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For the Government of Lao People's Democratic Republic
Ministry of Energy and Mines
Nam Theun 2 Power Company Limited (NTPC)

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Asian Development Bank

LAO PEOPLE'S DEMOCRATIC REPUBLIC

NAM THEUN 2 MULTIPURPOSE PROJECT

**TWELFTH REPORT OF THE INTERNATIONAL SOCIAL AND
ENVIRONMENTAL PANEL OF EXPERTS**

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29 SEPTEMBER 2007

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**For the Nam Theun 2 Project
Lao People's Democratic Republic
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SUMMARY OF RECOMMENDATIONS

The POE recommends that:

- **1-12.** The Nakai District Working Group, the RMU and NTPC get on with planning and implementing economic production and marketing activities in all resettler villages, including Old Sop Hia, before dam closure; otherwise there is a risk that living standards will drop following closure.
- **2-12.** The VFA prioritize throughout 2008 village committee capacity building, patrolling of VFA forest resources throughout the resettlement zone, rethinking best use of the three and five hectare allotments, and active village committee involvement in reservoir biomass removal that will support such livelihood activities as drawdown agriculture, clearance of open water fisheries and inter village communication lanes, and production of charcoal.
- **3-12.** The WMPA, the RMU and the RO agree no later than December 2007 on the type of access to the NNT-PHP corridor needed for the northern cluster of villages on the Thalang Peninsula to meet the income requirements of the Concession Agreement. In the absence of such an agreement the POE will recommend in January 2008 an alternative plan to the Deputy Prime Minister, Standing member of the Government.
- **4-12.** The otherwise excellent health program increase its emphasis on family planning (including gender mainstreaming that addresses women's desire for smaller families), ready availability of preferred means for birth control and education of girls, and on sexually transmitted infections in resettler villages.
- **5-12.** Production of the Interim Management Plan on Biomass Clearance and Reservoir Management be expedited and that the GOL and the NTPC immediately get together, if necessary with a mediator, to settle on priorities and respective responsibilities and initiate action accordingly before the dry season starts.

- **6-12.** Consideration be given to setting up a locally-based Reservoir Management Committee to approve reservoir management policies and set regulations for the use of the reservoir beyond power generation requirements and to a Reservoir Management Unit (perhaps modeled on the Resettlement Management Unit) to implement policies and regulations and to deal with day to day issues as they arise.
- **7-12.** Membership of the Committee include the Reservoir and Fishery Managers and their senior technical staff, representatives of Village Fisheries Committees and of the WMPA Secretariat, the Head of the RMU, the NTPC Livelihood Manager and relevant District representatives, including the Nakai District Governor, who might chair the Committee.
- **8-12.** A Decree of the Prime Minister be issued no later than the end of 2007 that requires the implementation and enforcement of the CA requirements that the fishery resource and the fish trade be restricted to resettlers for at least a period of ten years and that states that productive use of the drawdown area adjacent to the resettlement zone is restricted to resettler villages.
- **9-12.** The RMU recruit by the end of October 2007 a Reservoir Fishery Manager to work with NTPC and other GOL staff to design, with active resettler participation, and commence implementation of a fishery management plan.
- **10-12.** The Executive Summary and Part 1 of the SEMFOP be translated into Lao and copies be made available to the WMPA Board, staff, and others as appropriate.
- **11-12.** Within the next two months the WMPA narrow its strategic planning focus to the usual three year time frame and bring into the process one or two well qualified people with Laos experience to help inject new ideas and stimulate new and innovative thinking.
- **12-12.** The purpose be to produce a new overall WMPA strategy incorporating a clear set of objectives and desired outcomes designed inter alia to take account of the various pressures on the policy and resources fronts, to bridge short term gaps in household incomes and food supplies resulting from restricted access to the forests of the NPA, to proactively devise and implement activities integrating conservation and development work and to draw on all available trained manpower in an aggressive attempt to inhibit ongoing rosewood and wildlife poaching particularly by outsiders.

- **13-12.** If the new strategy calls for the appointment of a new Lao-speaking Technical Assistant to manage a revitalized integrated conservation and development initiative, priority be given to recruitment of such a person.
- **14-12.** The watershed access strategy be finalized, desirably emphasizing the North/South axis down to a ferry point or points on the reservoir and, in the POE's strongly-held view, involving tracks no more than two meters wide capable of taking motor cycles and two-wheeled tractors only---and be implemented as a matter of urgency, given the imminence of the final filling of the reservoir. Effective monitoring and control of the human use of tracks built will be essential.
- **15-12.** The budget for the next twelve months be amended accordingly and resubmitted to the WMPA Board.
- **16-12.** As an urgent priority, the WMPA reinstate and strengthen its anti-poaching patrol activities, particularly in the areas of the upper watershed adjacent to Vietnam and the upper Nam Xot adjacent to the PIZ.
- **17-12.** The GOL maintain its commitments to ensure the integrity of the NNT-NBCA and accordingly allow no extension of salvage logging beyond the already agreed-upon areas west of the Nam Theun.
- **18-12.** The western boundary of the NPA be redrawn to create as straight a boundary as possible, marked by a line of floating buoys where a clear line of sight can be maintained to facilitate patrol and protection of the NPA.
- **19-12.** The gold mining operation within the NPA be stopped; that any remaining miners who do not come from the six local villages be removed immediately; that under WMPA supervision the shafts and other excavations, mercury ponds and other disturbances created by the mining be covered over and natural vegetation be allowed to recover the area; and that the villagers from the six local villages be assisted to pursue traditional mining in the legal area and to develop augmented or alternative forms of livelihood.
- **20-12.** The GOL apply for World Heritage Status for the NPA without further delay.
- **21-12.** The NTPC accelerate the program to counter flooding and erosion impacts, rehabilitate water gates and construct mini-polders so as to ensure that the mitigation and protection measures are all in place earlier---preferably by the time of the

first major test of their capacity in June 2009 and certainly by COD.

- **22-12. The aquaculture program in the downstream villages be expanded at a pace which reflects the imminence of the impacts on the XBF fishery and that the NTPC make preliminary plans to supplement emerging protein deficiencies in village diets while aquaculture projects are put in place in the downstream villages which want them.**
- **23-12. After the findings of the first IMA visit are available the Downstream Team (NTPC and District/Provincial level) hold a strategizing workshop to clarify where the program is going and to attempt to define what constitutes “restored livelihoods on a sustainable basis” and how to achieve and fund the whole exercise.**
- **24-12 . One or both of the two other IFIs chiefly involved in the project (ADB and ADF) pick up the KRLP co-financing opportunity.**
- **25-12. Further public information be provided by NTPC on the options presented to villagers downstream of the dam, on what procedures were followed and with what verification of the results---in order that POE can assess, for example, whether an aquaculture assistance option should also be provided.**
- **26-12. NTPC management and expatriate staff members assume a greater responsibility for helping identify and train Lao people to take over individual positions, particularly in the livelihood and other social fields and on the environment front.**
- **27-12. GOL agencies take responsibility for formally appointing potential replacements for expatriate staff to understudy the expatriates and acquire field experience. (The POE will closely track implementation of these two recommendations.)**
- **28-12. The new Water Resources and Environment Administration (WREA) give early attention to strengthening its presence on the ground by appointing a senior professional to the Nakai office, giving her/him greater power to respond to environmental crises on the spot and providing that office with the transport and funding resources to enable the staff to do their vital job in both Khammouane and Boulikhamxay Provinces.**
- **29-12. NTPC/GOL facilitate a closer working relationship between the Gender Advisors, including the World Bank**

specialist, and the POE, preferably ensuring that their periodic visits overlap on occasion.

- **30-12. The NTPC give more emphasis to gender strategies, for example by assisting in the collection and disaggregation of village data to foster qualitative research on gender issues and by endeavoring to achieve senior and professional staff gender targets and encouraging the RO to recruit female staff.**

1. INTRODUCTION

This is the twelfth report of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) Multisectoral Project in the Lao People's Democratic Republic. The members of the Panel are D.K.McDowell (consultant, Otaki, New Zealand), T.Scudder (California Institute of Technology, USA) and L.M.Talbot (George Mason University, Virginia, USA).

The project is a multisectoral one featuring the construction of a large dam on the Nam (River) Theun and the diversion of waters through turbines to the neighbouring Xe Bang Fai river basin principally for the purposes of producing hydroelectricity for export to Thailand, but also for fostering dry season irrigation where feasible. Present plans call for reservoir impoundment in June 2008 and commercial production of electricity in December 2009. A key feature of the project is the conservation of the biodiversity rich and culturally diverse Nam Theun watershed as an offset for the inundation of much of the Nakai Plateau.

The Panel has been strongly supportive of the project throughout its long gestation and remains so. We regard many of its features and procedures as models for other projects elsewhere in Laos and beyond. As it has steadily evolved in more recent years from a one sector hydropower project into a multisector development enterprise we have become the more convinced of its potential as a global model. And the solemn undertaking by the Concession Agreement (CA) parties to continue to meet their obligations and responsibilities to the people affected by the project until in the opinion of the POE the CA's social and environmental goals have been met---a period of nine years or possibly more---is a breakthrough in implementing infrastructure projects of this scale.

This has not inhibited the Panel from frankly criticizing over the years those aspects of the project with which we have found fault. Our endeavor has been thereby to seek to improve, through constructive comment, on the performance of those who have responsibility for managing the whole complex exercise through to completion. That our criticisms may occasionally have been used out of context to suggest that the Panel does not support the project as a whole is unfortunate. It will not deter the Panel from continuing to draw on its extensive collective experience to point out inadequacies in planning and execution and suggest alternative courses of action.

The next dramatic moment in the project's evolution is scheduled for June 2008 when the reservoir is to be fully impounded for the first time. It is here that the parallel construction and social development tracks intercept. Though prospects have improved since January 2007 for meeting the Concession Agreement's requirements for dam closure on time, the POE remains concerned about ongoing delays in implementing the necessary

livelihood activities and the risk that resettler living standards will drop following reservoir impoundment.

1.1 The Panel's Mandate

The Panel derives its mandate from the Concession Agreement covering the project. This is a 600 page legal document which is virtually unprecedented in the history of World Bank supported projects. It is a comprehensive spelling out of the roles of all involved in the exercise and lists in detail their respective responsibilities and obligations. In the case of a complex multisectoral project like this one, which involves not simply the construction of a large dam in a poor developing country but a substantial inter-basin transfer of waters, an offsetting arrangement for protecting the flora and fauna of the biodiversity-rich and culturally diverse watershed and compensation and restoration of the incomes of several hundred villages downstream of the dam itself and of the powerhouse, the Concession Agreement is proving to be an invaluable instrument for implementing the project plans. It has become a constant point of reference for all parties involved and, with some relatively minor exceptions, is being closely adhered to.

One of the few areas where the Agreement has not always been closely adhered to is in the timely production of Site Specific Environmental Plans (SSEPs) by the Head Contractor to enable the NTPC's own environmental staff as well as the GOL's Environmental Management Unit to assess impacts ahead of time and propose any necessary changes (see section below on infrastructure development). One of the few gaps is the designation of responsibility for supervision of biomass clearance from the reservoir, which has led to some risky delays in action on this front (see section below on salvage logging and biomass removal).

The Concession Agreement assigns the POE a contractual responsibility to provide independent review of and guidance on the treatment of environmental and social issues associated with the Project. It submits its findings to the GOL Minister of Energy and Mines, may address recommendations to the NTPC (and frequently does so), and is required to assess the extent to which NT2 meets the requirements of the safeguard policies of the World Bank and the Asian Development Bank on such issues as the environment, indigenous peoples and resettlement with development.

1.2 Panel Activities

Arriving in Vientiane on 5 August 2007 on its regular six-monthly visit, the Panel met with relevant Ministries and agencies of the GOL and NTPC, plus the World Bank, and then went south to Thakhek to meet the Khammouane Governor and to be briefed on the Downstream and Project Lands and health programs. Having visited the flood-swollen Xe Bang Fai, the Panel was shown the impressive construction sites of the Regulating Dam and the power house and then spent eight days on the Nakai Plateau, including two

days on the partially full reservoir getting an entirely different perspective on the post-impoundment scene. While on the Plateau the Panel held useful discussions with several GOL agencies concerned with the project, with the GOL's RMU and the NTPC's RO with special emphasis on the Livelihood Section which now includes the Village Forestry Association and fisheries, with the Salvage Logging Committee (SLC), with the Watershed Management and Protection Authority's Secretariat and with the Nakai District Governor.

The Panel visited most resettlement villages and also inspected the sites of former villages, several of which were still partially occupied by people tending buffalo, fishing and, the POE suspects, in some cases snaring wildlife and poaching rosewood. The POE took two opportunities to talk to WMPA/DAFO/Army patrols about their experiences in the field and were intrigued to find that with the Nam Xot in flood and the partially impounded reservoir producing a backwater effect it was possible to pass over the rapids on the Nam Xot through the foothills and up to the first of the NPA villages--- a circumstance with implications for providing services in the wet season to the Nam Xot villages at least.

Returning to Vientiane, the Panel met with the Minister for Energy and Mines and the Minister of Agriculture and Forestry and was privileged to spend time also with the Boards of the NTPC and the WMPA. A most useful session with the Deputy Prime Minister, Standing member of the Government, debriefings of NTPC, GOL and IFI and other stakeholders and a press conference (by teleconference with Bangkok as well as Vientiane) wrapped up a full mission. The Panel members departed Vientiane variously on 23 and 24 August.

1.3 Acknowledgements-Appreciation

The Panel expresses its appreciation for the organizational time and energy devoted by GOL, NTPC and WMPA staff to setting up a most worthwhile schedule. It is grateful to the Minister of Energy and Mines, Hon. Bosaykham Vongdara, the Minister of Agriculture and Forestry, Hon. Sitaheng Rasphone and the Deputy Prime Minister, Standing member of the Government, Hon. Somsavat Lengsavat, and the Governors of Khammouane Province and Nakai District and the CEO of NTPC, Bernard Tribollet, for their insights and time.

1.4 Priorities and Timing

The Concession Agreement provides an approximate timetable for completion of various phases of the construction and social aspects of the Project. The decision to introduce a fill-flush strategy before the Commercial Operating Date (COD) to help remove decomposing biomass and anoxic water from the reservoir by massive flushing through the dam gates into the Nam Theun during flood events and release of reservoir bottom water diluted by oxygenated top water in the next two dry seasons has modified the interim reservoir management strategy somewhat. But as mentioned above the CA requirement that reservoir impoundment should not commence until all

resettlers have been satisfactorily relocated in accordance with Schedule 4 remains in place. Although there is some discussion of possible earlier impoundment and commercial operation dates the likelihood is still for no impoundment before May/June 2008.

POE recommendations in the body of this report give the most immediate priority to the following activities relating to the CA's timetable and the situation of the resettlers prior to dam closure and reservoir formation:

- end of September 2007---finalization of the Interim Management Plan on Biomass Clearance and Reservoir Management.
- end of October 2007---agreement reached between the NTPC and the GOL on priorities for reservoir clearance, who has the lead on which element of the clearance exercise and who is to initiate action accordingly.
- mid-October 2007---translation into Lao of this POE report and translation also of basic elements of CA and SEMFOP relating to philosophy and policies of WMPA, all three documents to be widely distributed.
- end of October 2007---decisions on reservoir organisation and recruitment of RMU's Reservoir Fishery Manager.
- end of October 2007---WMPA rethink of its medium term strategy completed.
- end of December 2007---Prime Ministerial Decree published on exclusive rights of resettlers to reservoir fishery, fish sales and processing and drawdown utilization.
- end of December 2007---livelihood activities across a range of sectors initiated, for example, addressing the resource problems of the Northern cluster of villages, the clarification of the status and importance of the drawdown zone, the rewriting of the fishery regulations and participatory consultations underway with villages on a reservoir fishery management organisation, and the prioritisation of capacity building in the Village Forestry Association.
- end of February 2008---a prudent target for completing the resettlement infrastructure program.
- end of June 2008---reservoir impoundment to begin, assuming this is finally authorized by GOL's Resettlement Committee on advice from the POE.

2. THE NAKAI PLATEAU

2.1 District Administration Issues

During the POE's meeting with the Nakai District Governor, the Governor requested that the POE discuss with NTPC project management in Vientiane the need to address the following issues:

- Restore the access road that will be flooded by the reservoir in the Nam Malou area to 21 district villages below the escarpment.
- Replace rolling contracts for key NTPC staff with, at the minimum, one year contracts with full benefits and, preferably, longer contracts through COD. The POE agrees that this is a major issue that must also be resolved this year for permanent NTPC staff associated with the downstream program.
- Provide appropriate access to New Oudomsouk across the channel behind the Saddle Dam as well as a means, for example, to retain water releases for use by racing boats.
- Correct the inadequate water supply in New Oudomsouk that involves both bore holes and shallow wells.

The POE brought these issues to the attention of NTPC project management and the NTPC Project's Board of Directors and received assurances that they would be addressed to the satisfaction of the District Governor, planning for the latter two sub-projects being already underway. (In the interests of better public relations such plans should be made known more widely.)

2.2 Livelihood Organisation and Planning

Significant livelihood progress has occurred since the POE's January 2007 visit. The catalyst behind this progress was the April appointment of two experienced and senior MAF officials -- Somnuck Thirasack and Pheng Souvanthong -- as respective NTPC Livelihood Manager and Deputy Manager. Since their appointment cooperation has improved between Nakai District, the Resettlement Management Unit and NTPC's Resettlement Office; the Village Forestry Association, Community Development, Fisheries and Drawdown Zone utilization have been placed under the livelihood managers; and livelihood options are being reassessed.

Especially important has been a division of the resettlement zone into three livelihood areas based on access to differing soil, forest, grazing and fishery resources. Characterized by poor soils, emphasis in the southern area will be on livestock, forest management and utilization of the drawdown area. Focused on Oudomsouk and Route 8 to Thakhek, the central area has a comparative advantage based on local consumption and export of vegetables, mushrooms, fish and small animals, while emphasis in the northern area,

which includes the best soils, will be on agriculture, fisheries and forest management.

2.3 Utilization of the Reservoir Drawdown Zone

The POE believes that utilization of the drawdown zone (there are, for example, 3,204 hectares between 538 m and 530 m), though not emphasized in the SDP, will be an especially important resource for villagers in all three areas for crop agriculture, fishery behind small weirs which fill when the reservoir rises, and grazing. The potential importance of grazing during the dry season warrants, for example, rethinking any program to radically reduce the number of buffaloes.

The POE-assumed importance of the drawdown zone is based on three features of the reservoir and drawdown utilization. One, a unique feature of the Nam Theun 2 reservoir, is an expected drawdown averaging about 80 percent of reservoir area on an annual basis. The second is the fact that most of the reservoir area lies within a flood plain basin in which better alluvial and colluvial soils dominate. The third is that resettlers have been planting gardens in drawdown areas along the Nam Theun River for many years. During the 2007 rainy season, resettlers were encouraged to clear and sow drawdown areas in upland rice. Response was good with approximately 400 hectares cleared and cultivated even though no financial or other incentives were offered.

2.4 Health Improvement

Improvements in resettler health have been occurring since villagers first moved to their selected resettlement sites. Incidence of malaria has dropped significantly as have parasite loads since villagers shifted to their preferred resettlement sites. Such health benefits are due to improved housing and water and sanitary conditions as well as to provision of impregnated mosquito nets and inoculation programmes and access to the district hospital, clinics and health workers. The POE congratulates the Health Program Management Unit, the RO, the RMU and the DWG for achieving this health improvement outcome.

2.5 Maintaining Progress over the Next Eight Months (September 2007 – April 2008)

Moving forward with the following activities is considered essential:

- (1) Getting on with the implementation in all resettlement villages of sufficient opportunities to diversify each household's livelihood activities (as opposed to over-specialization on a risky single activity such as irrigation or mushrooms) and to meet Concession Agreement requirements. It is important to be more proactive in exploring a wider range of livelihood activities (such as use of the drawdown zone) that

would capitalize on special features and opportunities provided by the NT2 Project.

- (2) Clarifying the status of the drawdown area as a resource to be productively used only by resettlement villages and research facilities for crop agriculture, livestock grazing, and fisheries including weir aquaculture of indigenous species. The draft proposal for a reservoir organisation, for example, does not adequately reflect the importance of the drawdown area. (See recommendations under the Reservoir Agency and Fishery).
- (3) As a priority finalizing the organisation and structure of the reservoir organisation (See recommendations under the Reservoir Agency and Fishery).
- (4) Clarifying in a Decree from the Prime Minister that the CA provides that the reservoir fishery and trade in fish is to be restricted to resettlers in each village for at least ten years after COD and, furthermore, that resettlers and resettler organisations be assisted to participate actively in the marketing and processing of fish. Such a Decree is critical granted the expected importance of fishing, as with use of the drawdown area, in meeting the income requirements of the Concession Agreement. (See recommendation under the Reservoir Agency and the Fishery).
- (5) Requiring VFA Phase 1 (that ends in December 2008) to place more emphasis now and throughout 2008 on capacity building and training. Of importance is training and organizing village committees to patrol community forests during the 2007 – 2008 dry season to reduce timber poaching. One option for dry season implementation would be to actively involve the VFA and VFA villagers in biomass clearance, charcoal production, fishery lane and cross-village clearance following the expected completion of permanent housing in December 2007 and January 2008.
- (6) Rethinking the relationship of the three and five hectare household allotments to the VFA given the shortage of land for VFA production forest and potential household labor constraints. As illustrated in Figure 1, if three hectare holdings were designated in each resettlement village, there would be virtually no production forest behind Nakai Tai and Nakai Neua.
- (7) Increasing WMPA and Livelihood cooperation to address the serious risk that it will not be possible to meet the CA's income requirements in the northern cluster of villages (see Figure 1) without access to additional dry land and drawdown and fishing rights in the NNT-PHP Corridor and without additional NTPC financial and staff commitment beyond COD. Reasons for this assessment follow:
 - (a) The six villages have been too closely consolidated in one area.
 - (b) One of those villages (Nongbouakham with 57 households) initially was to be resettled outside the project area. This was because it was a village of immigrants established by the Ministry of Defense to raise cattle for the military on the Nam Theun flood plain. Not only do its residents compete with other resettler

villages for resources but the risk exists that its better educated, experienced, and capitalized immigrant soldiers will acquire a disproportionate share of livelihood assets.

- (c) A majority of two other villages (Sop Hia and Nam Nian) were to be resettled at the Nam Pan Irrigation Project near Lak Sao in Khamkeut District – a project that was cancelled because of uncontrolled water pollution from illegal gold mining.
- (d) As children within the six villages marry and form their own households the pressure on the area's limited land and water resources will intensify.
- (e) The six villages are adjacent to the NNT-PHP Corridor which is a protected area that comes under the jurisdiction of the WMPA.

To deal with this problem it is agreed that the WMPA, the livelihood team, and the RMU will present a solution to GOL, NTPC and the POE no later than December 2007. Should that solution fall short, in the POE's opinion, of meeting CA requirements, the POE will offer an alternative plan for approval to the Deputy Prime Minister, Standing member of the Government.

- (8) Paying more attention to sexually transmitted diseases in the northern resettlement villages due to their proximity to the NT2 Project construction camp at Ban Thalang (which is contiguous to the village school) and to adjacent salvage logging camps. These camps present a threat to the six villages, the risks also including re-introduction of malaria by infected immigrant laborers. Increased STD incidence also threatens residents of other resettler villages.
- (9) Speeding up implementation of livelihood and health activities, housing, a permanent water supply, and other community infrastructure, and adequate access for NT2 project staff for the 14 Aho (Vietic) households currently in temporary (but improved) housing at their chosen site in old Sop Hia.
- (10) Placing far more emphasis on family planning and increased emphasis on Gender Mainstreaming and education of female children in the light of health improvements, reduced infant mortality and new marriages among the second generation.
- (11) Being more proactive in addressing marketing and food processing opportunities associated with the livelihood program and the NT2 Project. Along with planned ice plants, options could include on-site fish processing (upscale smoking and pickling, for example) and a pilot facility for processing tomatoes, mushrooms, fresh fish and other perishable produce.

The POE recommends that:

- **1-12. The Nakai District Working Group, the RMU and NTPC get on with planning and implementing economic production and marketing activities in all resettler villages, including Old Sop Hia, before dam closure; otherwise there is a risk that living standards will drop following closure.**
- **2-12. The VFA prioritize throughout 2008 village committee capacity building, patrolling of VFA forest resources throughout the resettlement zone, rethinking best use of the three and five hectare allotments, and active village committee involvement in reservoir biomass removal that will support such livelihood activities as drawdown agriculture, clearance of open water fisheries and inter village communication lanes, and production of charcoal.**
- **3-12. The WMPA, the RMU and the RO agree no later than December 2007 on the type of access to the NNT-PHP corridor needed for the northern cluster of villages on the Thalang Peninsula to meet the income requirements of the Concession Agreement. In the absence of such an agreement the POE will recommend in January 2008 an alternative plan to the Deputy Prime Minister, Standing member of the Government.**
- **4-12. That the otherwise excellent health program increase its emphasis on family planning (including gender mainstreaming that addresses women's desire for smaller families), ready availability of preferred means for birth control and education of girls, and on sexually transmitted infections in resettler villages.**

2.6 Resettlement housing and sawn timber supply

The POE's responsibility for signing off on the infrastructure elements of the resettlement program before the final impoundment of the reservoir is authorized is spelled out in our last report. The elements which must be completed by June 2008 include permanent housing for all resettlers, their physical relocation to the new sites, water and electricity supply, community facilities like schools, and, with the exception of Old Sop Hia, access roads.

Good progress has been made on all these fronts since POE's last visit in January 2007. Over half the required houses are built and those completed are to a high standard, with water, sanitation and electricity supplies largely installed. The lift in their quality of daily life is appreciated by the relocated villagers. They have good reason to be satisfied.

There has been a cost to the project: the cost over-run for the housing program is running at around \$6m.

There is widespread optimism that the remaining houses will be completed on time. The POE shares that optimism to a degree. The big

question mark remains over processed timber supply. It is reported that the required logs have already been harvested and that negotiations are virtually completed over the purchase price to be paid by NTPC. When this is settled there are still several stages to be completed before villagers can move in. Milling facilities appear adequate---though longer periods for drying timber would have been preferable---and most of the locally engaged building sub-contractors have performed well, with one exception whose contract is under review. Whether the greatly expanded daily supply of cladding timber now needed to sustain the momentum is forthcoming and whether the sub-contractors have the capacity to finish the job on time remain to be seen. In POE's view the timing is still likely to be tight---but achievable. The NTPC plan is for all houses to be completed by the end of February 2008.

Good progress is being made on the construction of community buildings and access roads. There is one aspect of the water supply operation which needs review. This is the apparent impact on the resettlers' wells of the big construction works (saddle dam, roads, channels) around Oudomsouk. This calls for a review of the adequacy of the existing wells, their possible replacement and the factors leading to the apparent drop in the water table.

No access road is planned to the old Sop Hia, which has been moved several hundred feet up the hill and house roofs and water supply upgraded pending a final decision by the resettlers on whether this will be their permanent site. Should a decision be made to remain permanently at the current site, the existing foot track from old Sop Hia to the dam site road should be upgraded.

The POE will expect nearly all the resettlement houses to be handed over and nearly all associated infrastructure works to be completed by the time of its next visit in early 2008 and all others to be completed by the end of February. It will not sign off unless and until this requirement and the recommendations listed under para. 1.4 Priorities and Timing are implemented.

2.7 Plateau infrastructure issues

2.7.1 Damsite camp sanitary facilities

The POE gave its approval for the increase in the numbers of workers housed in the Damsite camp with the proviso that the sanitary facilities would function adequately. NTPC also approved the increase on the same basis. According to the EMO the wastewater facilities have not functioned adequately since January, 2007 (after the POE's last visit). We also note that there seems to be some discrepancy between the EMO and the Lenders' Engineer report. It appears that the malfunctioning of some of the gray water sanitary facilities do not represent a major health or ecological risk, but the POE questions why even a relatively marginal malfunction should be tolerated on a continuing basis in a project of the magnitude and prominence of the NT2.

2.7.2 Continuing Road Construction Problems

On Section F, the Damsite road, the POE and IFIs were critical of the road construction, because, among other things, of too wide surface, excessive forest clearance, poor design of road cuts and dumping of debris over the road sides potentially into the Nam Theun. Our reports and an IFI report well documented the problems. At the time of our last visit earlier this year, the contractor was trying to ameliorate some of the problems and the contractor and NTPC were initiating remedial vegetation plantings in areas that had been overly cleared. Because of wet season road closures the POE was not able to visit the road on this mission. However, the EMO reports significant recent collapses where the road traverses cut hillsides.

In January the POE noted excessive forest clearance and unstable cuts on the portion of Section D, route 8B west of the Nam Theun bridge. During this last visit we observed and photographed a number of serious collapses of cut banks, some temporarily closing the road.

During this visit on the road from Oudomsouk to the southern resettlement villages we noted that the subcontractor was substantially improving much of the dirt road surface, but that there was again excessive width of forest clearance on one side or the other of the road, and fresh burning of woody debris at or into the edge of the uncut forest. The POE has repeatedly criticized the road contractor for excessive clearance and for burning debris in the edge of the forest. Such burning damages the adjacent trees and runs the risk of causing more extensive fires that could eat into the uncut forest and further deplete the resettlers' forest resources.

In response to POE and other criticisms, NTPC commissioned an external audit of the project roads in May 2007, and further audits are planned for October 2007, January and April 2008 and October 2009. The May audit "has considered previously identified concerns and identified new issues that require resolution."¹ We understand that NTPC has also arranged for GOL road engineers to periodically monitor the road construction. However, POE is very concerned with the fact that in spite of these efforts, the contractor continues to repeat the same mistakes over and over again, particularly in such prominent ways. There is clearly either a breakdown in supervision, or else the belief on the part of the contractor that these issues are not important. The POE considers that both of these options are not acceptable, and we trust that the problems will not be allowed to continue in the sections of the project roads that are not yet completed.

¹ Scott Wilson Ltd, Kent, U.K. May, 2007. Nam Theun 2. GOL(E) Road Review Report. 51pp plus annexes.

3. THE RESERVOIR

3.1 Salvage Logging and Removal of Biomass

The salvage logging of much of the future reservoir area outside the NPA and Special Conservation Areas has progressed as well as can be expected and is on the way to completion. A World Bank aerial survey found no significant breaches of the 538m. boundary for such logging. The returns in terms of large hardwood logs were up to 50% less than anticipated by some, due to uncontrolled removals a decade and more ago. The logging has been used on occasion as a cover for rosewood removal. The salvage operation has made little significant impact on the total level of biomass in the inundation zone.

The question of how much biomass in the inundation area of a shallow reservoir in the tropics should be removed or burned is a subject on which there is no real consensus among the experts. The most recent NTPC-sponsored study has concluded that “partial biomass clearance, as part of an integrated strategy, would be positive for water quality and social activities” and the forthcoming Interim Management Plan will spell out in greater detail what partial clearance means in practice. This is welcome if belated progress.

The question is: who will take the lead in a clearance operation? Both the NTPC and the GOL have responsibilities in this regard. Under the Concession Agreement the Company has responsibilities to maintain water quality in the reservoir, to take ameliorative action to achieve this goal and to maintain “the beneficial uses” of the rivers in the reservoir and elsewhere. The results of a biomass survey are to be used “to propose means for maximising removal of biomass in high biomass areas of the Nakai Reservoir.” The priority “shall be to clear the vegetation in areas which will be permanently flooded.” The POE argues elsewhere in this report that this clearance requirement should not apply to the NNT NPA.

For its part, the GOL has responsibilities for optimizing salvage logging through technical assistance studies and monitoring “to determine the economics and means for continuing the removal of lesser value biomass, including smaller diameter and poorly formed logs.” Both parties are to undertake a program to collect fuel wood from the inundation area.

One of the few deficiencies of what is otherwise a most comprehensive and authoritative CA is, however, the absence of an absolutely explicit assignment of responsibility for biomass clearance.

The POE strongly recommends that:

- **5-12. Production of the Interim Management Plan on Biomass Clearance and Reservoir Management be expedited and that the GOL and the NTPC immediately get together, if necessary with a mediator, to settle on priorities and respective responsibilities and initiate action accordingly before the dry season starts.**

Who might do the work? By December/January many of the resettled villagers should be able to turn their attention from physical relocation preoccupations to reservoir clearance. So will the VFA as its emphasis on producing sawn timber for houses winds down. The Lao Army may have a role. In some areas machinery will be able to be used. With a clearance plan for navigational, fishing and drawdown agriculture purposes beginning to emerge, an exercise with impacts on water quality should be got underway quickly. Some burning of the heavy growth of bamboo along riverside margins should also be considered. Biomass clearance is too fundamental an issue for further delays with only a four to five month dry season to achieve even partial clearance.

3.2 Managing the Reservoir and its Fishery

Since the POE's January 2007 visit, a Prime Ministerial Decree on the "Establishment of the Nam Theun 2 Reservoir Authority," a "Nakai Livelihood Implementation Plan: Focus on Fisheries", and reservoir fisheries regulations have been drafted. Though welcome, the draft documents reflect significant differences in opinion as to how the reservoir agency and the reservoir fisheries should be organized.

3.3 The Reservoir Agency

The reservoir authority draft is modeled on the organization of the WMPA whereby a central board sets policy to be implemented by a secretariat. There is some feeling in NT2 circles that the project does not need another large centrally-led authority to supervise management of the reservoir. The POE has sympathy with this viewpoint for several reasons:

- Managing the 460 km² reservoir is a less complex task than managing conservation and development in the 4,500+ km² NPA, the many villages in the peripheral impact zone (PIZ) and the NNT-PHP. For that reason alone, a wider range of organizational models should be considered.
- The "Reservoir Authority" model is contrary to the government's decentralization policy.
- The CA makes it clear that the NTPC and not the reservoir agency will manage such basic functions as deciding on reservoir water levels and determining the pace and timing of the drawdown. The staff of the new body, whatever its title, must be able to work with other agencies to make timely decisions regarding livelihood issues

in the resettlement zones and conservation issues in the WMPA zones. It must focus on such questions as navigability, development and regulation of the reservoir fishery and fish sales and processing, post-inundation tree clearance, use of the drawdown zone and oversight of reservoir use by tourism operators and ferry service providers. It will have a very important duty to try to enforce the requirement of the Concession Agreement that catching fish in the reservoir is the sole prerogative of the resettlers, at least for the first ten years of the reservoir's life. All the above functions are locally focused so local direction is desirable.

The POE recommends that:

- **6-12. Consideration be given to setting up a locally-based Reservoir Management Committee to approve reservoir management policies and set regulations for the use of the reservoir beyond power generation requirements and to a Reservoir Management Unit (perhaps modeled on the Resettlement Management Unit) to implement policies and regulations and to deal with day to day issues as they arise.**
- **7-12. Membership of the Committee include the Reservoir and Fishery Managers and their senior technical staff, representatives of Village Fisheries Committees and of the WMPA Secretariat, the Head of the RMU, the NTPC Livelihood Manager and relevant District representatives, including the Nakai District Governor, who might chair the Committee.**

3.4 Reservoir Fishery Management

Unfortunate delays have occurred in synchronizing the fisheries component of the resettler livelihood program with the dam construction time table. According to the Concession Agreement NTPC, with the active involvement of the RMU, the DWG and the RO will “procure development and implementation of a 10 year fisheries development and management program, with implementation to start 1 year prior to impoundment” (Schedule 4, Part 1. 9.10.1 and 2). Such implementation has yet to occur in spite of NTPC intentions to close the dam and fill the reservoir in approximately nine months and in spite of the increasing realization that fisheries must play a major role (if not the single most important role) in meeting the CA livelihood requirements.

By far the most important document submitted to date on a fisheries management and implementation plan is Sinthavong and Thorncraft's *Nakai Livelihood Implementation Plan: Focus on Fisheries*. In spite of its importance, delays in the review of the April 2007 draft “meant that the proposed stakeholder workshop was not held and no stakeholder-consensus recommendations for the proposed fisheries management implementation plan were made” (page 65). This outcome is most unfortunate granted the emphasis

(well-supported by the global experience with small-scale commercial fisheries on rivers and on reservoirs behind dams) in the Concession Agreement that co-management with resettler communities is essential “so that they will have a sense of ownership over resources by enabling the fishing community to make, supervise and enforce rules and regulations in consultation and collaboration with the fisheries authorities.” Such participatory resettler fishery management should be inclusive and include, among other functions “participatory setting of realistic fish catch targets”; “participatory delineation and management of fishing zones”; and “participatory development and enforcement of fishing rules and regulations” (CA Schedule 4. Part 1. 9.10. 1 & 2).

If the dam is to be sealed and the reservoir filled on schedule, it is essential that NTPC and GOL prioritize and simultaneously address two recommendations in the Sinthavong and Thorncraft report. One is proceeding immediately to gain the support and participation of resettler communities which the POE agrees “is essential to successfully managing the newly created reservoir fisheries” (page iii). At the same time, it is important also to assist each community to identify landing points and clear one or more lanes running perpendicular to the shore from full storage level to the Nam Theun River.

The other recommendation is to appoint within the RMU a Reservoir Fishery Manager to start working immediately with resettler communities and other GOL and NTPC staff (and especially with the RO’s Livelihood Section and with Nakai District and WMPA staff) to get on with management plan design and implementation and design of a monitoring program essential for implementing an adaptive management approach.

Though the POE favors the type of co-management structure that the Sinthavong and Thorncraft report outlines and which is briefly outlined in the XBF Downstream Program, consideration should be given to the possible incorporation of some of the features of other options. For example, Annex 1 of the draft IFI Technical Assistance Report of August 10, 2007 discusses “[t]he share-holder option for reservoir management by a company-owned and operated by resettlers.” The POE agrees with Sinthavong and Thorncraft that the company idea is inappropriate for a small-scale commercial fisheries such as is intended for NT2 resettlers. Based on the global experience, reasons are several. In addition to the risk of capture by outside interests that the S and T report mentions, the most important is that the most successful small-scale freshwater fisheries are based on the enterprise of individual fishing households (in which both sexes can play complementary fishing and trading roles) as opposed to fishers working as fixed salaried company employees. The profitability of such a company also is based on elusive financial considerations relating to quantity and price of fish and to operating costs which are high in the IFI option.

On the other hand, the share-holder option warrants consideration as a way to provide income in the form of dividends to each resettler household, with both the household head and spouse, and single household heads, being share holders. That option might be applied to a resettler organization not for

fishing but only for marketing and processing fish (hence owning ice plants, any processing facilities, and transport). It is also easier to monitor and tax a trading company, especially where there are only two major access roads to and from the NT2 reservoir.

Such a share-holders' marketing organization would be a credit-worthy legal entity that could include all resettler communities. Regulations would have to be carefully crafted as to conditions (such as first refusal by other share-holders), if any, under which shares could be sold or leased. The same applies to conditions, if any, under which individual fishing households, groups of fishers or entire communities could withdraw from the marketing organization as a means, for example, to increase competition and fish prices and because of the legendary independence of fishers.

3.5 Fishery Regulations

The Draft "Regulations on Fishing in Nam Theun 2 Basin" require re-drafting because, modeled on the Nam Ngum fisheries, they are not based on the requirements of the Concession Agreement. Those requirements state that "the fisheries resource in the reservoir (and trading of that resource) will be for the exclusive benefit of the Plateau Resettlers, those currently fishing in the inundation zone (and their respective descendents) for a period of ten (10) years after the Commercial Operations Date and after that period, consideration will be given to granting other parties rights but after consultation with and having due regard to the Resettlers' needs" (Schedule No. 4, Part 1. 9.1.2).

Because of the increasing importance of the reservoir fishery for meeting the income and livelihood requirements of the CA, it is essential that those requirements be prominently emphasized in the NT2 Reservoir Fishery Regulations and that they be implemented as required.

The POE recommends that:

- **8-12. A Decree of the Prime Minister be issued no later than the end of 2007 that requires the implementation and enforcement of the CA requirements that the fishery resource and the fish trade be restricted to resettlers for at least a period of ten years and that states that productive use of the drawdown area adjacent to the resettlement zone is restricted to resettler villages.**
- **9-12. The RMU recruit by the end of October 2007 a Reservoir Fishery Manager to work with NTPC and other GOL staff to design, with active resettler participation, and commence implementation of a fishery management plan.**

4. THE WATERSHED

The Watershed Management and Protection Authority (WMPA) has made continued progress in its field work and internal organization. The POE is pleased to see the improvements in living accommodations but we note that there is a clear need for additional offices, meeting room(s) and associated work space.

4.1 Conservation and Development in the NNT NPA

The POE was disturbed to hear from the WMPA Board that consideration is being given to a shift of emphasis towards livelihood development as contrasted with conservation. To date the conservation effort of WMPA has had two foci, an internal one and an external one. The internal one focused on the villagers in the context of livelihood development, while the external one focused on patrolling and enforcement against poaching that originates primarily outside the watershed. If the patrolling and enforcement activities were to be curtailed or reduced it would lead to severe and probably permanent impairment of the watershed's biodiversity, in view of the seriousness and immediacy of the external threats to it. Further, it would not be consistent with GOL's commitments to the policies and objectives for the watershed, as established by Prime Ministerial Decrees, the Concession Agreement, and SEMFOP. We recognize that rural development / poverty alleviation (meeting the 2020 poverty reduction target) and quick completion of land allocation are two key national policies. But while stressing an appropriate balance between conservation and development, the policies for the watershed emphasize conservation.

The original decree establishing WMPA (Prime Minister's Decree No. 25) states that "For the purpose of the conservation and protection of the richness of the nature and considerable cultures in the area, the Prime Minister Issues this Decree." The SEMFOP (Executive Summary) states: "The SEMFOP-1 is the management plan for conservation of the NT2 watershed..." In the Vision Section it states "The purpose of the Watershed is the conservation and protection of its natural riches and its many cultural groups..." Under the CA (Schedule 4, Part 3, clause 2.2) and the SEMFOP (Part 1, clause 1.2.1), the key WMPA objectives, in order of listing, are: 1. Protection and rehabilitation of forest cover; 2. Biodiversity conservation; 3. Strengthening the capacity of the WMPA and stakeholders; 4. Livelihood improvement, poverty reduction and sustainable development; and 5. Prudent management and effective use of funds. Since the SEMFOP is a very large two volume document and has unfortunately not been translated into Lao, it is likely that its contents are not well known to some Board members and others who are involved.

The POE recommends that:

- **10-12. The Executive Summary and Part 1 of the SEMFOP be translated into Lao and copies be made available to the WMPA Board, staff, and others as appropriate.**

4.2 The Continuing Debate over Conservation and Development

To the POE it seems that the continuing debate about conservation and development in WMPA circles, including at Board level, is wrongly framed: the two goals are not opposed but should be seen as mutually reinforcing. At the most simplistic level, the watershed dwellers cannot be expected to wholly forsake their traditional forms of harvesting the flora and fauna of the NPA until they have been enabled to achieve an adequate level of food security and income maintenance through alternative means. But, as already noted, to delay the drive to conserve wildlife is to risk losing its richness and diversity, given the level of poaching still going on in the watershed.

So it is in the vital interest of biodiversity conservation that the drive to establish alternative livelihoods be accelerated as quickly as is consistent with prudent management practices. At the same time, measures such as adapting the cultivation of naturally occurring species like rattan so that they may be grown in village plots---and even planting high-value hardwood trees in “use forest” areas where this makes sense---will head off habitat destruction and thus help preserve species in the wild. It will also simplify processing and harvesting.

The debate over how and when to reconcile the joint goals is reaching a critical point. On the development front the WMPA Secretariat has adopted the conservative but sensible approach of proceeding sequentially, step-by-step and cluster by cluster, in admirably intensive consultation with the people, to map and allocate village lands, looking essentially to reduce dependence on forest resources through more intensive agriculture and livestock husbandry. It has judiciously allocated approximately equal resources to conservation activities including patrolling. As noted above, however, the POE understands that a majority of the WMPA Board’s members feels that this is too attenuated a process, that the villagers are not benefiting sufficiently as yet, that there are inequalities of treatment as a result of the step-by-step process and that there should be a shift of emphasis toward the development side compared with conservation in the short-term at least.

Other sources of pressure to rethink the approach to priorities are:

- the GOL plans for village consolidation in the NPA and the PIZ (Peripheral Impact Zone) though it is not always clear whether what is intended is purely administrative consolidation or actual physical relocations. Hopefully it will prove to be the former.

- high population growth rates in some villages.
- watershed villagers' wish to have better access to adjacent villages and to trading centers.
- reductions in some villages, as an outcome of land use allocations and GOL policy, of upland swidden cultivation---well before substitute food production activities are in place.
- the entirely unrealistic, and potentially counter-productive, requirement of two IFIs (ADB and EIB) that the WMPA meet an arbitrary target of establishing 28,700ha of "compensatory forest plantings" inside the NPA.

Board members do have a point about priorities. It was always going to be easier and faster to set new rules about villagers not harvesting forest resources than to put in place substitute livelihoods. A gap opened up as a result and there was a risk that the watershed people would, as has happened elsewhere, suffer a loss of income and a drop in living standards before new livelihoods were developed and widely adopted. Income assessments are not available at this time but some hardship was suffered in some villages. The Secretariat moved to provide rice supplies and to set up a rice bank so that rice-deficient families could get on with developing their own plots rather than turn to the forests for sustenance. Revolving funds were set up to foster livestock breeding and vegetable growing. These were all positive steps. But the fundamental dilemmas remain.

The POE believes that some new thinking is called for. The Secretariat has produced a "vision" for the future. The POE has not seen the text. We gather that it sets futuristic goals like establishing an international "model of excellence for Participatory Integrated Conservation and Development" and endeavouring to ensure that the "human footprint" on the protected area is no greater in twenty five years' time than today. This is all entirely laudable and provides a broad context for planning. But the more immediate requirement in the POE's view is to rethink the priorities of the WMPA taking into account the various pressures for change now emerging and to come up with a clear and down-to-earth strategy for beginning to achieve over the next three years what has thus far not been seriously engaged: the reconciliation of the twin and linked goals of development and conservation in the watershed.

A comprehensive rethinking of the WMPA's strategies may well call for considerably expanded expenditure in the short to medium term on fostering conservation/development integration activities. Since it would be damaging at this point to reduce the volume of resources available for vital conservation activities like patrolling there will need to be some rethinking and reallocations on the funding front. For example, the POE would urge caution about introducing inappropriate and expensive technology like a four wheel tractor to the watershed. It also shares to a degree the Board's apparent reluctance to go ahead at this stage with a wholly new headquarters building---though the existing building is bursting at the seams and there is undoubtedly a strong case to add a number of offices, a decent-sized meeting room(s) and associated work space at least to it. (The POE's latest information on the building front is that alternative proposals are being looked at involving the

construction of cluster centers plus a facility near where the cross-reservoir ferry would dock at Nakai. There may well be a good deal of sense in these plans). If the revised strategy calls for greater attention to integrated conservation/development activities it would be prudent to seek an additional (and preferably Lao-speaking) Technical Assistant to spearhead the integration work---the existing TAs are already being diverted too often from their assigned tasks to carrying out routine administrative jobs, which is a misuse of their time.

The POE recommends that:

- **11-12. Within the next two months the WMPA narrow its strategic planning focus to the usual three year time frame and bring into the process one or two well qualified people with Laos experience to help inject new ideas and stimulate new and innovative thinking.**
- **12-12. The purpose be to produce an amended overall WMPA strategy incorporating a clear set of objectives and desired outcomes designed inter alia to take account of the various pressures on the policy and resources fronts, to bridge short term gaps in household incomes and food supplies resulting from restricted access to the forests of the NPA, to proactively devise and implement activities integrating conservation and development work and to draw on all available trained manpower in an aggressive attempt to inhibit ongoing rosewood and wildlife poaching particularly by outsiders.**
- **13-12. If the new strategy calls for the appointment of a new Lao-speaking Technical Assistant to manage a revitalized integrated conservation and development initiative, priority be given to recruitment of such a person.**
- **14-12. The watershed access strategy be finalized, desirably emphasizing the North/South axis down to a ferry point or points on the reservoir and, in the POE's strongly-held view, involving tracks no more than two meters wide capable of taking motor cycles and two-wheeled tractors only---and be implemented as a matter of urgency, given the imminence of the final filling of the reservoir. Effective monitoring and control of the human use of tracks built will be essential.**
- **15-12. The budget for the next twelve months be amended accordingly and resubmitted to the WMPA Board.**

4.3 Patrolling and Enforcement

The epidemic of illegal rosewood cutting has taken an immense amount of time, staff and effort of the WMPA. POE wishes to congratulate the WMPA for its strenuous efforts on this issue. We also note with appreciation the cooperation of DAFO, PAFO, and the army on the rosewood problem. We understand that Khammouane Province has assigned about 50 people and Bolikhamsay Province has assigned about 100 to assist with the problem. While the trees are cut from large areas within the NPA and other parts of the country, they must be transported over the existing routes into Vietnam. The POE believes that much tighter and more effective scrutiny at check points on these routes, especially routes 8 and 12, would improve the situation. This would require action by other government entities although the WMPA might play some role in the inspections.

During the year the PPAM Division of WMPA has significantly modified its anti-poaching patrol procedures, which represent admirable examples of adaptive management. We have observed the anti-poaching patrol process in action, and wish to congratulate the PPAM division of WMPA for the professional and effective procedures that it is developing. We note, however, that in recent months, because of the diversion of personnel to confront the rosewood problem, anti-poaching patrolling in the watershed has been severely reduced. This represents a potentially serious problem because the greatest threats to the biodiversity of the watershed come from poachers from outside, especially those from Viet Nam to the east and Lao from the PIZ. The comprehensive wildlife survey work undertaken with camera traps, along with foot transects, has shown that while the NPA still protects the full range of wild species, the more vulnerable ones have been very seriously depleted by poaching. Those that are globally endangered, such as the saola and tiger, have been especially hard hit. Unless the WMPA can significantly reduce the poaching from outside, the biodiversity of the NPA will be permanently degraded.

The POE recommends that:

- **16-12. As an urgent priority, the WMPA reinstate and strengthen its anti-poaching patrol activities, particularly in the areas of the upper watershed adjacent to Vietnam and the upper Nam Xot adjacent to the PIZ.**

4.4 Salvage Logging East of the Nam Theun

The POE notes with concern the proposal that salvage logging be extended from the formerly agreed-upon areas west of the Nam Theun to areas to the east of the Nam Theun including the embayment areas between the Nam Theun and the hills. We trust that GOL will continue to honor its commitments to maintain the integrity of the NNT-NBCA, and will oppose that proposal to extend salvage logging. The formal boundary of the NBCA was moved from the east bank of the Nam Theun and re-established at the full

level of the reservoir (538m) for administrative reasons by PM Decree 194. However, the embayments and the Thousand Islands area are clearly integral parts of the NBCA. The Concession Agreement establishes them as Special Conservation Areas under the protection of the WMPA, and this is supported by the NTPC Environmental Assessment and Management Plan. Logging within the embayments including the construction of the access roads required by such logging will seriously impact the integrity of the NBCA, affect the potential for fish refuges, and provide effective access for illegal rosewood and wildlife removal. Further, the GOL would receive very little benefit from logging in those areas. On this mission the POE visited the two main embayment areas by boat, and our observation is that the areas have been logged in the past and largely cleared for agriculture, with the result that there appear to be few commercially valuable trees left.

The POE recommends that:

- **17-12. The GOL maintain its commitments to ensure the integrity of the NNT-NBCA and accordingly allow no extension of salvage logging beyond the already agreed-upon areas west of the Nam Theun.**

4.5 Western Boundary of the WMPA

As the POE recommended earlier this year, we strongly support the proposal of WMPA to change the western boundary of the NBCA. At present it is at 538 m which constitutes a very ragged and convoluted boundary line which would be extremely difficult, if not virtually impossible, to patrol and protect. Consequently, the POE supports the proposal to create a largely straight line border in the water, marked by buoys that could be observed from the water and/or from appropriate observation towers. This procedure has proved successful in reservoirs elsewhere.

We were informed that action on this boundary change was delayed because it might have enclosed some areas where a few of the resettled villagers traditionally fished. However, the POE notes that the situation is entirely changed by the creation of the reservoir and the resettlement of the river-side villages. Any traditional fishing areas on the river will be inundated by the reservoir, but it is anticipated that the reservoir will provide a much augmented source of fish which is to be managed for the benefit of the resettlers. Further, the waters inside the proposed new boundary, including the areas around the Thousand Islands and the embayments, will provide fish refuges of great value to maintaining and augmenting the fish stocks available for fishing in the reservoir proper.

The POE recommends that:

- **18-12. The western boundary of the NPA be redrawn to create as straight a boundary as possible, marked by a line of floating**

buoys where a clear line of sight can be maintained to facilitate patrol and protection of the NPA.

4.6 Research Guidelines

The WMPA has made a useful start in preparing research guidelines. The POE looks forward to reviewing the next draft. We are concerned by the comment by a World Bank Technical Visit Report that says that the research procedures of the WMPA have “thus far served to hinder research within the Watershed in comparison with other National Protected Areas in Lao where such authorities do not exist.” That is disconcerting, not least since first ignoring and then singling out social science as an area for declining NPA research---as we understand the Board has done---illustrates the basis for the World Bank’s concern. The reasons for this situation certainly include the present role of the Board in research approval. Research can be of vital importance to both the social and ecological aspects of the mission of WMPA, and as such are embedded in the objectives of the SEMFOP and Decree 39, so it is important that enlightened and effective procedures for research approval be developed and implemented.

4.7 Mining at Ban Nokadok

In POE Report #11, earlier this year, we relied upon information that we had been given that the gold mining operation inside the protected area above Ban Nakadok was legal because it was assigned by the then Deputy Prime Minister. On this present visit we have been shown that the documents we saw had been superceded by subsequent ones, and that the then Deputy Prime Minister did not authorize mining within the NPA, but instead within an area outside of it. The order also limited the mining to people from six local villages.

The mining observed by the POE earlier this year is clearly illegal because it contravened the Deputy Prime Minister’s order in terms of the location – it is inside the protected area – and because the miners include people from other parts of Laos as well as Viet Nam and China. The mining represents a totally unacceptable invasion of the NPA. It should be stopped immediately and as much as possible of the damages done to the NPA (excavations, mercury ponds, etc.) should be obliterated and natural vegetation be allowed to recover.

The POE recommends that:

- **19-12. The gold mining operation within the NPA be stopped; that any remaining miners who do not come from the six local villages be removed immediately; that under WMPA supervision the shafts and other excavations, mercury ponds and other disturbances created by the mining be covered over and natural vegetation be allowed to recover the area; and that the villagers from the six local villages be assisted to pursue**

traditional mining in the legal area and to develop augmented or alternative forms of livelihood.

4.8 World Heritage Status

POE has repeatedly recommended that GOL apply for World Heritage Status for the NPA. All representatives of the international community who know of the area (World Bank and other IFIs, IAG, POE, other representatives of governments and inter-governmental bodies) have emphasized that the area deserves such status. Among the reasons are the area's unique biodiversity attributes including its size, numbers of species and assemblages of rare and globally endangered species, along with the area's exceptional cultural heritage and diversity. In our past reports we have discussed the benefits that can be gained for Laos from World Heritage status for the NPA so we will not repeat that here. We note that the NPA is by far the best protected and managed such area in Laos, thanks to the NT2 project and the WMPA.

The development of tourism, and particularly ecotourism, is being strongly emphasized both by the GOL and by many of the provinces. During the time the POE was in Vientiane there were frequent articles in the Vientiane Times describing the existing activities and plans for tourism development around the country. This was especially true in the more northern provinces where large numbers of villagers had been trained as tourist guides to introduce visitors to the local culture as well as the biodiversity and scenic features, and where tourism had already contributed significantly to the local economies. The POE believes that the NPA offers particularly great potential in this regard, and notes that World Heritage Status would very greatly enhance the international tourist drawing power of the area. We further note that the process of approval for Heritage Status may take from 3 to 5 years. So even if GOL applies now it will be some years before the status is conferred.

The POE recommends that:

- **20-12. The GOL apply for World Heritage Status for the NPA without further delay.**

5. THE DOWNSTREAM PROGRAMS

The downstream areas of the project below the dam and below the powerhouse can no longer be regarded as neglected. The situation in what will be the seriously impacted Nam Theun below the dam itself is addressed later in this section. What follows immediately refers to the basin of the Xe Bang Fai (XBF). Progress is now being made in fostering alternative livelihoods in the Gnommalath District and in the middle and lower XBF and flood protection and water gate rehabilitation work are scheduled to start shortly. The World Bank Khammouane Rural Livelihoods project is in the process of further planning, with the prospect of funding inputs from IDA and hopefully other donors. The entire downstream program has now been brought together under a new manager (John Wilkinson) which makes administrative sense.

5.1 Below the Power House: the XBF Basin

As a result of the slow initial pace of establishing the required programs, the development of the XBF basin is characterized by the emergence of a series of gaps or potential gaps. These may be summarized as the **timing gap**, the **space or land gap**, the **funding gap** and the **potential fish protein gap**.

The Concession Agreement assigns to the POE the task of reviewing in around seven years from now whether the objectives and provisions of the Downstream Mitigation, Compensation and Resettlement Process have been met. The CA spells out the objectives of the Process as being to “at least restore” livelihoods of affected people on a sustainable basis and to mitigate or compensate for the physical impacts of the project on the Downstream Areas.

The problem at this point is that many of the impacts of the project will be felt well before comprehensive counter measures are in place---hence the **timing gap**. For example, twenty-two months or so from now the first major test of the flooding and erosion capacity of the Nam Phit and XBF will occur with the release of 80% of the reservoir water down through the turbines during the 2009 wet season. Some work has begun on mitigating the impacts on river gardens, threatened structures and eroded river banks but the riparian villages along the XBF total over eighty so an acceleration of this activity will be called for if the river systems are to be ready for this test. Similarly, the program for rehabilitating water gates and creating mini-polders on the XBF should be accelerated in the same time frame. There is no obvious reason why present plans call for only seven of the fourteen water gates needing repair to be rehabilitated before COD or why only one mini-polder is to be built by then.

The POE recommends that:

- **21-12. The NTPC accelerate the program to counter flooding and erosion impacts, rehabilitate water gates and construct mini-polders so as to ensure that the mitigation and protection measures are all in place earlier---preferably by the time of the first major test of their capacity in June 2009 and certainly by COD.**

It should be noted at this point that the second opinion on NTPC's XBF hydraulics study called for by the POE last February was duly undertaken by a team from the Mekong River Commission and largely confirmed the methodology and conclusions of the NTPC's original study. This is reassuring.

The first likely impact on the **XBF fishery** will be the planned release of up to 10% of the reservoir capacity into the downstream reaches of the XBF within sixteen months or so from now. Again there is a timing issue. Although the NTPC will have earlier flushed a good proportion of the newly inundated and decomposing biomass downstream of the dam itself, and will have aeration devices in place below the power house to re-oxygenate the anoxic waters released, the level of water contamination from dissolved compounds including nutrients cannot be forecast with accuracy. Some impact on resident fish in the dry season XBF seems inevitable. In the following wet season when migratory species from the Mekong are moving up the XBF there will be a much greater release of reservoir water. Its impact on these species remains a matter for speculation.

What is clear is that the aquaculture/fish culture activities currently being undertaken, involving around 244 households only, are unlikely to close in time the likely fish supply deficiency which will begin to open up in many of the 220 villages in all downstream areas. Hence the prospect of an emerging **protein gap**, for fish is the main source of animal protein across most of the project area. It is of concern that the updated results from the XBF fish catch monitoring are still not available.

The POE recommends that:

- **22-12. The aquaculture program in the downstream villages be expanded at a pace which reflects the imminence of the impacts on the XBF fishery and that the NTPC make preliminary plans to supplement emerging protein deficiencies in village diets while aquaculture projects are put in place in the downstream villages which want them.**

There is also a timing issue in relation to the **wider livelihood restoration program**. The pilot village program in 20 villages has sorted out some of the implementation problems it faced eight months ago and activities have picked up encouragingly. The present plan is to extend to another 27

villages in the near future. That may be realistic but it postpones overall livelihood restoration in the remaining 165 villages close to the point where they will be being impacted by the project without adequate livelihood restoration or compensation. And the existing programs do tend to look more like a series of essentially unrelated if useful sub-projects than the product of a coherent plan.

The POE is of the view that some further thinking about the aims and timing of the livelihood program is overdue. The overall strategy is not at all clear. What “restoring livelihoods on a sustainable basis” means in practice is nowhere spelled out or quantified in current papers, let alone financially assessed or rescheduled. Production of such fundamental documents as RAPs, Implementation Plans and International Monitoring Reports are all behind schedule though the first IMA visit is finally set for September.

The POE recommends that:

- **23-12. After the findings of the first IMA visit are available the Downstream Team (NTPC and District/Provincial level) hold a strategizing workshop to clarify where the program is going and to attempt to define what constitutes “restored livelihoods on a sustainable basis” and how to achieve and fund the whole exercise.**

This will be no easy task. There is no clear-cut plan yet available designed to bring livelihood benefits to each impacted village and household. And the resources available to a program required to help 220 villages spread along several hundred kilometres of vulnerable rivers are limited in volume and usability. In the CA the Company has accepted an obligation to contribute \$16m to the downstream mitigation, compensation and resettlement process. This was never going to be sufficient funds to complete the tasks envisaged. And a maximum of \$8m only of the total is available before COD, by which time impacts will be felt. The “front-end loading” of the budget implicit in many of the above comments will be difficult to achieve if there is not more flexibility shown. So there is **both a short term and long term funding gap**.

It is unlikely, in the POE’s opinion, that the \$16 million budgeted for downstream development will “at least restore livelihoods of Project Affected Persons in the Downstream Areas on a sustainable basis” as a general obligation of the project parties as stipulated in the Concession Agreement. It is important for the each of the international financial institutions (IFIs) as well as for NTPC to realize this likely Concession Agreement inadequacy for if significant impoverishment results among households in the 220 affected downstream villages it will not be possible to present NT2 as a model project.

The obvious solution to this problem is **the multipurpose integrated development of the XBF basin**. As one of six key river basins in Lao PDR, the development potential of the XBF is significant. As stated in the POE’s eighth report (February 7, 2005), “this potential has been enhanced by the completion of Route 12 linking Vietnam, Lao PDR and Thailand and will be

further enhanced in terms of increased availability of electricity and dry season turbined water that will follow the completion of the NT2 Project. GOL understands this potential and has requested donor assistance throughout the basin.” Adding to earlier initiatives, in 2007 the Prime Minister’s Office appointed a senior coordinator for a newly appointed team of irrigation engineers from both XBF provinces to work with the NT2 staff to realize project-related development benefits that otherwise might be ignored.

The POE strongly recommends that:

- **24-12. One or both of the two other IFIs chiefly involved in the project (ADB and ADF) pick up the KRLP co-financing opportunity.**

Bridging the funding gap has been helped in a modest way by the World Bank’s welcome dusting off and updating of its plans for a Khammouane Rural Livelihoods Project (KRLP). Of the total cost of \$9.057m, the sum of \$7m would be met from an IDA grant, leaving a gap of only \$1.232m to be met by co-financing.

The World Bank’s contribution of \$2.63m to the second component of the project will address inter alia the rehabilitation and expansion of the Thathot irrigation system in Gnommalath, damaged as this was by the acquisition of substantial paddy lands for the downstream channel---hence the reference above to a **space or land gap** A prefeasibility study of the strategic uses of NT2 water releases for irrigation purposes along the downstream channel will also be undertaken, opening up the opportunity to extend gravity fed irrigation to the Nam Kathang plain, for example. Village livelihood support will also be provided through what seems to the POE a most valuable project, worthy of early support.

Implementation of both the NTPC’s plans for XBF development / mitigation programs and the World Bank’s KRLP will amount to a start on creating a model for other **river basin wide development strategies** across Laos, a most desirable precedent.

5.2 Below the Dam

The Nam Theun below the dam will be heavily impacted by the project, first through having to absorb a series of flushes aimed at clearing decomposing biomass and contaminated water and later by a drastic reduction in its flow levels as its waters are diverted to the XBF basin and by four yearly “spills” in the wet season. Fifty-one villages and 5,396 fishing households downstream (not all on the Nam Theun itself, for many travel some distance to fish the river) will be affected by the drop in water quality and flows, reducing catches as they will and impacting both family fish consumption and household cash income.

Plans are underway to recruit an NGO to handle the ongoing fish monitoring and compensation payments to villagers below the dam and in affected tributaries.

Although the POE has seen no documentary evidence of this, we were informed that the affected households have agreed to a final compensation payment in one lump sum, based on a calculation of consumption and income according to the results of a baseline monitoring exercise.

The POE recommends that:

- **25-12. Further public information be provided by NTPC on the options presented to villagers downstream of the dam, on what procedures were followed and with what verification of the results--in order that POE can assess, for example, whether an aquaculture assistance option should also be provided.**

The POE's belief is that payment of cash compensation rather than providing development assistance support reduces the sustainability of such programs. No documents were made available to explain what procedures were followed in arriving at the decision to make a lump sum payout. While such a payment is not precluded by the Concession Agreement the POE seeks assurance that alternatives were also provided to the villagers.

6. CAPACITY BUILDING AND GENDER ISSUES

6.1 Capacity Building

The project has been fortunate in attracting a number of well-qualified and experienced Lao people into middle manager jobs, particularly on the livelihood side. Such appointees have the advantage of understanding the language and culture and being able to adapt new technologies to the Lao scene. This is one form of “capacity building” which is already beginning to show good results. More conventional methods of capacity building are lagging in many areas of the project. The POE found that expatriate technical people, for example, do not always see it as one of their most important roles to help identify and then train a Lao citizen to replace them in due course. It seems that such a requirement is not routinely written into their terms of reference and there is little expectation on the part of the company that one-to-one on-the-job transfers of technology on these lines should occur.

There is a need for it. Expatriate expertise is expensive and will not be available indefinitely. The requirement for trained and experienced Lao to monitor and oversee the fast-expanding but potentially damaging energy and mining sectors in the country is an imminent one. The NTPC should take steps to ensure that their expatriate staff, particularly in livelihood and other social fields and on the environmental front, are aware of this responsibility and assume a level of personal responsibility for fostering capacity building among their Lao colleagues. For their part the GOL agencies involved in the project should take responsibility for formally appointing understudies to work alongside expatriates or short-term Lao appointees such as the VFA General Manager. The latter’s role is due to finish in December 2008 so in this and other cases there is no time to waste in initiating understudy appointments.

Along with such training there is a need on the environmental assessment, monitoring and enforcement fronts for assignment to the field of senior people who can make themselves heard in the daily interventions called for in the construction phase of big projects like this, for improved and devolved procedures to speed up reaction times, for strengthening the enforcement powers of the field staff of environment staff and for greater resources to be devoted to this crucial oversight work so that the staff can do their job. It is an advance that there is a four person team of officers now staffing the EMU in Nakai---but though keen they are all relatively junior and simply do not have the clout or the resources to intervene on damaging issues across two Provinces.

There are encouraging developments to report here. Hon. Khempheng Pholsena has returned to Vientiane from her ADB assignment, now heads as Minister a newly created Water Resources and Environment Administration in the Prime Minister’s Office (absorbing the Environment Department of STEA)

and has capacity building and institutional strengthening on the top of her agenda.

The POE recommends that:

- **26-12. NTPC management and expatriate staff members assume a greater responsibility for helping identify and train Lao people to take over individual positions, particularly in the livelihood and other social fields and on the environment front.**
- **27-12. GOL agencies take responsibility for formally appointing potential replacements for expatriate staff to understudy the expatriates and acquire field experience. (The POE will closely track implementation of these two recommendations.)**
- **28-12. The new Water Resources and Environment Administration (WREA) give early attention to strengthening its presence on the ground by appointing a senior professional to the Nakai office, giving her/him greater power to respond to environmental crises on the spot and providing that office with the transport and funding resources to enable the staff to do their vital job in both Khammouane and Boulikhamxay Provinces.**

6.2 Gender issues

The new WREA not only has a female Minister as its political leader but a female manager---and a sizeable proportion of female technical staff as well. In this it is an unusual Lao central institution.

At the project level, the NT2 Concession Agreement, under its resettlement livelihood and community development provisions, requires both the GOL and the Company to ensure that at all times during resettlement a gender resettlement strategy (GRS) and specific gender strategy plans are implemented “in order to provide increased gender equity and opportunities for women and girls”. The strategy, designed inter alia to mainstream gender activities, is to include giving each activity a gender balanced target (GBT) as appropriate, ensuring that all technicians, advisors and RMU/RMO staff are instructed about the GBTs and monitoring compliance. The GRS is also to include such elements as the collection and analysis of disaggregated community data by gender, ethnicity and poverty levels, the precise recording of original ownership of each family’s assets, the fostering of gender-sensitive participatory planning , monitoring and mitigation mechanisms, the creation of gender-sensitive opportunities for income generation and for training, and the provision of increased family planning services.(See para. 9.1.5 of Schedule 4 of Volume 2A of the CA).

We record these provisions in some detail because they are innovatory in a large infrastructure project and merit a sustained effort to carry them out. With no full-time national or international gender specialist appointed within NTPC, the international (visiting) advisor helped set up in December 2005 a

Gender Mainstreaming Team (GMT) to help guide the mainstreaming process. The GMT includes representatives from NTPC (RO, Downstream and Project Lands), RMU and DWG in all program sectors, but is being cut in size to try to lift its effectiveness. It is concentrating for the moment on monitoring process indicators.

The Gender Advisors' six-monthly reports have some interesting findings. Rates of participation in resettlement area activities are assessed as "generally sound", for example, with both men and women having good access to information and benefits. A good proportion of the Village Resettlement Committees are 30- 40% female which is seen as a significant increase in the women's voice in decision-making positions compared to the usual male-dominated structures. VFA has around a third of staff and workers female (including a band saw operator) while MAF's agricultural extension center employs two-thirds women---an important breakthrough given that women do the majority of work in this sector. On the other hand, the infrastructure unit has no women among its 33 employees and the RO remains a male-dominated institution. NTPC itself has not attained its senior staff and professional targets.

Literacy levels in the pilot village (Nong Boua) reveal that men are twice as likely as women to be literate, though even among the latter the total is only 55%. Here lies a big opportunity for the project to raise the literacy levels of boys and especially girls. School attendance figures suggest that girls more than boys are beginning to capture the benefit of the new educational opportunities brought about by the project. But as elsewhere in this field, more and better data is needed.

In the downstream program, data also show that both women and men have good access to information and project benefits and Village Development Committees are at least 40% female according to the Gender Advisors. Women are the majority involved in the project's savings and credit, trade, handicraft and pig-raising activities. In the Project Lands area the project has until recently faced difficulty in getting information to Makong women as they were not, because they tend not to speak Lao, attending meetings. Appointment of a Lao Makong-speaking anthropologist has helped in this regard and he is researching gender and land ownership issues in the area and monitoring the outcomes of any disputes since land has been reallocated in joint espousal ownership---there being a risk that Makong women will lose their traditional source of power and security over time due to project intervention.

Key indicative findings from the gender specialists suggest that the project may be increasing men's leisure time more than women's, that women's time spent on reproductive activities has decreased and that women may have increased power in decision-making over information, fishing, trees and NTFP in the post-resettlement period.

The above information largely derives from the gender advisors' reports. The POE's more anecdotal approach to these issues would benefit

from more contact with the advisors (and with the World Bank's gender specialist), since there are substantial areas of overlap and interest in their respective fields. The POE has also come across examples of potential disadvantage to women in the disposal of assets after marital relationships breakups in the resettlement villages, for example, with the resettlement houses now representing a permanent asset of considerable value compared with the traditional houses. It may also be useful for the advisors to connect with the WMPA Secretariat, who are working on an MOU with the Lao Women's Union on gender matters.

In general the POE is partially reassured by the content of the gender advisors' reports. The overall positive tone is not surprising to us since we have been impressed from the beginning by the dynamism, the eloquence, the latent talent and the capacity for hard work of the women of Laos.

The POE recommends that:

- **29-12. NTPC/GOL facilitate a closer working relationship between the Gender Advisors, including the World Bank specialist, and the POE, preferably ensuring that their periodic visits overlap on occasion.**
- **30-12. The NTPC give more emphasis to gender strategies, for example by assisting in the collection and disaggregation of village data to foster qualitative research on gender issues and by endeavoring to achieve senior and professional staff gender targets and encouraging the RO to recruit female staff.**

7. CONTINUING ACTIVITIES OF THE PANEL

The POE anticipates or is available for the following activities in the following ten months:

- Dry season visit to Lao P.D.R. starting about mid January, 2008;
- Return visit to Lao P.D.R. in late May or June prior to the proposed closing of the dam;
- Consultations, meetings, conference calls, etc., with GOL officials, World Bank officials, NGOs and others;
- Desk review of revised studies, plans or other documents as required.

ANNEX: ABBREVIATIONS, ACRONYMS AND GLOSSARY

ADB	Asian Development Bank
AFD	French International Development Agency
Ban	Village
CBD	Convention on Biological Diversity
COD	Commercial Operations Date
Company	Nam Theun 2 Power Company Limited
DAFO	District Agriculture and Forestry Office
DRWG	District Resettlement Working Group
EAMP	Environmental Assessment and Management Plan
EIB	European Investment Bank
EMDP	Ethnic Minority Development Plan
EMU	Environmental Monitoring Unit (GOL)
EU	European Union
GOL	Government of Lao PDR
IAG	International Advisory Group for NT2 of the World Bank
IBRD	International bank for Reconstruction and Development (World Bank)
IFIs	International Financial Institutions
IUCN	The World Conservation Union
Lao P.D.R.	The Lao People's Democratic Republic
IMA	Independent Monitoring Unit
LNCE	Lao National Committee on Energy
MAF	Ministry of Agriculture and Forestry
Nam	River
NBCA	National Biodiversity Conservation Area (protected area created by GOL)
NGO	Non Governmental Organisation
NNT-NBCA	Nakai Nam Theun National Biodiversity Area (a portion of the NT2 Project area, most of which is in the water catchment area of the project reservoir) which was created in 1993
NPA	National Protected Area, the title now being used for the NNT-NBCA
NT2	Nam Theun 2 Hydro-electric Project
NTFP	Non Timber Forest Product
NTPC	Nam Theun 2 Power Company
Panel,POE	The International Environmental and Social Panel of Experts for NT2
PICAD	Participatory Integrated Conservation and Development
PIZ	Peripheral Impact Zone
RAP	Resettlement Action Plan
RC	Resettlement Committee
RMU	Resettlement Management Unit (GOL)
RO	Resettlement Office (NTPC)
SDP	Social Development Plan

SEMFOP-1	Social and Environmental Framework and 1 st Operational Plan for the Watershed Management and Planning Authority
SSEP	Site Specific Environmental Plan
TA	Technical Assistance (position)
TOR	Terms of Reference
UXO	Unexploded Ordnance
VDC	Village Development Committee
WB	World Bank
WMPA	Watershed Management and Conservation Authority
XBF	Xe Bang Fai (river)