the drawdown zones and forest corridor areas, and issue regulations on the management of the reservoir fishery and related activities. The Decree specifically reserves the rights of fishery, fish processing and fish trading for the resettlers for a period of 10 years from the date of the dam closure⁴ (Annex 3). Nevertheless, a lot of important detail has to be filled in, within the framework of the Decree.

The first step in sustainable management is an appropriate set of rules for governance of the fishery by the local villages. The IAG had the opportunity to visit the Nam Houm Reservoir at Naxaythong District outside Vientiane, and talked with the representatives of the Reservoir Fisheries Management Committee (RFMC). At Nam Houm, decision-making was decentralized to the provincial and district levels, while management responsibilities were devolved to the local communities. Through these participatory mechanisms, villagers were encouraged to create certain regulations aimed at resolving local conflicts so long as these did not conflict with national laws, and address issues important to them. There are differences between the two reservoirs, particularly that the Nakai Reservoir has many more villages and households, which will complicate participatory governance. Nevertheless, the participatory approach adopted at

Nam Houm Reservoir may well serve as a good model for fisheries management in the Nakai Reservoir.

Secondly, a decision needs to be made as to how access will be policed to deter illegal fishing both by villagers themselves and from others encroaching from outside the area. We assume that the new separate Reservoir Management Authority (RMA) will play a role in this regulation, but the detail still has to be filled in through Implementing Rules and Regulations, and the Authority will have to work out a role in relation to the Watershed Management Protection Authority (WMPA), which also has a policing function around the northern perimeter of the reservoir and indeed on some of the islands it will create.

In the meantime, something will need to be done to replace the loss of fish to the downstream villages and, for the resettled villagers, during the period when the fish population in the reservoir has not yet developed or is reduced in some parts of the reservoir because of poor water quality. The company will probably have to continue to supply protein alternatives to those households who suffer these losses.

2.1.5. Insecurity about livelihoods

Resettled villagers generally recognize the benefits of housing and services accorded them in their new sites and express appreciation for the facilities. This is tempered by insecurity over adopting a new livelihood system based on an agricultural technology and market economy unfamiliar to them and not readily under their control.

On the plateau, the lives of long-time swidden forest farmers, or shifting cultivators, are being transformed by the construction of the Nam Theun 2 Dam. Its most immediate impact is felt by those people whose settlements will be inundated by the dam impoundment, and who therefore have no choice but to move out of harm's way. Incentives for government-sponsored resettlement appear in the large, attractive, and culturally suitable houses built for them in expanded village settlements well above the expected inundation levels. Household members now also have improved access to education, health services, safe water, sanitation, and new livelihood sources with potential for increased cash incomes. Some relatives and former neighbors have been relocated with them – although not necessarily immediately adjacent – retaining a sense of community and the possibility of continuing to rely on one another for survival and comfort.

Some younger people whom the IAG spoke to expressed satisfaction with their houses and new resettlement areas. They generally enjoy the expanded interaction with neighbors, having electric lights and television, being in greater touch with the outside world, and in general having a more interesting life.

Women, in particular, appreciate the advantage of having water right on their premises, schools for their children, and health posts nearby.

While many resettlers recognize the value of these services, some express dissatisfaction at how these entitlements are being managed. Many remain apprehensive about being able to ensure year-round access to rice and the varieties of food to which they are accustomed. They are uncertain they can master the new crop-raising technology that signals their entry into the competitive market economy. The change from subsistence to commercialization



Figure 2. Resettlement village with electricity (note the satellite dish in some houses)

is profound, and it is not surprising that anxiety levels are high. The sense of insecurity stems in part from the replacement of a familiar shifting cultivation forest farming livelihood system intricately linked with their traditional cultural and spiritual worlds. Instead they are expected to adopt new agricultural, marketing and socio-economic arrangements which they may barely comprehend, much less command, and which appear to have little connection with their spiritual environment.

Thus, the implications are that the villagers on the plateau, in particular, will need support for many years to come while they learn and adapt to the new requirements of cash cropping. These requirements extend beyond agronomy to learning the planning and budgeting skills of intensive settled farming, how to market their produce, and how to reconcile the new system with their culture and

traditions. In the wider regional economy, attention also has to go to the development of efficient, competitive and culturally sensitive distribution and marketing systems.

Company support particularly for the people of the plateau has a finite life. Also, continued support (particularly direct food support) has to be weighed against the dependency it creates so that there continue to be incentives for people to adopt their new way of life. In the longer term assistance for the people of the plateau will merge into the more general ongoing extension and other services of the government. But the next few years are critical to sustainable livelihoods and there is as yet no clear picture emerging of how and when villagers will reach this stage. Between them, the company and government, with the support of the international agencies, have to ensure that support is sustained long enough so that there is evidence that the income targets will be met.

Despite the amenities and entitlements accorded the resettled villagers, therefore, the matter of their livelihood continues to pose major uncertainties. By April 2008, the inundation of the plateau will begin with the sealing of the diversion tunnel, with sustainable sources of income still not in place. In the short term, the earnings that households are currently generating may actually drop with the decline of local employment in construction and related activities. With wage labor also decreasing, workers will be less able to buy products and services that generate income for others. Access to the forest for hunting and gathering, a major source of their displaced livelihood as shifting cultivators, will be cut off. Following impoundment, stream fishing by traditional methods is likely to diminish or disappear altogether in some areas, while grazing land for cattle will likewise be severely reduced. All of these threats are very much on people's minds, and they are fearful as to whether they will be able to shift in time to stave off hunger, from traditionally mastered but now abandoned livelihood strategies to new technologies still beyond their technical and conceptual reach.

A specific cause for IAG concern is that the results of the Project's most recent Living Standard Monitoring Survey (LSMS) of household incomes are not yet available, apparently for technical data processing reasons. This means that any observations made about changes in the circumstances of the villagers remain largely anecdotal. At this critical decision-making time for the project it is imperative that the company expedite the production and dissemination of the required information.. At the same time reliable indicators of change in the resettlement villages need to be developed quickly, along with measures that include more qualitative assessments of levels of insecurity.

2.1.6. Tourism prospects

The Nakai plateau has the potential to be a significant tourist way station and, with the watershed and reservoir, a destination in its own right. Planning should begin now for developing sustainable tourism.

Access to the plateau will be easier and more convenient with the completion of a new bridge across the Mekong at Thakhek, along with the upgrading of the road leading to the reservoir. Tourist visits can be expected to rise and with them local incomes. Travelers passing through the project lands and downstream areas will also bring in more income derived from the villagers' sales of crafts, supplying vegetables, meat and fish to restaurants, setting up roadside stands, tourist inns and initiating home stays.

For travelers stopping on their way through between Thailand and Vietnam, the plateau and watershed may be desirable destinations in their own right. Opportunities for camping, trekking, bird/animal-watching and other nature-related activities abound, while boating, fishing, swimming and water-related activities on the reservoir lend themselves admirably to pro-poor income generating activities for local residents. Moreover, the structure of the dam itself offers a spectacle for visitors to see.

Local communities, in collaboration with government and civil society groups, have ample time to work on environmentally sustainable pro-poor tourism schemes for the area. The Ministry of Tourism is already embarking on such a program in other parts of the country with the assistance of the ADB and other partners, and the lessons learned may well be applied to the NT2 area in the coming decade. Lessons learned from the Nam Ha National Protected Area Interpretation Center and Concession Area in Chalensouk Village, Lao PDR may well apply to the Nakai plateau's National Biodiversity Conservation Area (NBCA)) and to the reservoir itself. The IAG also considers that it is not too soon to begin the process for applying for the NBCA to be declared a World Heritage Site.

2.2. Project Lands

2.2.1. Compensation

Compensation issues remain contentious as a result mainly of communication problems early in the project.

Project lands are those lands where construction works have deprived villagers of land or sources of food.

The company's practice has been to compensate villages and households in proportion to the loss that they have sustained. But negotiating, understanding, and winning acceptance of the compensation rules have generated continuing problems. In both the 7th and 8th missions, the IAG heard extensive complaints about compensation formulas, which still appear to some villagers as arbitrary, confusing and sometimes unfair.

Compensation in the project lands is based on separation of affected households into two categories: those that are deemed to have lost less than 10% of their wealth and those facing losses of an estimated 10% or more. Below the 10% threshold, compensation was to be in cash. Above it, compensation was linked to the restoration of livelihoods, either by replacing land and other assets lost with other land, or by cash grants to acquire other assets.

Where compensation is in cash rather than kind, the company requires villagers to submit a business plan explaining how the money would be used to invest in a sustainable livelihood. The IAG understands that this is because of a World Bank requirement that compensation be linked to livelihood restoration and not used for consumer purchases. A further Bank instruction calls for cash compensation to be dispensed to recipients through the banking system, on the grounds that compensated households thereby to learn how to manage their money through banking transactions. Banks thus release the money only upon confirmation from the NTPC that a business plan featuring an acceptable livelihood restoration project has been submitted and approved by the NTPC.



Figure 3. Heads of families in Ban Lao airing their views on compensation scheme in the Project Land

According to the company, most of those in the +10% group accept these conditions. They nevertheless appear inconsistent with the principle of compensation, which normally comes without conditions. The business plan specification may also mean that the poorer, less educated households, and

women members of the households, who are less likely to develop an acceptable business plan, may be excluded from the compensation they are due.

The land-for-land scheme has run into difficulties because NTPC has been unable to buy enough land to replace what was lost. It may therefore be more efficient to allow villagers to identify land themselves, since they are apparently better able to locate suitable land through family connections than the company can on the open market. Some households are already buying land privately, using the cash they receive as compensation. The GOL also has land which the company can buy for the villagers. Since paddy rice remains the preferred option for most villagers, the land would require irrigation, and is thus caught up in the wider question of to what extent it is economic or desirable to provide further irrigation in the project lands, and how the costs of irrigation should be met. These issues are discussed further below.

2.2.2. Irrigation and drinking water

Although the local population want expanded irrigation systems for their paddy rice growing, there is cause for concern that local water-users may not be able to maintain the systems despite government support.

Since villagers in the project lands area want irrigation so they can grow paddy rice, NTPC has provided outlets along the 27 km downstream channel. It also constructed two outlets from the regulating basin at the top of the channel buffering the flow of water down the channel and into the Xe Bang Fai River. The company is now also considering building a spur canal from the regulating basin to create an additional irrigation offtake.

The company stresses that it has no legal obligation to provide the irrigation works, since the GOL is responsible for the irrigation system and is planning its own irrigation program. Construction will require financial support from donors along with decisions about the pricing of water. It was noted that an existing system in the area with an underground spring as its source has not been properly maintained and is now only 20% functional. Although the system is currently being rehabilitated with the help of the World Bank, its current state of disrepair may indicate that local farmers do not value irrigation enough to pay for it. This conclusion will have implications for future irrigation schemes and is already creating some doubt as to their feasibility. Future schemes, however financed, should not be developed without a well-defined set of rules, agreed by all the participating villages, on how the schemes will be maintained and costs allocated.

2.2.3. Communication issues

Improvements in communication regarding compensation have come about through improved contacts at local levels and immediate resolution through village household consultations directly with project staff.

Although controversies and miscommunications on compensation issues continue, NTPC has made significant strides in reducing some of the dissonance. This stems in part from village visits by local officials and extension workers who explain the points needing clarification, and in part from direct one-on-one consultation at the company's office between an affected household and a staff member. There they can draw on hi-tech instruments like GPS and satellite imagery maps that enable farmers to visualize their surroundings, make compromises, and reach agreements then and there.

Nonetheless, the persistent controversy around compensation partially stems, too, from the somewhat arbitrary character of the 10% divide, a World Bank regulation that the affected persons say was imposed upon them. Certainly the poorer households with lower levels of education, and women are often left out of the discussions, which they see as far too technical for them. Errors in interpretation made at the outset led to decisions that generated charges of unfairness. As these grievances festered, positions hardened into resistance, even anger. The experience argues strongly, for an improved and intensive grassroots communication program right from the beginning of such a project, featuring information materials in local languages, pictorial forms, and other creative thrusts.

2.3. Downstream Areas

2.3.1. Flood control and irrigation

Decisions on flood control and irrigation are critical to mitigate the negative impacts of the project downstream on the Xe Bang Fai.

Further downstream, along the Xe Bang Fai (XBF) River, the environmental impact of the dam takes on a different character. When water begins to flow through the powerhouse, a regulated flow of an additional 230 m³/sec will enter the river. This will raise water levels in the dry season by several meters. The impact will be less during high water in the rainy season as the company is obliged to shut off the flow if water levels in the river exceed a certain level.

Along the XBF, irrigation and flood control are closely linked. The main flooding problems are not on the XBF itself, but in its tributaries, resulting from water backup. Although people living along the river and its tributaries are accustomed to periodic flooding, the higher mean flows will significantly affect their well-being: floods will cover larger areas and waters may take longer to recede. Higher dry

season flows and weekly variations, in particular, will affect water quality, erode the riverbanks, pose risks to village water supply and threaten existing irrigation schemes. Dry season planting of vegetables on the riverbanks will no longer be possible due to the increase in water level and mean flows. Alternative sites for planting crops are needed along with alternative sources of livelihood.

Existing floodgates have fallen into disrepair and need refurbishing. For flood mitigation purposes, 14 gates are being rehabilitated. A pilot mini-polder has been constructed by NTPC to protect rice paddies in five villages from flooding by XBF tributaries. If this experiment works, there is a plan to construct more minipolders.

Fishing and fish quality may also be affected, although not perhaps as much as for those along the Nam Theun River. With proper management, water flows can be controlled to irrigate paddies and permit fish to swim up the tributaries and into floodlands, where they can be harvested as the water level drops.

Water for domestic consumption is being sourced from ground water, with NTPC drilling bore holes and installing water pumps in the villages to ensure adequate water supply. In some villages boreholes are collapsing because of the sandy soil. This problem can apparently be rectified by lining the bores with the appropriate casing.



Figure 4. Drilling bore hole for domestic water supply

While the future effects on agriculture and fisheries are generally known, the predicted disruptions and their degrees of severity remain speculative. Important lessons are expected from the Khammouane Rural Livelihood Development Project supported by World Bank, which is designed to maximize the irrigation potential of the Xe Bang Fai system for the benefit of local communities. Whether the current estimates of impact are under- or over-estimated can only be ascertained through actual experience over the coming months and years. In the meantime, people's futures hang in the balance.

2.3.2. Women in the village economy

More attention needs to be paid to the voices and needs of women in developing the village economy.

Social, cultural and economic factors meet in the search for new and sustainable livelihoods. The shift from traditional to alternative livelihoods like aquaculture and market-oriented weaving is gaining ground. Skills are being built through learning by doing. But despite progress in these domains, a number of issues continue to disturb the IAG.



Figure 5. Consultation among women in Yangkham Village

One of them centers around the lower attention given to women's voices and priorities in village planning and financial allocation processes. Women's specific needs still draw only limited attention in male-dominated village governance; this is evident for example when women consider seeking access to Village Development Funds for micro-enterprise involvement, or when they describe the

heavy labor inputs they already make in the farm, in fishing, crafts production, small-scale commercial activities, and household production and nurturance. Questions are raised as to how much more women's energy, health, and well-being can be taxed without some appropriate relief. From the discussions with village women, it was apparent that, much as they wanted to explore new sources of livelihood, they had neither the time nor energy to do so. They emphasized, for example, that cash crop production during the second cultivation season made possible by irrigation places heavy additional labor demands on them and their children.

Many women in the villages have taken up weaving, as was observed during the 7th mission. The quality of the finished products and the variety of colors and designs are improving, as are the outlets for these products. NTPC now helps in the marketing of the woven products and is maintaining an outlet at their office in Thakek. The World Bank, which has been supporting the Mahaxay Women's Group since 2005, has responded positively to their request for additional funds to open a shop where they can more easily sell their products.

2.3.3. The Village Development Fund

The Village Development Fund is a development vehicle and funds are released to the project affected households (PAHs) on the basis of certain criteria, usually a business plan. This facility does not replace the need to compensate individuals and communities affected negatively by the project.

Much of NTPC's focus in the Xe Bang Fai villages is to support alternative forms of institutional support, as evidenced in the Village Development Fund (VDF). However, these funds can only be accessed by those who meet the proper criteria, in some cases, by presenting a business plan. It is important to recognize that damage to individuals and communities must be compensated as a matter of right. That obligation is not met by the Village Development Fund if the business plan can be rejected and the corresponding compensation funds not released.

Furthermore, women and men alike are sometimes apprehensive about borrowing from the VDF to initiate small-scale entrepreneurial activities, fearing they will not be able to repay the loan. Moreover, they have to contend with a Lao cultural perspective that gives a negative value, even public shame, to borrowing at all. It will therefore take time for institutionalized loan funds to have an impact on people's economic choices.

The VDF is managed by a Village Development Committee (VDC), which consists of members elected by the villagers. To enhance fund management, one group suggested handing the system over to an NGO specializing in microcredit. The latter would handle loan administration and repayments, while

policy-making would remain in the hands of villagers. However, the GOL takes a different view, favoring a party member to handle the management of funds.



Figure 6. Weavers in Keng Pe Village selling their products

The Village Development Committee has the authority to set higher interest rates in order to increase the capital of the Village Development Fund. Where this has been done, it has discouraged new borrowers, especially women, from borrowing. The model adopted by Keng Pe Village, which the IAG visited, is worth noting. Its no-interest policy in the first year has encouraged some women to take out loans for weaving. Once they are confident about the technology and business elements being learned, and realize that they can indeed earn added income, this makes it easier for them to move into obtaining a loan at low-interest rates for a business investment. Feeling more confident about the process, they are more likely to venture into an expanded business through taking on a higher interest loan. This multi-step approach encourages both men and women to understand the nature of risk and sound management while learning to be entrepreneurs.

2.4. Governance

2.4.1. The Government of Laos

The Government has taken some significant steps to strengthen agricultural education and extension services, which can provide support for sustainable development in NT2. The Prime Minister's decree on

reservoir management is a significant step forward for governance. Specifics need to be developed to ensure clear accountabilities of the different agencies involved.

In line with the serious interest in promoting sustainable agriculture as a means of livelihood in the project area, the Ministry of Agriculture and Forestry has introduced a strategy for the reform of agricultural education and the development of human resources for market-based agriculture. The capacity and resources of five agriculture and forestry colleges will be enhanced, including those located in Bolikhamsay and Savannakhet Provinces. The over-all intent is to improve the abilities of students in forestry and fisheries, to the eventual benefit of their local communities.

We also noted that elsewhere in Laos there has been an apparently successful development of government extension services. Farmers trained by the Lao Extension for Agriculture Project (LEAP), have increased the average value of rice production by more than 3 million kip, and of chicken production by more than 1 million kip. LEAP established a Technical Service Centre at provincial and village. The Swiss government has recently agreed to continue financial assistance for LEAP. We commend it as a possible basis for extension services on the plateau. In general, resettlers are going to require support for their efforts at developing sustainable livelihoods for years to come. This responsibility will fall primarily on the relevant government agencies, particularly the Ministry of Agriculture and Forestry.

Three agencies of the GOL are mandated to issue the regulations under PM Decree 24 on management of the NT2 reservoir, namely the Ministry of Agriculture and Forestry, the National Land Management Authority and the newly created Water Resources and Environment Authority (WREA). The WREA is mandated to take the lead in Integrated Water Resources Management. One of its main tasks is to address the question, "How much water for what?" It has been given the responsibility of issuing environmental permits related to water management, including the Nakai reservoir. It also handles Meteorology and Hydrology concerns which used to be under the Ministry of Agriculture and Forestry.

The Watershed Management Protection Authority (WMPA) has already implemented its conservation programs in the protected areas with positive results. It has institutionalized participatory management and thus offers a good model for adoption in the management of the Nakai reservoir. However, for the latter task, it faces the larger challenge of addressing both conservation and development. The latter deals with people's livelihoods in the area, most of which are dependent on non-timber forest products. In addition, the watershed is very much a part of the reservoir, so that any activities in the watershed will affect the water quality of the reservoir. In this regard, close collaboration and clear delineation of functions of both the WMPA and the WRMC will be required,

especially in matters of surveillance and monitoring. Enforcing rules and regulations that are currently the exclusive responsibility of the WMPA will now be shared with the WRMC, but given their overlapping mandates, this may create turf disputes and generate other sources of confusion.

2.4.2. The World Bank

The World Bank has a big reputational investment in NT2. The IAG encourages the steps it is taking to take a wider and more collaborative role, through the Vientiane Country Office, in project implementation.

The Nam Theun 2 project is a major test of the World Bank's support policies for investment in hydroelectric power. In no other hydro project to date has there been such an important commitment to the Bank's safeguard policies, to mitigate the adverse social and environmental impacts of large dams, and particularly to protect and enhance the livelihoods and well-being of the people displaced or otherwise affected by the project. The Bank therefore has a considerable reputational investment in NT2. If the safeguards are effective, NT2 will be a model for future hydro-power investments. If they fail, international criticism of the Bank's involvement will be heightened. The project has now reached a critical phase, where the imperatives of technology and the physical plan are putting pressure on the socio-cultural, economic, and administrative domains to catch up. This offers serious risks for successful safeguards implementation.

The Bank has in fact taken some significant steps to protect its interests in achieving a successful NT2 project. The World Bank Office in Vientiane with support from the regional office and headquarters in Washington DC has beefed up its staff and streamlined their functions. Despite the departure of one or two key staff members, there has been an encouraging stability in the overall team responsible for NT2. As underlined in our last report, this is important for the project's standing.

The Bank's NT2 Team is more deeply engaged at the project sites. It has improved collaboration and coordination with the GOL and NTPC. Currently there are water, environment, communications, health, public financial management, rural development and social/cultural development experts based in Vientiane, both local and expatriate, with an agriculturist about to be recruited. They are supported by forestry, resettlement and environment staff on call in Bangkok. Additional technical staff in Washington make regular visits to the site, offering expertise in fishery, biomass and agriculture. The Bank has made a notable effort to increase the effectiveness of communication and monitoring by engaging national staff, especially for socio-cultural, environmental and health concerns in the Downstream Program.

Working closely with GOL and NTPC, the Bank is contributing to the creation of a "rolling plan" for the Downstream Program. This approach, which aims to

respond to needs as they arise, was endorsed in February 2008 by GOL, NTPC and IFIs, and also favorably recognized by the POE. The adaptable-program approach will utilize the Downstream Implementation Program (DSIP) framework and will last until the Commercial Operation Date (COD).

The Bank is in the process of developing the Khammouane Rural Livelihoods Development Project to strengthen the planning process and public financial management associated with decentralized delivery of services and infrastructure. This will enhance local government capacity to assist the affected population on a longer term basis. The capacity of the Bank team in social aspects, irrigation and agricultural development has been strengthened to ensure more efficient and effective implementation of the program.

2.4.3. The Nam Theun 2 Power Company

The company, under its new CEO, has been making efforts to further strengthen its communications with the communities affected by the project.

A new CEO has taken charge of NTPC as of November 2007. While still familiarizing himself with the Project, he has shown a strong determination to tackle both the immediate issues related to impoundment and the challenging long-term elements linked to villagers' livelihoods.

Effective communication with the people of the plateau and the downstream areas constitutes perhaps the major challenge for the NTPC team. A formal grievance process has been in place for some time but according to the company staff concerned, it does not generally work effectively to provide feedback on villagers' complaints and their understanding of the company's responses. The company has tried to utilize the government's official grievance process, but it does not always operate effectively either.

The staff acknowledged that in the past, monitoring groups obtained important information in the field of which the company had been unaware. The company is working to strengthen its monitoring systems further, but the quality of communications between the company and other stakeholders – particularly villagers – remains a continuing challenge.

2.5. Financial Management

The proper allocation of the revenues flowing to the Government from the NT2 project to pro-poor projects depends on a major strengthening of the Government's budget decision-making and implementation systems. A comprehensive financial management improvement program underway, but timing is tight and some major increases in capability are required to

underpin it. An important early decision will be on eligible programs for application of the NT2 revenues.

2.5.1. Requirements for managing NT2 revenues

The 8th IAG Mission Report outlined the requirements for the Government's financial management system to meet the conditions of the Revenue Management Arrangements (RMA) of the Concession Agreement. The broad outcome of the RMA specifies a sum equal to all the net revenues due the government from the Nam Theun 2 project to be spent on improving outcomes for the poor of Lao PDR. The conditions for this to happen call for the government to do the following:

- Ensure that all net revenues from the project accrue to the State Budget and can subsequently be properly accounted for;
- Identify and report additional expenditure on eligible pro-poor programs in the GOL State Budget;
- Demonstrate through appropriate measures of outputs and outcomes of the expenditures that they have indeed improved the situation of the poor.

2.5.2. Improving government financial management

The general position of both the government and the World Bank is that these conditions can be met by overall improvements planned in the public financial management system, and do not require any special arrangements only for Nam Theun 2. The government is undertaking a major program of reform called the Public Financial Management Strengthening Program (PFMSP)⁵. PFMSP is a major reform program spanning several fiscal years. It is underpinned by new State Budget and Audit laws. Its major elements are:

- a new government accounting system and supporting information technology improvements;
- a centralization of government receipts and payments so they will in future flow through a single central Treasury account rather than to multiple accounts at central and provincial level;
- a new set of rules for assignment of revenues and expenditure responsibilities to central and provincial levels;

⁵ Formerly the Public Expenditure Management Strengthening Program (PEMSP). The change in title was made to indicate that the Program covers public revenues as well as expenses.

- a medium-term expenditure framework (planning system) to strengthen the links between budgeting and sector planning in the government's National Economic and Social Development Plan (NESDP);
- a comprehensive set of output and outcome performance measures for public expenditure programs, so that improvements in government services and effects on the well-being of people can be monitored and evaluated;
- an independent State Audit Organization (SAO), reporting to the National Assembly, with a strengthened ability to audit the accounts of government Ministries, agencies and State Owned Enterprises.

The Asian Development Bank and the World Bank reported on the implementation of the RMA in December 2007 and concluded that, if the PFMS proceeds on schedule, it should accommodate all the accounting, budgeting, reporting and monitoring requirements of the RMA in time for the first flow of revenues expected during the 2009-10 government fiscal year (starting 1 October 2009). At present there is no reason to conclude otherwise. The reform program is more or less on track according to the timetable in the PFMS. But there are some significant risks which need to be kept in mind.

First, the budgeting and accounting reforms of the PFMS are a complex set of measures on a tight timetable. The critical success factors include being able to train government accounting staff to use the new system and implement the new national IT network in time.

Second, the SAO also requires a significant increase in the number of its qualified staff and the coverage and sophistication of their audits to meet the requirements of the new system⁶. The SAO needs specifically to develop the capacity to audit the accounts of the project company which may involve overseeing the work of private audit firms, the revenue flows to the government, and the expenditures on RMA eligible programs. Increasingly, it will need to develop the capacity to audit performance as well as financial transactions and reporting.

An important component of this watchdog role will be for the SAO to be able to report to and advise the National Assembly on its audit work, which in turn requires the Assembly to consider and develop its role as an oversight body. The SAO is still working out the modalities of reporting to the legislature. There is a Legislative Committee for Finance, Investment and Planning and they are also working through what their role will be vis-à-vis the SAO. A UNDP project at the National Assembly may help to strengthen the function of this committee.

⁶ A team from the New Zealand Audit Office has recently visited Laos to begin a peer review of the SAO and is currently working on its draft report. The SAO also receives advice and support from other sister institutions, including the audit office of the government of Vietnam.

2.5.3. Directing increased revenues to pro-poor spending

Third, work is shortly to begin on identifying eligible programs and the policy changes, which would generate additional pro-poor spending on these programs. This work was originally planned to be completed in December 2007, but the timetable was put back to enable more progress to be made on the necessary supporting accounting changes: it is still planned to have it in place to identify these programs in the 2008-09 budget.

The programs will be selected in line with priorities in the NESDP. Early indications are that the priorities will be education (primary schools, teacher salaries, enhanced operating budgets); and health (hospitals in districts, doctors' salaries, vaccines etc). The incentives for teachers and medical workers to work in rural areas may be enhanced. Three comments on this:

- The IAG understands that a draft decree being prepared by the Public Administration and Civil Service Administration will improve salaries and conditions of all rural government workers, so that not all this expenditure can be charged to the eligible programs;
- The list does not include any funding for environmental initiatives or for local initiatives at the district or village level;
- There is apparently a debate within government about the relative merits of additional expenditure on projects or on recurrent allocations for salaries and operating expenses.

On the last two points, there are arguments both ways. There are good practical reasons to enable the poor to participate at the village or district level in developing projects of importance to them for poverty eradication. On the other hand, there is no point in building an extra classroom if there is no teacher to use it. Quite often, the real needs of local development are not more capital projects such as buildings but more budget for current expenses on staff and materials. Nevertheless, there may be scope, with appropriate rules, for a direct allocation from eligible programs for small-scale projects developed at village level.

A more general point is that for real impact, expenditures on poverty reduction through eligible programs must truly be additional: there obviously cannot be offsetting reductions in other programs. Thus the poverty reduction effect of the budget can only be assessed in its totality. The World Bank, with the cooperation of the government, is about to start a new Public Expenditure Review designed (among other things) to do just this – to look at public spending in its totality. This will be an opportunity to help identify pro-poor expenditure priorities and also to influence the composition of the current NESDP (2006-10), perhaps through a mid-term review of that Plan.

Measurement of results of the additional expenditures is not a trivial task. It requires a strong foundation of reliable social and economic statistics and the capture of relevant administrative data on service delivery and program outputs. The Ministry of Planning and Investment (MPI) provides indicator information to support the NESDP, but it does not link well to administrative statistics collected by government agencies. While the condition of the RMA focuses on outcome measures, perhaps equally or more important are measures of process and outputs such as education participation rates and class progression and services provided by local clinics which link more directly to additional program expenditure than outcome measures. These in turn often depend on a range of other factors besides additional program activity.

3. Overview Issues

This section deals with issues that do not lend themselves to segregation by geographic project sites but apply to all areas.

3.1. Monitoring

Various aspects of environmental, social and economic monitoring need attention.

3.1.1. Water quality monitoring

It is a requirement of the CA to mitigate potential environmental and social impacts during the operation of the project. From the Aide Memoire of the Joint IFI Review Mission in November 2007, NTPC's water quality monitoring plan should be assiduously followed-up. An integral component is already being carried out by NTPC through its Environmental Management Office (EMO) in three strategic locations, namely the reservoir, the Nam Theun River downstream of the Nakai reservoir, and along the Xe Bang Fai River. Following the fish kill that occurred during the September 2007 inundation, the World Bank recommended that additional specific parameters of water quality, such as methane and hydrogen sulfide, should be measured in appropriate reservoir sites. Regular monitoring of these parameters, including dissolved oxygen, can warn of an impending fish kill and help villagers prepare for such a disaster by, for example, catching more fish ahead of time and preserving them, or identifying alternative protein sources. Moreover, a regular water quality monitoring program will generate crucial data on the potential of the reservoir, the Nam Theun river and the Xe Bang Fai to support viable fish populations during project operation.

The new Water Resources and Environment Administration (WREA) is also asserting its role in water quality monitoring and, according to the head of WREA, has agreed to enter into a contract with NTPC to monitor the quality and quantity of water in the project area. This is in lieu of NTPC's contracting the services of

outside Thai experts. The money budgeted for the latter contract will instead be channeled to capacity building and to setting up a regional center in the locality. A critical need is already being identified regarding the institutional mechanisms linking the GOL's Environmental Management Unit (EMU) operating in the project area with WREA as the latter establishes its presence in the project areas.

The results of these initiatives can be included in pipeline activities related to the monitoring of other dam projects in the vicinity of Khammouane and Bolikhamsay provinces.

3.1.2. Socio-cultural and socio-economic monitoring

The results of the third Living Standard Measurement Survey (LSMS) conducted in June 2007 have not yet been released. Timely release would have served as a useful tool to revisit the current parameters and household responses on income recording. Beyond income, achievements in living standards might well be measured by more qualitative criteria, like levels of insecurity expressed by the former forest-cultivator Nakai households. How do they evaluate livelihood changes, derived from their sudden immersion in an unfamiliar, settled-agriculture cash economy system that, however, also may be offering new benefits?

Given the seriousness of these concerns, monitoring schemes might well consider complementing quantitative measures of income and resources obtained through standard household surveys with qualitative data that can uncover the deeper meanings underlying the quantified responses. Useful qualitative techniques are focus group discussions, key informant interviews, participant-observation, and case studies. These also allow quantification through, for example, panel studies with ladder rating scales that compare ratings of insecurity or satisfaction over two or more time periods, and ask why the differences.

The expertise of behavioral scientists, like anthropologists, sociologists, social psychologists, and communications professionals, should be more systematically included to strengthen participatory processes and deepen understanding of people's behavior, values, and worldviews in a rapidly changing situation.

3.2. Communication with villagers

- **Communication with villagers and handling of grievances would be more effective if built on existing or traditional conflict prevention and resolution mechanisms adapted to project realities.** This also entails ensuring that community residents – men, women, and youth – participate actively in discussions on the resolution of grievances.

3.2.1. Grievance procedures

Although NTPC has gradually been coming to terms with resolving widespread complaints about compensation in the Project Lands and Downstream, the IAG discussions with villagers suggest that future attempts to institute grievance mechanisms would be more acceptable if they build on existing or traditional conflict prevention and resolution mechanisms. These would of course have to be adapted to project realities. This approach implies early consultations with villagers to ascertain their norms for resolving conflicts or differences of opinion, along with their suggestions for dealing with the issues likely to arise in forthcoming projects. Re-examination of the 10% norm might be similarly explored, considering that most villagers either did not understand or agree to what appeared to be an arbitrary and inflexible cut-off point.

3.2.2. Participation

There is a more general need to shift from the top-down style of governance in which “consultation” generally means government officials calling community residents to a village meeting, announcing plans underway or projects in store for them, then asking them for their reactions. Rather, it is essential that a genuinely participatory process be set in motion in which communities are involved in the planning processes from the very beginning – from conceptualization and prioritization to implementation, monitoring and evaluation, then re-planning. Bringing women into the discussions and enabling them to participate effectively are necessary components of successful village development. Important here are the potential roles of the Lao Front for National Construction and the Lao Women’s Union, since their representatives on the ground are usually highly regarded local leaders who receive a good deal of leadership training.

3.3. Lessons for the future

The Nam Theun 2 hydro project is an important signpost for the development of the future water resources of Lao PDR. First and foremost, is not to lose sight of its importance for reducing poverty by exploiting its renewable resources. Lao PDR can generate and sell 18,000 MW for neighboring countries, in particular, China, Thailand, and Vietnam, and to help pull the nation of 5.8 million Lao out of poverty. This is NT2’s main purpose and a worthy goal linked to the overall development of the greater Mekong river basin.

However NT2 may also represent a critical turning point for the involvement of the IFIs and the international community in hydropower projects in developing countries. It can serve either as a beacon or a warning. On the credit side, the development partners and the project company have so far demonstrated an unprecedented commitment to a model set of environmental, social and cultural safeguards. But there are risks, among them the continuing hostility of some international NGOs to any dam projects, however carefully conceived and

executed; and the complexities involved in ensuring that safeguards are implemented. These challenges appear in the ongoing monitoring and reporting by the IAG and other groups; and – despite the public commitment of the GOL to NT2 as a model – the sub-text detected by the IAG in some Ministers and officials: that NT2 environmental, social, administrative, and financial requirements may prove too stringent for future private investors to adopt. Accordingly, unless the benefits emerge clearly to future investors and the Lao government, the sustainability of the NT2 experience may be in jeopardy. It is therefore not too soon to be thinking systematically about what lessons can be learned from NT2 for future hydro projects in Lao PDR and elsewhere.

The group understands that a system for gradual and systematic review of NT2 project elements did in fact get underway in 2008. Our recommended approach would emphasize the following elements:

- Thinking long: the time-horizon for understanding the environmental and human effects of a major project like NT2 are generational: a permanent monitoring system needs to run for at least 25 years from commissioning;
- Thinking broad: planning for water resource use needs to cover river basins, and extend beyond national boundaries; this applies as much to environment, economy and society as to hydrology; water resource planning also needs to take into account the emerging threats of climate change and its impact on precipitation and water management.
- Making sure that we understand as much as possible of the qualitative impacts on people of the often huge changes in their lived environment imposed by major dam projects, and how they can be mitigated; this will require a wider range of inquiry techniques than are currently in place featuring levels of anxiety and insecurity as well as levels of satisfaction.
- Recognizing that planning for mitigation of the human and environmental aspects of hydro projects is much more complex and less predictable than the physical engineering of the dam and associated works: desired environmental and social outcomes need to be integrated into national energy strategies and translated into specific goals at the outset of project life cycles.
- Fully involving affected communities in project development through participatory planning from the outset; and making sure that all stakeholders – from villagers, government, local civil society groups, international development partners – are involved in assessing results and drawing lessons.

4. A Program of Action

The success of the NT2 project will be judged only partly for its technical effectiveness in generating energy and in the quality of the material services provided to the affected populations. The real indicators of project success will be the attainment of targets for sustainable livelihoods and improvements in the well-being of affected persons.

In keeping with the focus of the 8th mission on medium- to long-term results, the IAG here proposes a Plan of Action for achieving project objectives. The issues and recommendations follow the geographical structure of this report and are addressed to the key implementing institutions, namely, the Nam Theun 2 Power Company, the Government of Lao PDR, and the World Bank.

4.1. The Nakai Plateau

4.1.1. The Issue: Water Quality

The importance of fisheries as a source of protein for the plateau villagers warrants utmost care and attention to water quality and reservoir management. The remaining biomass in the Nakai plateau is cause for concern as it can have both negative and positive effects on fisheries both in the reservoir and downstream.

Appropriate water quality monitoring parameters may serve not only to predict impact and detect unforeseen events; they can also be good indicators of the potential of the reservoir and the downstream portion of the Nam Theun and Xe Bang Fai Rivers for fishery, tourism, and irrigation.

NTPC Action

- Monitor water quality regularly in the three critical project areas -- the reservoir, downstream of the Nam Theun River, and along the Xe Bang Fai River and tributaries, establishing in the process an early warning system that will minimize negative impacts of changing water quality on aquatic resources and livelihoods, while identifying mitigation measures.
- Water quality of the reservoir and the downstream portion of the Nam Theun River should be monitored before and after implementation of the fill and flush technique in order to determine the effectiveness of the technique and its applicability to similar dam projects in the future.

GOL Action

- Establish close collaboration between WREA and NTPC to ensure a sustained water quality monitoring program in the Nakai reservoir,

downstream of the Nam Theun and Xe Bang Fai Rivers until the confluence with the Mekong River. Clarifying the respective responsibilities of the two entities is essential, as is initiating appropriate capacity building activities through local and international training programs. These should be combined with on-the-ground efforts to learn-by-doing.

- Enable WREA to gain the expertise needed for interpreting, assessing and publishing water quality monitoring data, and establishing trends through time for predicting impact during project operation. This includes ascertaining the impact of submerged biomass so as to offer guidance on biomass clearing in future reservoirs.
- Have WREA as the lead government agency in integrated water resources management prepare an assessment of training needs and a plan for capacity building over the next five years.

World Bank Action

- In keeping with the requirement that the Bank contribute as a partner to on-going monitoring efforts, place the technical expertise in monitoring of the Bank's NT2 Team at the disposal of the NTPC and GOL to address ongoing problems as quickly as possible.
- Aside from providing technical advice on water quality monitoring, render assistance related to disclosure and regular reporting, in collaboration with the GOL and featuring the participation of village and civil society organizations; this will make the information available in ways that are meaningful to the affected populations and therefore more sustainable.

4.1.2. The Issue: Sustainability of Livelihood

The poor condition of the soil on the plateau, the still proposed irrigation system, the decreased grazing areas for cattle, and forest cultivators having to learn new commercial agricultural technology and livelihood systems, coupled with the uncertain effects of dramatic ecological changes on fishing and farmlands downstream, call for concerted efforts by all parties to help the affected people achieve sustainable livelihoods or at the other end of the spectrum, avoid near starvation and serious negative effects on their lives.

GOL and NTPC Joint Action

- Extend food aid and livelihood support to qualified plateau households on an open-ended basis for a few more years until acceptable levels of household sustenance have been regularly established through farming, fishing or other revenue generating activities; assessing carefully the

results of the LSMS may trigger off new insights as to whether more drastic and creative approaches are required.

- With most villagers presumably shifting successfully into a market economy in the coming years, develop a capacity building program for men, women and youth in small-scale farm development that encompasses financial management, crop planning, marketing and distribution.
- Study how regional agricultural markets operate and create regional distribution centers compatible with the needs of new farm household.
- Explore possibilities for engaging villagers in contract farming, complete with skills and business training, exposing them to suitable models in neighboring countries.

GOL Action

- Bring in the Ministry of Agriculture and Forestry for direct involvement in enriching the soil with the participation of the farmers as is being done elsewhere in the country; draw also on external financial support through the Swiss-funded Lao Extension for Agriculture Project (LEAP).

World Bank Action

- Monitor the MAF's extension services, assessing their effectiveness in improving productivity and people's well-being while reaching linked constituencies like youth, women and older persons.

4.1.3. The Issue: Animals in the Plateau Economy

In the short term, reduced grazing land on the plateau requires action to manage the herd size down to sustainable levels. In the longer term, there needs to be a study of the economic contribution of farm animals, including poultry, on the plateau.

NTPC Action

- Rather than simply culling or selling the herd to reduce numbers, consider local meat processing, which would entail the construction of abattoirs in the Nakai plateau and the development of a local meat market.
- Purchase some of the excess cattle for meat to be supplied to villagers entitled to protein subsidies or as compensation for the loss of fish.

- Study the options for economic management of livestock and poultry on the plateau both for home consumption and for the market.

4.1.4. The Issue: Reservoir Fishery Management

PM Decree 24 aims at improving the policing of the reservoir and creating a governance structure for managing the fishery activities.

GOL and NTPC Joint Action

- Develop the implementing rules and regulations, including specific provisions for policing the reservoir and authorizing a governance structure for the management of the fisheries program. Serving as an appropriate model is the Reservoir Fishery Management Committee of the Nam Houm Reservoir. There being fewer villages in the Nam Houm Reservoir than in Nakai, however, this implies that the latter situation may be more complex.

World Bank Action

- Become actively involved in the preparation of the Reservoir Fisheries Development and Management Program, which as stipulated in the CA, should be established one year prior to impoundment and must cover an initial period of 10 years.
- Bring in a participatory approach, as recommended in the Aide Memoire of the Joint IFI Review Mission of November 2007 so that villagers can express their views, initiate suggestions, be actively involved from the start in the development and management of the reservoir, and thereby build a stake in sustaining project successes.

4.1.5. The issue: Tourism Prospects

It is not too soon to begin planning for a flow of tourists to the plateau and watershed area.

GOL Action

- The IAG endorses the work being done by the Ministry of Tourism to promote Sustainable Pro-Poor Tourism in various parts of Lao PDR and urges the government to plan a similar program in the NT2 area. Work could also be gotten underway on planning for an application to have the watershed area declared a World Heritage Site.

4.2. Project Lands

4.2.1. The Issue: Compensation

The complexity of the compensation arrangements remains a source of confusion and dissension.

NTPC Action

- Even though consultations are time consuming, continue discussing with specific households their particular situations, in the process clarifying rights, opportunities and alternatives for achieving maximum satisfaction, based on mutually agreed and sustainable solutions.

4.2.2. The Issue: Irrigation

The need for irrigation is being explored as part of project compensation.

NTPC Action

- The provision of irrigated land for all eligible households may require working in conjunction with the forthcoming Khammouane Rural Livelihoods Project of the World Bank. In this case NTPC should make an appropriate contribution to avoid public subsidy of a project-related remedial measure.

4.3. Downstream Areas

4.3.1. The Issue: Water Quantity

Apprehension among people downstream of the NT2 dam focuses on the impact of reduced flow on fish and riverbank cultivation. On the Xe Bang Fai River and its tributaries, people's worries stem from the anticipated increase in water flow and volume as a result of the dam operations, and the prospective flooding and slow receding levels, leading to disruptions in farming, fishing and other affected activities.

NTPC Action

- Furnish information to and hold community discussions with all potentially affected communities regarding actions that will be taken to compensate for loss of fisheries and other negative impacts traceable to the construction and operation of the dam.

4.3.2. The Issue: Compensation

The rationale for compensation remain confusing, especially where a business plan is required to obtain compensation loans from the Village Development Fund.

NTPC Action

- Clarify the distinction between the provision of credit facilities in the community development program (which is a development opportunity) and the ways by which the NTPC will discharge its responsibility to compensate for damages and losses incurred by individuals, households and communities; discuss with the communities feasible approaches to the problem, and communicate agreements clearly to remove persisting uncertainties.

4.4. The Issue: Enhancing Women’s Capacities and Participation

Women’s labor dominates on village farms, often leaving them exhausted, unhealthy, malnourished and depleted from frequent childbirth and carrying out tasks involving the family, backyard animal raising and garden cultivation. Their voices are rarely heard in male-dominated village meetings. Yet they articulate their interest in improving their income levels and marketing skills, crafts production, their access to credit and mastery of fund management. Project criteria for success in activities still only rarely disaggregate results by gender, except if the activity includes a “women’s project.” The Lao Women’s Union mobilizes its constituency well, but is still far removed from village level activities that could bring together large numbers of women in action modes.

NTPC and GOL Joint Action

- Enable the Lao Women’s Union (LWU) and the Lao Front for National Construction (LFNC) to formulate and implement programs at village levels that focus on women’s participation in local decision making processes and skills development.

4.5. The Issue: Financial Management

Successful financial management implies equivalent progress toward poverty eradication aims, along with efficient implementation and monitoring.

GOL Action

- Consider an element in eligible programs for small local poverty reduction projects developed through participatory planning at the village level.

- Ensure that additional expenditure on eligible programs is correctly targeted to poverty reduction.
- Include analysis and prioritization of eligible programs in the terms of reference for the forthcoming PER-IFA and link that to a mid-term review of the NESDP.
- Give priority in the Public Financial Management Strengthening Program (PFMSP) to the development of impact measures of the eligible programs.
- Ensure that adequate attention is paid to strengthening Ministry systems for collection of output and impact measures as well as broader outcome measures.

5. Planning for the Future: GOL, NTPC, WB, IFIs, LWU, LFNC, CSOs/NGOs.

- 5.1. Incorporate into monitoring schemes like the Living Standard Management Survey, qualitative assessments to complement quantitative measures; to allow greater understanding of affected persons' thinking.
- 5.2. Design a permanent monitoring system for economic, environmental and socio-cultural changes arising from NT2, starting from 2010 and extending to at least 25 years after the end of the project; including a regular system of multi-stakeholder assessments, focusing on what worked, what didn't work, and why.
- 5.3. Integrate environmental and socio-cultural goals and other factors (the value of all services provided and foregone) at the outset of reservoir, river basin and country-wide planning for hydro developments; make provision for differential rates of implementation between environmental and socio-cultural changes over physical infrastructure components by starting the former set much earlier in the project cycle than the latter; community participation and communication would be a starting point.
- 5.4. Enhance participatory processes in the affected villages, drawing in the support and skills of Lao mass organizations and civil society organizations both for planning and for lesson-drawing.
- 5.5. Integrate environment and socio-cultural factors in basin-wide and country-wide water resources planning, taking also into account the emerging threats of climate change and its impact on precipitation and water management, identified on an on-going basis and integrated into water resource planning and management.

5.6. Build capacities in river basin planning to optimize water management, water use, and benefits to the people while minimizing disruptions.

6.0 Final Statement

The members of the IAG appreciate the opportunity once more to have been able to offer our collective insights to the President of the World Bank, to the Government and people of Lao PDR, and to many involved development partners. All of us share the conviction that development technology must work for the environment and for people, particularly the poorest and most disadvantaged among them. Hence the potential of the Nam Theun 2 Dam to demonstrate that achieving those objectives is a feasible goal. The process is moving well, but cannot yet rest on its laurels. By focusing on sustainable livelihoods and their impact on affected persons' well-being, the IAG through its 8th Report is calling attention to this crucial component in model-building for Nam Theun 2.

Annex 1. Schedule of Activities

IAG-NT2 8th Mission Schedule of Activities

TIME	ACTIVITY	LOCATION
Saturday, February 2		
	Arrival in Vientiane	
Sunday, February 3		
7:30 – 9:00	Breakfast, organizational meeting	Novotel
9:15 - 16:00	Travel to Nam Houm Reservoir	Vientiane
16:00 – 17:30	Travel back to hotel	
Monday, February 4		
10:00 – 12:00	Meeting with the World Bank, GOL and NTPC	World Bank Conference Room
12:00 – 13:00	Lunch	World Bank Conference Room
13:00 – 17:00	Meeting with the World Bank NT2 Team	World Bank Conference Room
Tuesday, February 5		
9:30	Audio conference with Shabih Ali Mohib, Financial Management Specialist from Bangkok	World Bank Conference Room
10:30	Audio conference with Emil Salim, IAG member, in Indonesia	
12:00 – 13:00	Lunch	
14:00 - 15:30	Meeting with Mr. Bounthong Keomahavong, DG Fiscal Policy and head of NT2 RMA Implementation Coordination Committee	MOF

TIME	ACTIVITY	LOCATION
16:00 - 17:30	Meeting with Jim Chamberlain	World Bank Conference Room
18:00	Meeting of the IAG in preparation for the meeting with GOL	Novotel
Wednesday, February 6		
9:00 - 10:00	Minister of Energy and Mines - H.E. Dr. Bosaykham Vongdara	MOEM
10:30 - 11:30	Minister of Agriculture and Forestry – H.E. Mr. Sitaheng Rasphone	MAF
12:00 – 13:00	Lunch	
14:00 – 17:00	IAG meeting	WB Conference Room
Thursday, February 7		
08:30 - 09:30	General Manager, Lao Holding State Enterprise – Mr. Somboune Manolom	LSHE
09:45 - 10:30	Director General of Energy Promotion and Development Department – Mr. Xaypraseuth Phomsoupha	MOEM
11:00 - 12:00	Meeting with Resident Representative Mrs. Sonam Yangchen and Deputy Resident Representative Stephane Vigie	UNDP
12:00 – 13:00	Lunch	
13:30 - 14:30	Meeting of Rob Laking and Mr. Sanya Praseuth Deputy Director General, Cabinet Office on GFIS and Chart of Accounts (Joint meeting with Mr. Phoxay Chanthalangsy, DDG of Accounting Department and Mr. Pradeep Agarwal, Advisor on Chart of Accounts revision on determining eligible programs for NT2 revenues & plans on developing new revenue sharing framework	MOF
13:30 – 14:30	Minister of Industry and Commerce– H.E. Mr. Nam Viyaketh	MOIC
16:30 - 17:30	Meeting with ADB and AfD – updates on respective tasks and concerns in NT2	World Bank Conference Room

TIME	ACTIVITY	LOCATION
19:00	Dinner meeting with the POE	Amphone Restaurant
Friday, February 8		
	Meetings with other Institutions, INGOs and POs	
09:00 - 10:15	Mekong River Commission	MRC Office
10:30 - 12:00	POE wrap-up meeting	NTPC
12:00 – 13:00	Lunch	
13:30 - 14:30	Meeting with WWF – Mr. Roland Eve, Country Director	WWF
13:30 – 14:30	Meeting of Rob Laking and Mr. Nisith Keopanya – Deputy Director General of the Department of Public Administration and Civil Service, PMO	DPA Office
15:00 - 16:00	Meeting between Dick de Zeeuw and Arlyne Johnson, Director of WCS	WCS Office
15:00 - 16:00	Meeting of Rob Laking and Deputy Director General for External Finance, Thippakone Chanthavongsa on effectiveness of Aid Coordination with regards to PFM reforms.	MOF
15:00 - 16:00	Meeting of Mary Racelis and Frank Reimann, Country Director, CARE International	CARE Office
16:30	Meeting of the IAG in preparation for the site visits and meetings with the GOL local officials and villagers	World Bank
Saturday, February 9		
	Site Visit	
07:00 - 12:00	IAG Team and NTPC Team leaves Vientiane	Vientiane
12:00 – 13:30	Lunch	Laksao
13:30 – 15:00	Travel from Laksao to Dam Site	
15:00 –16:00	Visit Dam Site with Greg Watson in-charge	Nakai

TIME	ACTIVITY	LOCATION
16:00 – 17:00	Travel from Nakai Dam to Old Sop Hia Village, interaction with Mrs. Maie Mo Khamson and the Vietic families	
17:00 – 18:30	Travel from Old Sophia Village to New Nam Nian Village, Interaction with the four Vietic families	
19:00	Check in at the NTPC wooden guesthouse	
Sunday, February 10 check on the time from the pictures		
8:30 – 9:30	Travel to Pilot Village, Nong Boua. Briefing by Jean Foerster	
9:30	Travel to Boua Ma. Interaction with the Villagers	
11:30	Travel to Ban Done. Interaction with the Villagers	
	Lunch	
14:25	Travel to Nakai Neua. Interaction with the Villagers	
14:00 – 17:00	Travel to Sop Pean. Interaction with the Villagers	
17:30 – 19:00	Presentation on Resettlement updates by J. Foerster	NTPC Office
Monday, February 11		
9:00 – 11:30	Meeting with WMPA Officers, staff and consultant	
11:30 - 13:30	Lunch	
12:30 – 15:00	Travel and visit to the Power house	
15:00 – 16:00	Travel and meeting at the Project Land Office	PL Office
16:00 – 17:30	Travel to Ban Lao Village. Interact with the Villagers	
17:30 – 19:00	Travel to Thakek	
19:00	Check in at Riveria Hotel	Thakek
Tuesday, February 12		
8:00 – 09:30	Meeting with NTPC Downstream Program Team	DSP Office
12:00 – 14:00	Travel to Yangkham Village along the Xe Bang Fai River. Interaction with the villagers	
	LUNCH	
16:00 – 17:30	Travel to Keng Pe Village. Interaction with the villagers and the women weavers	

TIME	ACTIVITY	LOCATION
Wednesday, February 13 – Back to Vientiane		
8:00 – 9:00	Meeting with J. Foerster	DSP Office
9:00 – 11:30	Meeting with Governor Khambay Damlat of Khammouane Province	Governor's Office
10:30 – 11:30	Meeting of Rob Laking and Mr. Bounmy, Director of Finance Department, Khammoune Province.	
	Lunch	
	Travel back to Vientiane	
18:15	Meeting with H.E. Mr. Somsavat Lengsavad, Standing Deputy Prime Minister of Lao PDR	PMO
Thursday, February 14		
09:00 - 10:00	Meeting with the Lao Women's Union	LWU office
10:30 - 11:30	Meeting with the Lao Front - Mr. Xayamang Vongsak, Vice President to Lao Front National Construction	LF Office
10:30 – 11:30	Video Conference of Rob Laking with Sausalito Vongviengkham and Shabih Ali Mohib	WB Conference Room
12:00 – 13:00	Lunch	
	IAG Meeting	WB Conference Room
13:30 – 14:40	Meeting between Rob Laking and Mdme. Amphonaly Keola, Vice President of the State Audit Organization on the Audit Peer Review	MOF
15:00 – 16:00	Meeting between Rob Laking and Mr. Phouthanuphet Saysombath, Deputy Director General for Treasury Department	
	Meeting with H.E. Mdme. Khempheng Pholsena, Minister to the Prime Minister's Office and Head of the Water Resources and Environment Administration	WREA
Friday, February 15		
9:00-12:00	IAG discussion and writing of briefing document	World Bank Conference Room

TIME	ACTIVITY	LOCATION
12:00 – 14:00	Briefing to the World Bank Staff – (Mr. Ian Porter, World Bank Country Director for Southeast Asia and Mr. Patchamuthu Illangovan, World Bank Manager, Lao PDR)	World Bank Conference Room
14:00 – 16:00	Briefing to World Bank, GOL, NTPC, ADB and AfD	World Bank Conference Room
Saturday, February 16, 2007		
09:00	Writing and discussion on preliminary recommendations, structure of the 8 th IAG Report, tasking and timelines.	World Bank Conference Room
Evening	Departure from Vientiane	

Annex 2. Acknowledgements

The IAG sincerely appreciates the valuable information, assistance, cooperation and hospitality of all the people listed below. Special mention is due to Ms. Vilayvanh Phonepraseuth of the World Bank Office in Vientiane for diligently attending to the IAG's appointments and other logistical requirements as well as to Mr. Phalim Daravong of NTPC for the quick facts on NT2 during the site visit and for his initiative in providing informative documents.

Government of Lao PDR (GoL)

H.E. Mr. Somsavat Lengsavad, Standing Deputy Prime Minister

Ministry of Energy and Mines

H.E. Dr. Bosaykham Vongdara, Minister
 Mr. Xaypaseuth Phomsoupha, Director General, Department of Energy Promotion and Development
 Mr. Sychath Boutsakitirath, Deputy Director General, Department of Energy Promotion and Development

Ministry of Agriculture and Forestry

H.E. Sitaheng Rasphone, Minister
 Mr. Sousath Sayakoummane, Deputy Director
 Permanent Secretary Office
 Mr. Nouanedeng Rajvong, Deputy Director General,
 Department of Irrigation

Ministry of Finance

Mr. Boonthong Keomahavong, Director General, Fiscal Policy Department and head of NT2 RMA Implementation Coordination Committee
 Mr. Phouthanuphet Saysombath, Deputy Director General for Treasury Department
 Mr. Phoxay Chanthalangsy, Deputy Director General for Accounting Department
 Mrs. Thongdy Soulisack Deputy Director General for Fiscal Policy Department
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Ministry of Industry and Commerce

H.E. Mr. Nam Viyaketh, Minister
Mr. Phouvong Phommabouth, Deputy Director, Department of
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Chairperson of the Lao National Mekong Committee

Mr. Nisith Keopanya – Deputy Director General, Department of Public
Administration and Civil Service

Lao Holding State Enterprise

Dr. Somboune Manolom, General Manager
Dr. Sayphet Aphayvanh, Deputy General Manager

Khammoune Province

H.E. Khambay Damlat, Governor
Mr. Bounmy, Director of Finance Department
Mdme Keoula Souliyadeth – Vice President, Lao Women's Union

Watershed Management and Protection Authority

Mr. Bounsalong Southidara, Deputy Director, Finance and
Administration
Mr. Lamphanh, Deputy Director
Mr. Soukatha, Deputy Director
Mr. Souvanthong, Livelihood Department Manager
Mr. William Robichaud, Technical Advisor, Participatory Protected
Area Management

Mr. Xayamang Vongsak, Vice President, Lao Front for National Construction

The people of the following villages:

Mrs. Maie Mo Khamsone and the Vietic families in Old Sop Hia Village
 Ban Nam Nian
 Ban Nongboua
 Bou Ma
 Ban Done
 Ban Nakai Neua
 Ban Sop Pean
 Ban Yang Kham
 Ban Keng Pei

Nam Theun 2 Power Company (NTPC)

Mr. Jean-Pierre Katz, Chief Executive Officer
 Mr. Christophe Maurel, Chief Operating Officer
 Mr. Jean Foerster, Environmental and Social Director
 Mr. Olivier Salignat, Social and Environmental Deputy Director
 Mr. Ian McAlister – Deputy Director of Construction Division
 Mr. Greg Watson, Engineering Manager
 Mr. Marcel Frederik, Project Leader/Manager, Project Lands Team
 Mr. Soun Nilsvang, Livelihood Restoration Team Leader
 Phongsawath Keovichit, Grievance Team Leader
 Bounleng Philavong – GOL Relation Team Leader
 Richard Peary, Infrastructure Team Leader, Downstream Program
 Mr. Bounhom Phothimath, Community Development/Village Fund Team
 Leader
 Mrs. Khamkhing Inthavong, Administration and Finance Team Leader
 Steven Usher, Senior Program Officer
 Mr. Bounthanom Chamsingh, Aquaculture Specialist
 Mr. Phalim Daravong, GOL Support Team Coordinator
 Mr. Pat Dye – GOL Liason
 Mr. Pheng Souvanthong
 Mr. Khamphet – E&S Team
 Mr. Khambai Phanthavong - Soil Conservation Officer
 Ms. Anita Chanthalangsy, Communication Specialist
 Mr. Loy Chansavat - Advisor

The World Bank

Mr. Ian C. Porter, Country Director for Cambodia, Lao PDR, Malaysia, Myanmar and Thailand
 Mr. Patchamuthu Illangovan, Country Manager, Lao PDR and NT2 Field-based Project Coordinator
 Mr. Jitendra (Jitu) Shah, Sector Coordinator, Rural, Environment and Social Development, South East Asia – Country Management Unit
 Mr. William Rex – Lead Country Officer, Task Team Leader of NTSEP
 Ms. Manida Unkulvasapaul, Senior Environmental Specialist
 Mr. Shabih Ali Mohib, Financial Management Specialist
 Ms. Stephen Ling, Environment Specialist
 Mr. Viengkeo Phetnavongxay, Environment Specialist
 Ms. Gillian Brown – Social Development Specialist
 Mr. Sybounheung Phandanouvong, Social Development Specialist
 Ms. Nanda M. Gasparini, Communications Specialist
 Ms. Vilayvanh Phonepraseuth, Program Assistant
 Viengsamay Srithirath, Communications Assistant
 Mr. Sausalito Vongviengkham

.....and all the administrative staff

Asian Development Bank (ADB)

Mr. Gil-Hong Kim, Country Director
 Ms. Marla Huddleston, Senior Resettlement Specialist

Electricite de France (EDF)

Mr. Frank Leglise – Representative Officer

Agence Francaise de Development (AFD)

Guy Francois, Charge de Mission

United Nations Development Program (UNDP)

Mr. Stephane Vigie, Deputy Resident Representative
 Ms. Phanchinda Lengsavad, Assistant Resident Representative

Mekong River Commission (MRC)

Mr. Boriboun Sanasisane, Director of Natural Resources Development
Mr. Keu Moua, Environmental Policy and Management Specialist
Mr. Ton Lennaerts, Chief Technical Adviser, Basin Development Plan
Mr. John Forsius, Senior Modeling Advisor, Technical Support Division

International NGO's

Ms. Arlyne Johnson, Director, WCS
Mr. Frank Reimann, Country Director, CARE International
Mr. Roland Eve, Country Director, World Wildlife Fund

Consultant

Ms. Kesone Sayasane - Social, Gender, and Community Participation

Resource Person

Mr. James R. Chamberlain, Anthropologist, Resource Person on Socio-cultural Assessment and Policy

Annex 3



LAO PEOPLE'S DEMOCRATIC REPUBLIC
Peace, Independence Democracy Unity Prosperity

PRIME MINISTER'S OFFICE
/PM

No. 24

Vientiane Capital, 13 February

2008

DECREE ON WATER RESERVOIR OF NAM THEUN 2 POWER DAM

- Based on the Law on the Government of the Lao PDR No. 02/NA, dated 06 May 2003,
- On the proposal of the Minister of Energy and Mining No. 9/EM, dated 07 February 2008,

**THE PRIME MINISTER OF THE LAO PDR
DECREES:**

PART I

GENERAL PROVISIONS

Article 1 This Decree determines the principles and regulations on the management of the Water Reservoir of the Nam Theun 2 Power Dam in order to be in conformity with the Concession Agreement of the Nam Theun 2 Project between the Government of the Lao PDR and the Nam Theun 2 Power Company Limited, dated 03 October 2002, the Resettlement Plan and the related Laws and Regulations of the Lao PDR with the aim to manage and protect the environment and water resources in the Water Reservoir of Nam Theun 2 Power Dam and to improve progressively the living standards of the population of Nakai Plateau area.

Article 2 The use of the drawdown area land, corridor area forest and fishery in the Nam Theun 2 Power Dam Water Reservoir as provided for in this Decree shall be undertaken in sustainable manner. All activities related to the use of drawdown area land and corridor area forest, and fishery shall not cause negative effects to the environment and the electricity power production of the Nam Theun 2 Power Company Limited.

PART II

AREAS AND MANAGEMENT

Article 3 To manage the Nam Theun 2 Power Dam Water Reservoir and to improve the living standards of the people in the Nakai Plateau area the Government shall establish the Nam Theun 2 Power Dam Water Reservoir Management Committee; authorize to use some portions of land in the areas of drawdown zones and forest corridor areas; and issue regulations on Management of fishery and fishery related activities.

Article 4 The Nam Theun 2 Power Dam Water Reservoir Management Committee as provided for in the Article 3 of this Decree shall be headed by the Vice Governor of the Khammouane Province as Chair and has its own Permanent Assistant Unit.

Article 5 Areas in details of the Nam Theun 2 Power Dam Water Reservoir area as provided for in the Article 6 of the Prime Minister's Decree No. 193/PM, dated 19 December 2000 shall be determined by Nam Theun 2 Water Resources Management and Protection Authority in collaboration with the Nam Theun 2 Power Dam Management Committee.

PART IV

RIGHTS OF THE RESETTLERS

Article 6 Authorize the resettlers effected by the Nam Theun 2 Project to use the land areas in the drawdown zones at the level between 525,5 meters to 538 meters above the Sea level which have the total area of approximately 7.900 hectares and located in the West of the Nam Theun 2 Power Dam Water Reservoir and have the border between Ban Thalang-Nong Bouakham up to Ban Khonkhen area for agriculture and livestock grazing use. Area of corridor forestry situated between Nam Yalong (Nam Malou) and

Nam Theun Water area in Thalang area with the total area approximately of 2.600 hectares is granted the right to use to Village Forestry Association in complying with Regulation on Village Forestry Management issued by the Ministry of Agriculture and Forestry No. 0537/MAF, dated 10 June 2001. The said area of land and forestry is the supplement area added to area permitted for use of 20.000 hectares.

Article 7 The rights of fishery, fish processing and fish trading are reserved for the resettlers for the period of 10 years from the date of the dam closure.

PART IV

IMPLEMENTATION

Article 8 The Ministry of Agriculture and Forestry, the Water Resources and Environment Authority and the National Land Management Authority are mandated to issue the regulations on Management of fishery, forestry, water resources and land in accordance with their roles respectively.

Article 9 The Ministry of Agriculture and Forestry, the Water Resources and Environment Authority, the National Land Management Authority, Borikhamxay Province, Khammouane Province and all Parties concerned are in charge of implementation of this Decree.

Article 10 This Decree is effective from the date of signature.

PRIME MINISTER OF THE LAO PDR

(Signed and Sealed)