

LAO PEOPLE'S DEMOCRATIC REPUBLIC

NAM THEUN 2 MULTIPURPOSE PROJECT

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



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23 FEBRUARY 2007

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ENVIRONMENTAL AND SOCIAL PANEL OF EXPERTS**

**For the Nam Theun 2 Project
Lao People's Democratic Republic
23 February 2007**

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Cover Photo: POE members conferring with Ban Maka leaders in the upper watershed.

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ABBREVIATIONS, ACRONYMS AND GLOSSARY USED IN POE REPORTS

SUMMARY OF RECOMMENDATIONS

The POE recommends that:

1-11. Priority be given to cultivation of the reservoir drawdown area during both the 2007 rainy season and the following dry season synchronized with appropriate UXO, biomass clearance, and land allocation policies.

2-11. Approximately 5,200 hectares in the Nam Malou area be added at the northern edge of the resettlement area to provide additional forest and pasture land as well as drawdown access to the Northern Cluster of resettled villages. Since the recommended extension falls within the Corridor, the WMPA should be involved in boundary setting discussions.

3-11. The terms of reference for the fishery consultant (Garry Thorncraft) and the contract's length (90 days starting January 29, 2007) be clarified and extended as necessary to prioritize the importance of both the reservoir fishery and the drawdown area adjacent to the resettlement area for resettled households, to fast track the necessary government regulations to restrict fishery and drawdown use to project affected households and to institutionalizing the reservoir authority during 2007.

4-11. So as to further reduce resettler household dependence on NTPC-provided food rations, such activities as village site household gardens and mushroom production, DMC acceleration, including forage seed production, charcoal production from village sites and 0.66 ha fields, and biomass clearance from the reservoir warrant increased attention.

5-11. The Ministerial Salvage Logging Committee take on an oversight role in relation to reservoir clearance and in doing so work closely with the VFA and with District, RMU and RO staff to help ensure that clearance priorities include providing resettlers with cleared land for 2007 rainy season cultivation.

6.11. The NTPC and the GOL move swiftly to exploit the opportunity to regain lost time on the housing front opened up by priority rights to salvage logs by expanding their daily presence in the log parks, the endeavour being to ensure that every log to which the housing program is entitled does not "leak" but is immediately identified, marked up and moved from the second landings to a secure sawmill for processing.

7-11. The NTPC and the GOL District agencies working with the Resettlement Committee prepare themselves for some serious adaptive management decisions in the sixteen months to impoundment and be prepared to stretch the rules in order to provide the timber suppliers,

housing subcontractors and infrastructure suppliers with additional backup support and resources.

8-11. Villagers be encouraged to be less selective about what hardwood species they are prepared to accept in construction and to accept joined framework timber where long runs are not available, with the VFA being encouraged in turn to electrify and mobilise the expensive new joining machine lying idle in their mill.

9-11. A permanent all Vietic Village be established at a location within their spirit territory acceptable to the concerned Vietic households in Ban Sop Hia. To avoid dam-related flooding, those households should be moved temporarily uphill before the commencement of the 2007 rainy season. Such temporary resettlement will allow the time necessary for identifying and assessing an acceptable site for a permanent Vietic Village.

10-11. A second opinion on NTPC's latest hydraulic study be sought both to review the methodology adopted and to assess the conclusions reached. (The POE has sought the agreement of the GOL to request that the Mekong River Commission undertake the review. NTPC concurs in the proposal).

11-11. In order to keep to a minimum the prospective gap between impacts and offsets the overall Livelihood Restoration Program be boosted across the board, with mini-polder survey, design and construction accelerated so as to cope with impacts soon after COD (2013 is far too late for completion), the excellent WASH Program similarly brought to all villages well before 2013, the extension services expanded and the demonstration farm program sped up so as to cope with the planned rate of technology transfer to the villages.

12-11. Some front-end loading of the budget be undertaken in order to cover the above accelerations in schedule, with serious consideration given to the level and length of service of expensive expatriate employees and consultants---and since further funds are likely to be called for to cover both an accelerated and time- extended Program then either the NTPC contribution be expanded to meet the needs or alternative funding sources be sought.

13-11. The recent NTPC acknowledgement of administrative shortcomings and the welcome move of the Chief Operating Officer from Vientiane to Nakai be followed up by a further devolution of disbursement, procurement and recruitment powers to middle level managers in the field.

14-11. The 40 families likely to be left without land in the Gnommalath area be compensated adequately, appropriately and in a timely fashion.

15-11. The WMPA Board of Directors act quickly to approve the proposed restructuring of the organization.

16-11. GOL, with the advice of WMPA, add additional land to the NPA in an amount equal to the area impacted by the mining activities; all mining activities be limited to the allocated six hectares and mining activities beyond that be stopped immediately; children be kept away from the mercury settling ponds, direct discharges into the stream be stopped, and there be periodic analyses of the stream water below the mining activities with action taken as necessary to protect the health of those downstream.

17-11. Any proposals for further alterations of the boundaries of the NPA be coordinated with the WMPA and the appropriate GOL Ministries, Provinces, and Districts, and only be undertaken with the advice and full knowledge of the WMPA.

18-11. The Ministerial Salvage Logging Committee and MAF give immediate attention to the rosewood problem and take appropriate action.

19-11. The boundary of the NPA be established as a relatively straight line clearly marked by buoys in the parts of the reservoir that will be open water even at maximum drawdown; the WMPA and the new Reservoir Authority establish and maintain a close and effective working relationship; the WMPA with the Reservoir Authority develop a management plan for cross reservoir access to the NPA.

20-11. The Government of Laos not assume, as has been the case to date, that development policies and plans for ethnic minorities being implemented in the lowlands, including those involving consolidation of separate communities into villages of no less than 500 people, are appropriate for upland hilly and mountainous environments like the Nakai Nam Theun catchment area. In the NPA, the POE recommends that the WMPA acquire additional expertise in such areas as swidden cultivation and upland farming systems, encourage further research on the variety of such systems in the NPA, and carefully monitor through adaptive management whatever livelihood programs are implemented so as to avoid impoverishing and environmentally degrading mistakes.

21-11. The POE recommends that, as a more appropriate mechanism for achieving a well co-ordinated and funded XBF initiative, the Terms of Reference (TOR) of the Committee on Flood Protection and Irrigation Development (CFPID) be expanded to encompass the basin's multipurpose development. Furthermore, that CFPID develop a proposal to GOL for the integrated development of the XBF river basin.

INTRODUCTION

The Panel, Objectives of this Mission, Acknowledgements

This is the eleventh report of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) 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 Panel has a contractual responsibility to provide independent review of, and guidance on, the treatment of environmental and social issues associated with this multi-sectoral project. The Concession Agreement accords the Panel compliance, supervision and a number of enforcement functions. The POE is required to act independently of the parties and in a manner which best protects the environment and the interests of those impacted by the project. The POE submits its findings to the GOL Minister of Energy and Mines as Chair of the NT2 Steering Committee. It may also address comments and recommendations to the NTPC and is obligated to assess the extent to which the NT2 project meets relevant World Bank and Asian Development Bank safeguard policies including those on the environment, indigenous people, and resettlement with development. Its reports are made public. The Panel is pleased that this current report and future POE reports are to be translated into Lao to expand their accessibility.

Objective of this Mission and Panel Activities

The Panel arrived in Vientiane on 7 January 2007 on its regular six monthly visit. After two days in the capital meeting with relevant Ministries and agencies of the GOL and NTPC, the Panel drove to Thakhek for briefings on the Project Lands and Downstream Programs and a meeting with the Khammouane Governor. Two days were devoted to visiting pilot villages on the Xe Bang Fai and construction sites. Seven days on the Nakai Plateau followed, meeting with the Nakai Governor, inspecting the dam site and associated roading works, talking to resettlers on site, reviewing the salvage logging exercise and the work of the Village Forestry Association (VFA) and being briefed in the headquarters and in the field on the activities of the Watershed Management and Protection Authority (WMPA). Having travelled to Boulikhamxay Province and spent two days in and around PIZ villages, notably the goldmining operation near Ban Nakadok, the POE flew by helicopter to the Ban Maka village cluster in the heart of the watershed for two days of talks with villagers in their fields. On return to Vientiane the Panel met with three Ministers (Planning and Investment, Energy and Mines, and Agriculture and Forestry) and the Standing Deputy Prime Minister. It spent five days debriefing a range of stakeholders, including the NTPC Board of Directors, and report writing and departed Laos on 28 January.

Acknowledgements-Appreciation

As always the Panel was received with warmth and courtesy by all those associated with the project, a most comprehensive schedule being efficiently set up by the GOL, NTPC and WMPA officials involved. We particularly appreciated the time spent with us by the Minister of Energy and Mines, Hon. Bosaykham Vongdara, Deputy Prime Minister Somsavat Lengsavat, the Minister of Agriculture and Forestry, Hon. Sitaheng Rasphone, the President of the GOL Committee for Planning and Investment, Hon. Soulivong Daravong, the Governors of Khammouane Province and Nakai District and the CEO of NTPC, Bernard Tribollet.

1. THE CRUCIAL NEXT SIXTEEN MONTHS

1.2. The Imminence of the Planned Dam Closure Requires an Accelerated Approach to the Social and Environmental Programs

It is a bare sixteen months until the most dramatic moment in the life of the Nam Theun 2 Project---the closure of the dam and the beginning of the final impoundment of its waters---is scheduled to occur. While the construction program has caught up much of the time lost last year, most of the social and environmental programs are behind schedule. The most time-bound of these, the program to resettle the eleven hundred households to be displaced by the rising waters, has fallen well behind in terms both of physical relocation in permanent housing and livelihood development. There continues to be insufficient sawn timber available to rehouse more than one in six of the resettlers by the onset of the wet season this May and for a range of reasons the forestry and agricultural livelihood programs are unlikely to meet their originally planned targets before impoundment.

This is of great concern to the POE. The Concession Agreement (CA) makes it very clear that: “Reservoir implementation impoundment must not be commenced until all Resettlers have been relocated in accordance with [Part 1 (the Social component) of Schedule 4 of the CA].” The final judgment of when this point has been reached is in the hands of the Resettlement Committee “on the advice of the Panel of Experts.” In short, a substantial responsibility resides in the hands of the POE in relation to the timing of the commencement of impoundment. The POE, for its part, will not shirk this responsibility.

Given the urgency of the situation the POE has decided to focus this report on the three priority areas bearing on the impoundment deadlines rather than cover in detail all zones of the project and the range of issues usually addressed. The POE emphasizes that all three areas are of equal importance to the success of the Project, but that they are presented in priority order based on the degree of urgency for action. Significantly, the crisis points in all three areas are centred around livelihood development. This is no coincidence: it has been apparent to the Panel for several years that the most complex task facing the NTPC is creating a sustainable lifestyle for those impacted by the project. This is dependent on changing cultivation and pastoral practices---and hence human behavioural patterns---followed for decades if not centuries. Yet the overall emphasis in project planning and implementation continues, as in other large dam projects, to be on the relatively simple functions of civil works, physical relocation and building social infrastructure. A better balance in timing and more emphasis on livelihood development are essential now.

The final substantive section of the report summarises the most important recommendations made by the POE in its last two reports (February 15, 2006 and October 30, 2006) and comments on the degree to which they have been carried out by the responsible agencies. The less urgent recommendations are summarised, commented upon briefly and annexed. The summaries show that although there has

been a gratifying level of response to the POE's findings and proposals for action there remains much to be done to give form to the many plans drawn up over the past decade and longer on this potentially productive multisectoral project.

2. FIRST PRIORITY: NAKAI PLATEAU RESERVOIR RESETTLEMENT

2.1 Introduction

The Concession Agreement divides planning and implementing the resettlement process into two components: Village Development and Livelihood Development. As of January 2007, the POE is concerned that both are well behind schedule. While GOL and NTPC are aware of this fact, lower priority continues to be given to livelihood development to the extent that it is unlikely that the Household Income Target will be reached by the beginning of year 5 of the Resettlement Implementation Period as required by the Concession Agreement. In the paragraphs that follow the POE will first outline the livelihood, institutional, infrastructure and administrative constraints responsible for this situation and then recommend corrective procedures.

2.2 Livelihood Constraints

The main current constraint is the delayed ability of the intended livelihood system to provide sufficient food and income prior to 2009 and possibly beyond that date. Reasons involve the crop agriculture, forestry, livestock and fishery components of the intended diversified production system at the household level. While the switch during 2006 from the Pilot Village system to the New Systemⁱ is more likely to be culturally, economically, institutionally, and environmentally sustainable, sufficient income from the crop agricultural component can not be expected until 2009 and beyond due to the time required to improve soil productivity through a mulch based cropping system (DMC) and because of less emphasis on irrigation than intended in the Social Development Plan.

Not only will expected income from the Village Forestry Association also be delayed but its amount (\$300 per household each year) is likely to be significantly less due to the size and productivity of the forest area being less than anticipated. As for livestock, lack of pasture (both grazing and browse) for large stock will require cutting the villagers' 5,000 head of cattle and buffaloes, which are their main bank account, to approximately 2,000 head. Such "decapitalization" will be especially severe for four of the 15 resettlement villages: Nakai Tai (nearly 80%), Nong Boua (over 50%), Done (50%), and Boua Ma (nearly 50%).ⁱⁱ

Contributions of the future reservoir fishery to household diet and income can not be expected until after reservoir impoundment occurs which will be, at the earliest, during the second half of 2008. Further delays are possible due to institutional constraints and delayed filling of the reservoir. At the moment, constraints include delayed implementation of the necessary reservoir authority, delayed provision of the required (under the Concession Agreement) government regulations that, at least initially, restrict fishing and the fish trade to resettlers, and delayed boat building and capacity building necessary to enable village fishers to switch from a riverine to a lacustrine fishery.



Ban Done villagers loading their possessions for trucking to transitional housing on their new site.



Subcontractor's uncontrolled fire eats into the forest beside road.



Villager in Ban Maka explains the rotational fallow system to POE.

In regard to infrastructure, construction of permanent housing has fallen well behind schedule to the extent that some of the Group One villages may have to spend a second rainy season in temporary housing. As for administrative constraints, during this visit the POE focused on NTPC where constraints included micro-management from the centre, inadequate budgets and inadequate discretionary funds for managers in the field, inconsistent staff contracting policies and variation in contract length, inadequate attention paid to staff retention, procurement delays additional, for example, to unreasonable donor policies, and communication problems within and between project responsible agencies.

2.3 Recommendations for Overcoming Livelihood Constraints

2.3.1 The POE recommends that:

- **1-11. Priority be given to cultivation of the reservoir drawdown area during both the 2007 rainy season and the following dry season synchronized with appropriate UXO, biomass clearance, and land allocation policies.**

While the SDP refers to resettler use of the drawdown area, the potential of that area, being ill-defined until after reservoir formation, was not included as a component within the livelihood development plan. Now, because of the limitations of that plan, it is necessary to use the drawdown area to the extent possible.

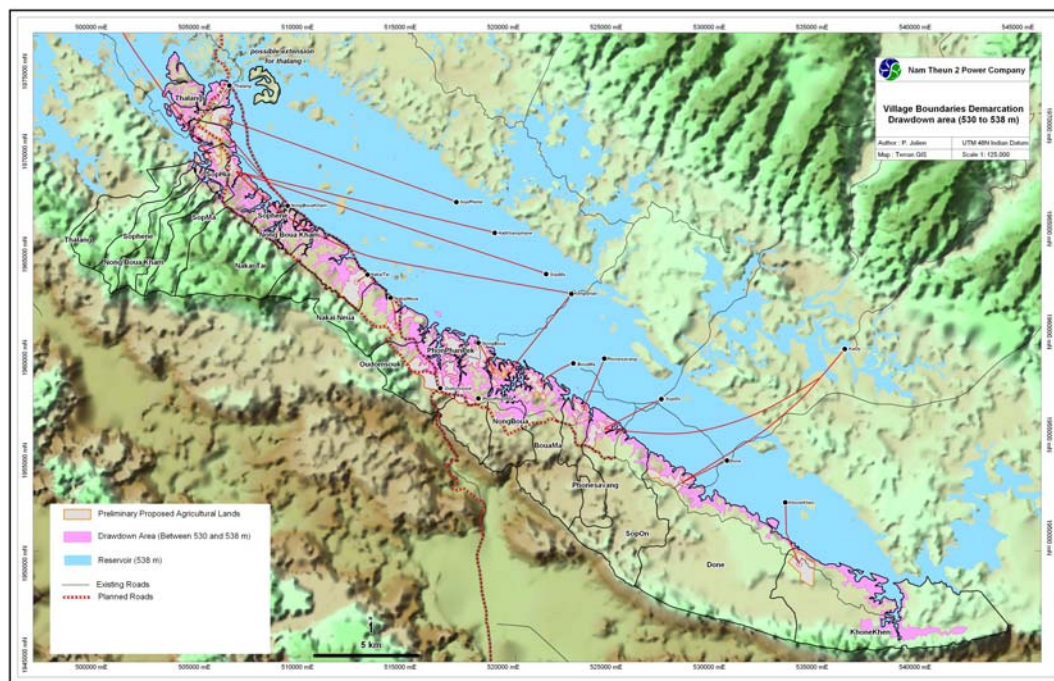
The POE's recommendation includes two parts. The first part applies to 2007 during which it is estimated that ongoing work on the dam will cause the reservoir to fill to about 535 meters. Though some risk is involved, the POE recommends that resettlers be encouraged to cultivate rainy season rice in the drawdown area between 535 and 538 and that NTPC be responsible for implementing whatever UXO and biomass clearance are necessary to enable resettlers to plant rice at the commencement of the 2007 rainy season. Furthermore, since more land will be available for a longer cultivation season, resettlers should be encouraged to do flood recession agriculture in the drawdown areas **after the rains and throughout the dry season as water levels recede**. Timely biomass clearance should not pose a major problem since the drawdown areas adjacent to the various village sites are located in the reservoir's upstream zone where average biomass density, according to the 1997 Prosser report, is approximately "60% of that in the downstream reservoir zones."

The second part of the POE recommendation applies to use of the drawdown area for flood recession agriculture and grazing after the completion of dam construction and reservoir formation. As with the reservoir fishery, the POE recommends that the government restrict cultivation and grazing use of the drawdown areas adjacent to the resettlement area to resettlers, and that the Resettlement Committee and NTPC consider allocating land use rights to resettler households in the same fashion that the VFA has allocated to each household 5 hectares for silvo-pastoral activities.

Allocation of such land use rights are allowable under the Concession Agreement with Schedule 9 on Project Lands stating that customary agricultural use of the reservoir area is permissible during the construction phase and that “Temporary cultivation in the draw-down zones is permitted” during the Operating Phase. Moreover, “Subject to drawdown zone agricultural systems being ecologically sustainable and productive, additional land in drawdown zone may be developed as agricultural and grazing land, and allocated to Resettler households and their descendents, following participatory land and forest use planning processes” and such land “to be provided with survey, and joint land title to husband and wife.”ⁱⁱⁱ

Figure 1 shows the extent of the drawdown area between 530 and 538 meters. That is the area allowing the most risk-free cultivation period for cereal, vegetable and fodder crops. Lower areas can be expected to provide additional grazing and may warrant seeding with indigenous fodder crops for cutting and use when the reservoir refills. As one example, resettlers in Nigeria’s Kainji Dam reservoir basin harvest a large tonnage of colonizing species of the grass *Echinochloa* as fodder for their cattle and for sale to transhumant pastoralists.^{iv}

Figure 1



2.3.2 The POE recommends that:

- **2-11. Approximately 5,200 hectares in the Nam Malou area be added at the northern edge of the resettlement area to provide additional forest and pasture land as well as drawdown access to the Northern Cluster of resettled**

villages. Since the recommended extension falls within the Corridor, the WMPA should be involved in boundary setting discussions.

In its sixth report (March 21, 2003) the POE recommended that “where village consolidation is under RAP consideration, priority should be given to the linkage between resettler preference and the availability of natural resources as opposed to government and Company preferences” (page 27). In the section that followed the POE stated its concern about “the recent tendency to reduce the number of resettlement village sites...While a government’s desire to consolidate villages and villagers so as to provide better social services such as schools and clinics is understandable, the risk – and it is a major one – is that consolidation is done at the expense of the people’s access to arable land and other natural resources.”

Today the Northern Cluster of villages is the most consolidated. Initially four villages (Sop Hia, Thalang, Sop Phene and Sop Ma) were involved. Subsequently Nong Boua Kham was added, and following the cancellation of the Nam Pan irrigation project near Lak Sao because of pollution from nearby gold mining, 77 more households from Nam Nian and Sop Hia were added.

As a result of such consolidation, pressure on land resources, pasture in particular, is acute. In Sop Ma, for example, only 1 hectare is available per household for pasture of the 5 hectares stipulated in the current land use plan. As a result, “the farmers will be forced to sell their cattle and suffer decapitalization.”^v Prior to the expected influx of additional households in Sop Hia, only 1.4 ha of the 5 ha is available so that “the village will have to reduce its holdings by 106 head.” The estimated pasture for Nong Boua Kham was 3 ha: “This entails a reduction of 128 head from the existing herd” of 205 cows and 33 buffalo while figures for Thalang and Sop Phene were 2 and 2.2 ha respectively. Under such circumstances it will be difficult to implement even a sustainable livelihood system let alone the CA’s Household Income Target, especially when the needs of the second generation of households are taken into consideration.

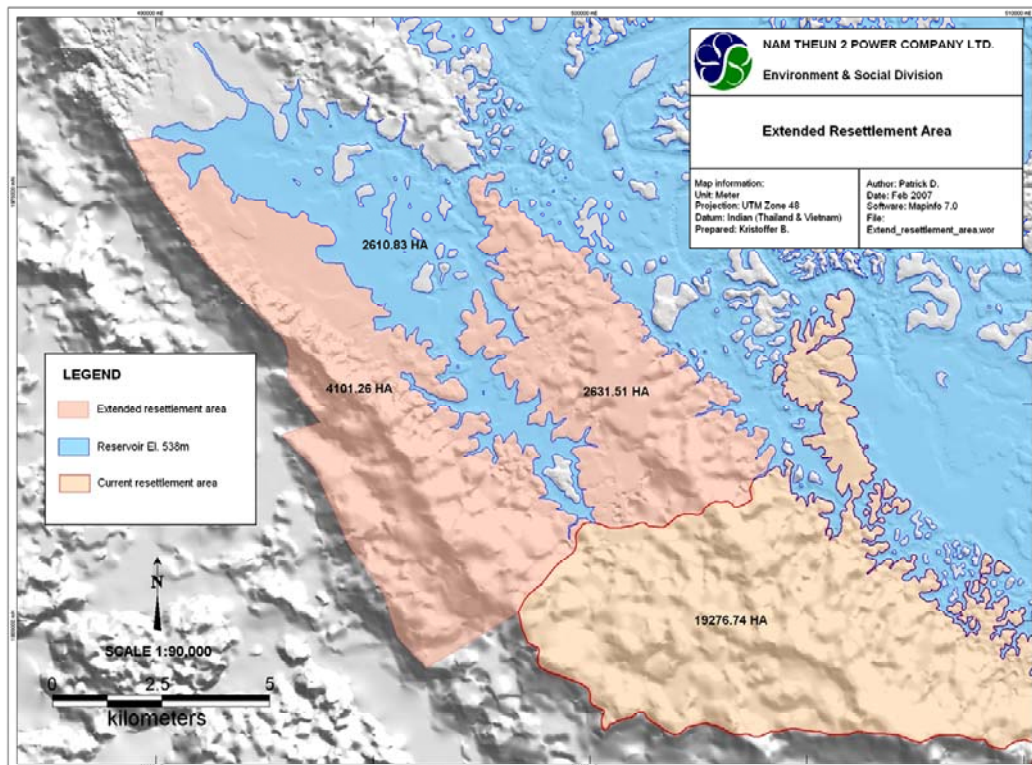
Complemented by increased emphasis on drawdown area utilization (Recommendation 1) and the reservoir fishery (Recommendation 3), the POE recommends extending the boundary of the resettlement area into the Nam Malou area adjacent to the Northern Cluster as the most potentially productive solution for providing additional resources. Figure 2 shows how the Northern Cluster’s resettlement area could be extended. Though the area involved is within the Corridor, to reconnect Nakai District headquarters to its Natron section in the Nam Hinboun basin, and to serve the two Nam Malou saddle dams, it will be necessary to re-route the current access road (which will be flooded by the reservoir) closer to the escarpment along the length of the 4101 ha strip. That will reduce its value for wildlife. Furthermore though the land area on the map is approximately 6,733 ha (2,631 + 4,101), the recommended extension would be closer to 5,200 since the area below the escarpment in the southeastern corner (approximately 1,500 ha) would not be included in the extension since it falls within the Natron section. Moreover, it

might be desirable to also excise the northwestern-most portion of the 4,101 hectare area so as to leave within the Corridor the lowermost portion of the Nam Malou area that falls within the reservoir basin.

The 2631 ha, and use of drawdown areas on the northeast side, could be added to the resources of Ban Thalang, Ban Sop Phene and perhaps Ban Nong Boua Kham while the portion used in the 4101 ha with the adjacent drawdown area could be added to those of Sop Hia, Sop Ma and perhaps Nong Boua Kham.

The wording “extension” and “added” are used intentionally by the POE to emphasize the importance of increasing the total hectares of the resettlement area. Because the land use area of the resettled population is being reduced by the NT2 project from approximately 60,000 hectares to approximately 20,000 ha, land resources remain scarce throughout the entire resettlement area. For that reason, adding approximately 5,000 hectares for use by the Northern Cluster of villages as recommended above must not be offset by removing 5,000 hectares from the resettlement area elsewhere.

Figure 2



The POE recommends that:

- **3-11. The terms of reference for the fishery consultant (Garry Thorncraft) and the contract's length (90 days starting January 29, 2007) be clarified and extended as necessary to prioritize the importance of both the reservoir fishery and the drawdown area adjacent to the resettlement area for resettled households, to fast track the necessary government regulations to restrict fishery and drawdown use to project affected households and to institutionalizing the reservoir authority during 2007.**

The first three of the POE's recommendations are designed to increase the likelihood of livelihood development meeting the living standard and household income targets required under the Concession Agreement. The third recommendation deals more specifically with the importance of the reservoir fishery, the need to add use of the drawdown area to a diversified production system for each household as emphasized in the New System, the institutional structure and regulations needed for legitimating and managing exclusive use of the fishery, the fish trade and drawdown area utilization to resettlers, and the need to formulate and implement a national awareness program to advertise those restrictions.

2.3.4. The POE recommends that:

- **4-11. So as to further reduce resettler household dependence on NTPC-provided food rations, such activities as village site household gardens and mushroom production, DMC acceleration, including forage seed production, charcoal production from village sites and 0.66 ha fields, and biomass clearance from the reservoir warrant increased attention.**

Household gardens and mushroom production have already provided a source of vegetables and income. Resettlers working closely with project staff should ensure that they continue to do so. Some expansion may be possible by providing additional boreholes. Implementation of the DMC system on .66 ha fields should be accelerated in all villages to the extent possible. Though rice production "will not be possible" during 2007, production of forage seeds of *Brachiaria ruzisiensis* could provide an income of about \$US 53 per household.^{vi}

While the first priority of the VFA must continue to be completion of resettler housing, the POE believes that a more flexible approach to working with District, RMU, RO staff and with villagers can also increase its contribution to improving resettler village and household incomes during the next 22 months. Too much wood, for example, is being burned on village and 0.66 ha sites that could be converted to charcoal. In Sop Phene, which may well be the most densely forested village site, villagers preparing their household sites were burning large diameter logs which could have provided village and household income if charcoal kilns were present and if the village VFA had been provided with several chain saws and training in their use.

The POE doubts that the VFA can implement such activities alone; hence the need to work with the staff of other agencies who are located in, or responsible for, the various resettler villages. If villages and village households are also to benefit from reservoir biomass clearance after the removal of VFA and salvage timber, such cooperation between the VFA, the Ministerial Salvage Logging Committee, various other project agencies, and village VFAs, a more flexible and cooperative approach will be even more necessary.

The POE recommends that:

- **5-11. The Ministerial Salvage Logging Committee take on an oversight role in relation to reservoir clearance and in doing so work closely with the VFA and with District, RMU and RO staff to help ensure that clearance priorities include providing resettlers with cleared land for 2007 rainy season cultivation.**

2.4 Village Development Constraints and Recommendations for Overcoming Those Constraints.

2.4.1 Resettlers' housing and other Infrastructure

In the most optimistic scenario only one sixth of the total of 1121 resettlers' houses will be completed by the onset of the next rainy season in June 2007. There is much less acceptable hardwood coming out of the salvage logging areas than expected, some leakage of logs is occurring, the resettlers are being very selective about what woods are acceptable, the dry wood currently in storage is not suitable for wall cladding (the big deficiency) and the capacity of the housing subcontractors has its limits. Some wet season construction will be feasible. But the reality is that many villagers will be in transition housing for a second wet season. That is unfortunate.

The Concession Agreement is clear that reservoir impoundment will not commence until the resettler housing and essential community infrastructure services are complete. It appears to the POE that it is going to be a close thing. Even with reasonable wet and dry season weather, enough timber to do the job, no other supply problems and no "unexpected events" the schedule for completing houses and services is tight. There should be no room for doubt that if the CA conditions are not met on time the POE will recommend against impoundment until they are met.

The CA prerequisites include "the availability of water for Resettlers households and, as far as possible, water for gardening". Provision of wells has been adequate in most villages though protracted procurement procedures have held up the process in some villages. With the likelihood of lower than anticipated agricultural productivity this initial year of the New System household gardens will assume more importance. More wells may thus be required for watering gardens. Procurement rules may need stretching.

The POE recommends that:

- **6.11. The NTPC and the GOL move swiftly to exploit the opportunity to regain lost time on the housing front opened up by priority rights to salvage logs by expanding their daily presence in the log parks, the endeavour being to ensure that every log to which the housing program is entitled does not “leak” but is immediately identified, marked up and moved from the second landings to a secure sawmill for processing.**
- **7-11. The NTPC and the GOL District agencies working with the Resettlement Committee prepare themselves for some serious adaptive management decisions in the sixteen months to impoundment and be prepared to stretch the rules in order to provide the timber suppliers, housing subcontractors and infrastructure suppliers with additional backup support and resources.**
- **8-11. Villagers be encouraged to be less selective about what hardwood species they are prepared to accept in construction and to accept joined framework timber where long runs are not available, with the VFA being encouraged in turn to electrify and mobilise the expensive new joining machine lying idle in their mill.**

2.4.2 Resettlement of Sop Hia’s Vietic Households

2.4.2.1 The POE recommends that:

- **9-11. A permanent all Vietic Village be established at a location within their spirit territory acceptable to the concerned Vietic households in Ban Sop Hia. To avoid dam-related flooding, those households should be moved temporarily uphill before the commencement of the 2007 rainy season. Such temporary resettlement will allow the time necessary for identifying and assessing an acceptable site for a permanent Vietic Village.**

After elaborate consultations, the majority of Vietic households in Ban Sop Hia have emphasized first, that they want to be resettled within their current spirit territory, second, that they want their own Vietic Village, third that temporary or permanent resettlement in either Area 8 or Area 7 on the Nakai Plateau is unacceptable to them, and fourth, that temporary resettlement above their current houses in Sop Hia to avoid dam-related flooding during 2007 is acceptable.

The wording of the Concession Agreement clearly states that the Government and NTPC are obligated to accept the decision of a majority of the Sop Hia Vietic households as outlined above. According to Clause 7.3.3 “The parties agree that the primary factor in determining size and location of the resettlement villages must be the preference of the Resettlers themselves, linked to the capacity of the sites to provide the necessary economic opportunities.” More specifically, Clause 9.1.4

requires “relocation of Vietic or other vulnerable groups into separate administrative village units with clearly demarked boundaries and rights to resources.”

The Constitution of Lao PDR is fully supportive of those requirements of the Concession Agreement. For example Articles 1,2,3, 8 and 22 emphasize the equality of all ethnic groups in the political process and protect their rights to preserve and improve their cultures. More specifically Article 8 prohibits discrimination against any ethnic group that breaks up the group.

The position of the Vietic households is also supported at an international level by the 2003 Environmental Management Standard for Electricity Projects. Labeled Special Considerations for Ethnic Groups, Clause 4.6.4. states “In order to minimise social and cultural disruption of vulnerable ethnic minorities, the option of resettlement within indigenous areas is to be favoured.”

3. SECOND PRIORITY: DOWNSTREAM LIVELIHOOD DEVELOPMENT

3.1 Introduction

The Downstream Livelihood Development Program covers many more people (around 75,000 directly affected to varying degrees) than all the other NT2 programs put together. This lends it an urgency of its own since it involves offsetting impacts/losses from the project through the difficult means of proving and introducing innovative rural development techniques over 223 villages across a large river basin. While not as precisely time-bound by the CA as livelihood development on the Nakai Plateau, the downstream version must be well underway before dam impoundment and COD affect the quality, volume and velocity of the waters of the Xe Bang Fai. Where there are delays, an undesirable gap will emerge between impacts and mitigation/compensation. Such delays seem likely at this point. The constraints leading to this situation are set out below together with suggested corrective measures.

Two prefatory observations should be made. First, the POE does not accept the reasoning in the Downstream Restoration Program report of 1 November 2006 (p.9/26) that because the 2005 income data show that the sources of agriculture/fisheries/livestock income in the region declined from 57% in 2001 to about 43% in 2005 the net impact of the NT2 is reduced since household incomes are now less dependent on these three vulnerable sectors. The reality is that, unlike 2001, the year 2005 was a time of extensive flooding in the lower XBF basin so farming and fishing productivity declined and families were forced to seek cash income from elsewhere to make ends meet. This is a time-honoured reaction to heavy floods and cannot be held to represent a permanent decline in the importance of these sectors to the region---or to justify reduced mitigation funding.

The second observation is that until the final decisions are taken on how and where flood, erosion and irrigation mitigation measures are known final decisions cannot be taken on the shape and extent of the livelihood program. The POE has no hydraulics expertise. But it has been interested to note over the years how hydraulic analyses of the impact of NT2 on the XBF and proposals for hydraulic mitigation have changed, in some instances dramatically so. A year ago there was talk of frequent “surges” of water as electricity demand in Thailand fluctuated from day to day. There were tentative plans for an additional weir on what remains of the Nam Phit to absorb surplus waters and reduce surge. Now the engineers say that the new studies show that the day to day fluctuations and the downstream impacts will be minimal.

The POE recommends that:

- **10-11. A second opinion on NTPC’s latest hydraulic study be sought both to review the methodology adopted and to assess the conclusions reached. (The**



New crops and new cultivation techniques on trial in downstream pilot village.



Aquaculture in downstream villages beginning to show some returns.



The Nam Phit being converted from a free-flowing river into a water channel.

POE has sought the agreement of the GOL to request that the Mekong River Commission undertake the review. NTPC concurs in the proposal).

3.2 Livelihood Constraints

3.2.1 XBF below the 27 km. channel

A serious constraint is **time**---the comparatively short period before impacts occur. The Livelihood Restoration Program aims to be, as the project acknowledges, a “grass roots” level endeavour, working in parallel on flood management, erosion, irrigation, new or improved agricultural approaches, aquaculture, rice-fish and fisheries management. It is ambitious, multisectoral and innovative. Global experience is that it will take time to set up on a sustainable basis. There has been slippage in planning and initiating the Program. The POE visited two of the most active of the 20 pilot villages and found that, with the exception of the wet rice project (which involved low cost loans rather than new practices as such), progress in introducing new techniques is halting. That is to be expected---and in due course the lessons of the first year in tomato growing, pig raising and aquaculture for example will be learned and progress will accelerate. But at this stage the pilot program can be seen as a work in progress rather than a template for 36 more villages in July this year and another 36 in July 2008 as planned.

A second constraint is that with a program which is more likely to take 10 years to complete than the seven at present envisaged **the funds available** of less than \$8 million for the XBF agriculture/livestock/aquaculture work as such will be stretched---and over \$1m. of that will be devoted to consultants.

A third constraint is the familiar **administrative problems** of micro-management from the centre, a lack of freely available discretionary/contingency funds for field managers, inadequate staff contracting and retention approaches, and procurement delays.

3.2.2 Gnommalath District

A fundamental constraint in the Gnommalath District is the **dearth of land and water** available for conversion to padi to replace the considerable acreage absorbed by the building of the large downstream channel in particular. Negotiations are ongoing with upland areas being developed (though not into padi), the Thatot irrigation scheme being restored and additional water being made available from the project for irrigation purposes---a welcome development. That will still leave some 40 households without land. They must be adequately and appropriately compensated.

3.3 Recommendations for Overcoming Livelihood Constraints

The above constraints are not wholly reconcilable. Thus more time is desirable to prove, introduce and have new on-farm technologies adopted. But further delays will widen the prospective gap between impacts and offsetting activities.

3.3.1 The POE recommends that:

- **11-11. In order to keep to a minimum the prospective gap between impacts and offsets the overall Livelihood Restoration Program be boosted across the board, with mini-polder survey, design and construction accelerated so as to cope with impacts soon after COD (2013 is far too late for completion), the excellent WASH Program similarly brought to all villages well before 2013, the extension services expanded and the demonstration farm program sped up so as to cope with the planned rate of technology transfer to the villages.**
- **12-11. Some front-end loading of the budget be undertaken in order to cover the above accelerations in schedule, with serious consideration given to the level and length of service of expensive expatriate employees and consultants---and since further funds are likely to be called for to cover both an accelerated and time- extended Program then either the NTPC contribution be expanded to meet the needs or alternative funding sources be sought.**
- **13-11. The recent NTPC acknowledgement of administrative shortcomings and the welcome move of the Chief Operating Officer from Vientiane to Nakai be followed up by a further devolution of disbursement, procurement and recruitment powers to middle level managers in the field.**
- **14-11. The 40 families likely to be left without land in the Gnommalath area be compensated adequately, appropriately and in a timely fashion.**

3.4 Downstream below the Dam

The POE has not had the opportunity in recent years to be fully briefed on plans for the area below the dam itself. Nor has it been able to visit this already impacted area for some time. In the course of its planned mission in August 2007 the POE will review this section of the Downstream Program and make recommendations accordingly.

4. THIRD PRIORITY: NPA, WMPA and PIZ

The Nakai Nam Theun National Protected Area (NPA) includes the watershed for the reservoir and maintaining it in good condition is essential for the viability of the NT2 project. As the POE has emphasized since its first visit to the area in 1997, the NPA is an integral part of the NT2 Project. Also, because of its world class biological and cultural diversity it is a key element in the support the NT2 project has received. Unfortunately, as the POE has noted previously, there are still some individuals involved with the project who do not recognize the central importance of the NPA to the NT2 Project as a whole.

4.1 Restructuring the WMPA

The NPA is one of the most important areas in the world for biological and cultural diversity. The need to conserve the area's biodiversity riches and at the same time to assist with the welfare of its peoples presented major challenges and required a wholly new institutional structure. The result was the creation of the Watershed Management and Protection Authority (WMPA). Since this is an institution completely new to Lao PDR it would be expected that some initial problems might appear, and assessment after a year's full operation has shown that some problems do exist. The International Monitoring Agency (IMA), the external auditors, and the leadership of WMPA itself have identified a set of problems largely linked to the organization's initial structure. The key issues involve:

- Failure to adequately integrate conservation and development within WMPA's activities, which is an issue also highlighted by the POE in its past reports;
- Inconsistencies between the enforcement and other responsibilities of PPAM, the WMPA division involved;
- Severe inadequacies and weaknesses in the administrative and financial systems.

To deal with these initial problems and make the WMPA much more functional, the IMA, external auditors and WMPA leadership have proposed a restructuring, the central provisions of which are to place all the enforcement activities into a separate division, combine the other conservation and development activities into a single division, and revise the administrative and financial services into units that report directly to the Executive Director. POE agrees that such a restructuring is needed and further emphasizes that it should be carried out quickly so that the next year's work plan, starting in July, can be based on the improved structure.

4.1.1. The POE recommends that:

- **15-11. The WMPA Board of Directors act quickly to approve the proposed restructuring of the organization.**

4.2. Gold Mining at Ban Nakadok.

On June 7, 2006, the then-Deputy Prime Minister signed a notice allocating six hectares within the NPA above Ban Nakadok for artisanal mining. Neither the WMPA nor POE knew of such a concession at the time. When the POE visited the area we found about 700 people involved with mining, some of whom were local villagers but others were Vietnamese, some were people from Vientiane and some from Lak Sao, even though the DPM notice specified that the mining was to be limited to the local people from six villages. A very few were using the traditional artisanal gold panning, but most were digging lateral or vertical shafts, many using diesel pumps, pneumatic drills and other forms of mechanized equipment. Some of the shafts were around 50 meters deep. One group who said they were a company sponsored by the Lao Army had a Chinese foreman and was using a backhoe and other mechanical equipment.

In addition to the mining activities presumably in the allocated six hectares, we found mining shafts and exploratory digging extending over a much larger area on both sides of the valley and up to the ridge top. In the area where the gold is separated from the ore, we found young children playing in the settling ponds where mercury (and presumably arsenic, etc.) is discharged, and saw mercury-tainted water being discharged directly into the stream that leads to Ban Nakadok.

Artisanal mining has existed in that area since before the NPA was created, although not at the present spot. However, this is a different problem now. It is not possible to push back history but it is also not possible to simply move the NPA boundaries and give in to the invasion, because of the precedent that this sets. If one special interest is allowed to invade the NPA, history elsewhere throughout the world shows that it will open the flood gates so that whenever anyone with political or economic influence sees resources they want in the NPA it will not be possible to maintain the boundaries.

4.2.1. The POE recommends that:

- **16-11. GOL, with the advice of WMPA, add additional land to the NPA in an amount equal to the area impacted by the mining activities; all mining activities be limited to the allocated six hectares and mining activities beyond that be stopped immediately; children be kept away from the mercury settling ponds, direct discharges into the stream be stopped, and there be periodic analyses of the stream water below the mining activities with action taken as necessary to protect the health of those downstream.**
- **17.11. Any proposals for further alterations of the boundaries of the NPA be coordinated with the WMPA and the appropriate GOL Ministries, Provinces, and Districts, and only be undertaken with the advice and full knowledge of the WMPA.**

4.3. Rosewood

Illegal collection of rosewood from the NPA recently has emerged as an urgent and large scale issue. Large amounts of this very high value wood are involved. For example, in the past three months WMPA, with DAFO help, has confiscated 97 cubic meters of rosewood boards and over 357 round logs. Several observers have noted that “the NPA is bleeding rosewood.”

The volume of wood coming out almost overwhelms the abilities of WMPA and DAFO, and certainly diverts them from protecting other aspects of the area’s biodiversity. Further, there is real concern about the physical safety or the jobs of the enforcement personnel because they have been so effective in confiscating rosewood boards and logs that they are assumed to be impacting the economic interests of “powerful people.”

There appear to be two routes by which illegal rosewood leaves the NPA: organized poaching in connection with salvage logging, and individual efforts using vehicles of various kinds. We were informed by many that the salvage logging operation is used to stimulate and “launder” much of the illegal rosewood. We understand that the salvage logging contracting company, Nancey, has sent representatives to NPA villages, told them that Nancey has a quota for the rosewood, and paid villagers to cut it. We have even been told by several persons of a letter from a Nancey representative to a village assuring them that if they get into trouble with the government because they are cutting rosewood, Nancey will take care of it. The logs are cut by villagers, floated down to the Ban Thalang area, then reportedly placed with and sold as the contractor’s legal salvage logs.

There is also a large volume being brought out independently. While the POE was in the project area the Lak Sao WMPA caught a vehicle with 30 rosewood boards, the Nakai WMPA apprehended an ITD truck and driver with a load of rosewood, and we were shown confiscated rosewood boards that had been brought down the salvage logging road near route 12 by two-wheel tractor.

Given the magnitude of the problem, the POE wishes to warmly congratulate WMPA and their DAFO cooperators for their outstanding work apprehending as many rosewood loads as they have. However, the problem is a very serious one and it compromises the integrity of the NPA.

4.3.1. The POE recommends that:

- **18-11. The Ministerial Salvage Logging Committee and MAF give immediate attention to the rosewood problem and take appropriate action.**



Illegally harvested rosewood confiscated by WMPA/DAFO at Laksao DAFO storeyard.



Aerial view of gold mining activities inside the NNT NPA above Ban Nakadok.



Children playing in contaminated sedimentation ponds above Ban Nakadok.

4.4. WMPA and Reservoir Management:

The reservoir will constitute the western boundary of the NPA. There will be many forms of linkages between the two areas including access to Nakai for villagers from the NPA, access into the NPA across the reservoir, and the habitats and movements of terrestrial and aquatic wildlife. Consequently it is essential that the WMPA have a close and effective working relationship with the new reservoir management.

At present the NPA boundary is considered the 538 m. contour, the maximum operating level of the reservoir. There are significant disadvantages to this. For example, it results in a long convoluted boundary that would be difficult to locate and demarcate, and extremely difficult to patrol. Also, during the greater part of each year when the reservoir is drawn down, there will be a substantial area between the water and the 538m. NPA boundary that is out of the jurisdiction of the WMPA. Experience with reservoirs elsewhere has shown that a much more workable procedure is to establish the boundary as a relatively straight line in the reservoir itself, clearly marked by buoys in the parts of the reservoir that will be open water even at maximum drawdown. Among the advantages are that it is much more feasible to see and control such a boundary, and the WMPA authority would extend to the water at all times of year. It would also create a fish reserve and experience with other reservoirs has shown that such a reserve can very markedly increase the fishery productivity in the rest of the reservoir.

4.4.1. The POE recommends that:

- **19-11. The boundary of the NPA be established as a relatively straight line clearly marked by buoys in the parts of the reservoir that will be open water even at maximum drawdown; the WMPA and the new Reservoir Authority establish and maintain a close and effective working relationship; the WMPA with the Reservoir Authority develop a management plan for cross reservoir access to the NPA.**

4.5 NPA Livelihood

4.5.1 The POE recommends that:

- **20-11. The Government of Laos not assume, as has been the case to date, that development policies and plans for ethnic minorities being implemented in the lowlands, including those involving consolidation of separate communities into villages of no less than 500 people, are appropriate for upland hilly and mountainous environments like the Nakai Nam Theun catchment area. In the NPA, the POE recommends that the WMPA acquire additional expertise in such areas as swidden cultivation and upland farming systems, encourage further research on the variety of such systems in the NPA, and carefully monitor through adaptive**

management whatever livelihood programs are implemented so as to avoid impoverishing and environmentally degrading mistakes.

There is increasing evidence, starting with UNDP's two volume study of *Resettlement and Social Characteristics of New Villages*, that, where mandatory, the government's consolidation program for ethnic minorities is likely to increase impoverishment and cause environmental degradation. Moreover, during the 10 years that the POE has been coming to Laos, we too have observed several cases in both the NT2 project's Peripheral Impact Zone (PIZ) and in the NPA where involuntary consolidation has adversely affected living standards.

In both zones villages are scattered along Nam Theun tributaries in relatively narrow valleys that are separated by heavily forested hills and mountains. Over the years, village residents have evolved different, and often yet to be described, systems of land and water use about which much has still to be learned by government planners and by researchers.

In the Ban Maka area along the Nam Noy close to the Vietnam Border the POE found during our January 2007 visit, as one example, a distinctive system of flood recession agriculture that emphasized the planting of dry season corn on sloping and flat fields along the Nam Noy as late as January due to delayed flooded influenced by weather conditions in Vietnam and the South China Sea. The Ban Maka population is approximately 300 individuals. In order to make best use of their natural resource base, prior to government's consolidation program, residents not only rotated between up to six village sites but also spent months at a time living in fields that were periodically fallowed. The resulting farming system was sustainable even as the population increased. However, though more careful research is necessary, we found sufficient evidence during our visit to believe that the consolidation program that the government has been fitfully pursuing since 1997, will not be either economically or environmentally sustainable.

It is also of interest that during the POE's January 2006 visit we found some households consolidated in Thameung Village in the 1990s now living in their fields further up the Nam Xot tributary, while in January 2007 we found Vietic households consolidated more recently in Ban Nakadok and Ban Thon moving back to live, at least temporarily, in their old village sites. In each such case, the POE is of the opinion that such movements are a response to the non-sustainability (culturally, economically and environmentally) of the government's village consolidation efforts.

5. FOURTH PRIORITY: POE ANALYSIS OF 2006 RECOMMENDATIONS INADEQUATELY IMPLEMENTED BY GOL, NTPC AND/OR CONTRACTORS

5.1. Introduction

The POE has divided its 2006 recommendations listed in its 9th and 10th reports into four categories. The first category, higher priority recommendations yet to be adequately addressed by NT2 project agencies, is dealt with in this section. The next three categories are covered in Annex 1. They are lower priority recommendations not adequately dealt with by NT2 project agencies; recommendations adequately addressed; and recommendations requiring future replies. Recommendation numbering corresponds to that in each report so that interested readers can refer to the relevant explanatory text.

5.2 Higher Priority Recommendations Inadequately Addressed

Resettlement priority and related issues.

5.9. If reservoir filling is to commence on time, priority be given to resettlement equal to that given to construction activities.

As our first priority in this report emphasizes, resettlement delays continue to be the main constraint to impounding the reservoir on schedule.

6.9. The Head Contractor more closely monitor the activities of subcontractors to ensure that they are compatible with the resettlement process.

The POE continues to believe that more proactive monitoring by the Head Contractor and closer collaboration with NTPC's EO and RO and GOL's EMU and RMU are essential.

9.9. The RO be provided in the field with a fulltime senior adviser with resettlement expertise who can also coordinate activities with the RC, the RMU, and the various DRWGs.

During our January visit the POE was pleased to learn that NTPC had improved on the above recommendation by hiring Xaypladeth Choulamany, MAF's Deputy Permanent Secretary, on a full time basis to manage and coordinate all livelihood activities. Unfortunately after our return to office we were informed on February 1 that "Xaypladeth will not be available as Livelihood Manager." The POE cannot emphasize enough that, occurring at such a crucial time, this most unfortunate development is a serious set back not just for resettlement but for the NT2 Project. Because of inevitable delay in finding another suitable adviser, Mr. Xaypladeth's appointment must be reconsidered.

10.9. The capacity (numbers, expertise, training and equipping) of the Nakai District government be increased significantly to implement a sustainable resettlement process.

Bearing in mind that world-wide project authorities underestimate budgetary requirements for implementing development-induced resettlement and that sustainability requires strong district capabilities, a more proactive approach on the part of NTPC is necessary to meet legitimate needs of the Nakai District government for staff and equipment. In the January 15 meeting with the POE, the District Governor made a convincing case that the district is not getting the full cooperation needed for staff (livelihood in particular) and equipment (including motor bikes and GPS).

Roading problems still

8 -10. [In the interim] the revised specifications for the dam site road be strictly adhered to, lateral draining be introduced, disturbance be limited to the road easement and the abandoned sections of road be restored and revegetated. This work should be closely supervised by the Head Contractor and NTPC staff.

9-10. The Head Contractor and the NTPC itself closely supervise the work on the new road to the northern resettlement villages to avoid another costly rehabilitation exercise and to restrict the impacts of the work on the forest areas assigned to the resettlers. Revegetation and reforestation plans must be approved for those areas already damaged by excessive clearance and their implementation overseen by the company.

10-10. NTPC and the Head Contractor take a very close interest in both the design and construction of the cross-reservoir road and insist on the timely provision of a conservative vegetation clearance plan, detailed drainage and water movement plans and a revegetation/reforestation plan. Work should not begin until these plans have been approved. The WMPA should be consulted in the development of the plans affecting the NPA.

In light of the POE's earlier report and criticism by the Lenders' Engineer, IFIs and others, the ADB and IFIs acquired an independent expert road specialist to assess the road problems. The resultant report¹ strongly supports the POE's criticisms, noting "bad engineering leading to severe adverse environmental impacts", and recommending independent supervision of the road works instead of the current practice "where the contractor basically supervises himself." The POE saw no evidence of the recommended independent supervision.

The POE accepts that endeavours have been made to rehabilitate some of the damage done in constructing the dam site road but is not satisfied that the drainage

¹ Tomkins, R.J. 2006. Nam Theun 2 Hydroelectric Project: Opinion on Design and Construction of National Road 1E and Dam Access Road. Asian Development Bank.

system is adequate to preclude run-off and erosion into the Nam Theun in the coming rainy season, awaits the impact of the planting of large areas of erosion-prone banks in vetiver grass and planned revegetation with indigenous trees, and enjoins the NTPC to step up further its supervision of the subcontractor, who still appears not to have acquired adequate expertise in road building through sensitive tropical forests.

Thus a number of the mistakes pointed out on the dam site road are being replicated on the northern and cross-reservoir roads. Excessive clearances of forest for roading are going on, the timber cleared from the roadbed area is still being bulldozed to the forest verge and in some cases burned off to the detriment of the adjacent tree line. The POE chanced upon fires damaging the forest verge and canopy in resettlement forests. **The Head Contractor's supervisors need to be a constant presence on the ground to head off this sort of heedless destruction.**

An outstanding issue is whether the company's intention not to construct culverts under a portion of the cross-reservoir road- in the Thousand Island area -- thereby blocking the free flow of water in the wet season in particular ---but allow the water to accumulate and thus create "wetlands" has conservation merit or not. A reputable wildlife team has supported the move, arguing that in the dry season it will be advantageous for animals to have access to such areas of water and wetland fodder. The POE sees some potential usefulness in the idea.

Resettler Livelihoods

13-10. Henceforth increasing priority be given to livelihood activities, including crop agriculture, livestock management, fisheries and off-farm employment activities, in the already resettled villages.

While the POE agrees with NTPC that progress has occurred in dealing with livelihood activities among Nakai resettlers, serious implementation delays continue. Livelihood constraints and recommendations for overcoming them are presented in Section 2 of this report.

Family planning services

16.10. Government family planning services be more carefully tailored to meet the existing and presumably growing demand at the village level among younger women for smaller families.

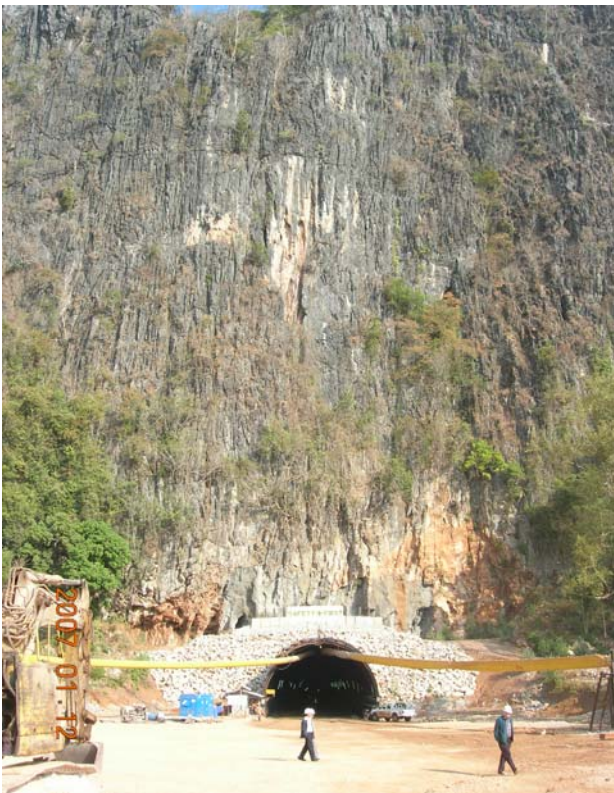
Family planning services are the weakest component in an otherwise commendable health program in NT2 project areas. A much more proactive program is necessary to meet the desire of married women in all project areas for smaller families, to improve maternal and child health, and, especially on the Nakai Plateau



Wire snares confiscated by WMPA patrols in NNT NPA.



Spoil is still being bulldozed over the edges of the dam site road destroying living trees and threatening the Nam Theun below.



Exit from underground water tunnel of downstream channel.

and in the catchment, to avoid increasing impoverishment in the future due to inadequate land and other natural resources.

Involvement in timber harvesting and reservoir clearance

20-10. Maximum use be made of the opportunities over the next two years for the resettlers to obtain employment, build up harvesting and processing and forest management expertise, and add to their income through participation in the drives to produce housing timber and clear the reservoir.

Due to inadequate flexibility and inadequate interagency cooperation, opportunities are being lost for resettlers and resettlement villages to benefit economically from village site and field clearance. Looking to the future, if proactively planned and implemented, reservoir biomass clearance provides an exceptional opportunity to resettlers to grow rice during the 2007 rainy season and to profit from use and sale of NTFPs from reservoir areas over which they had customary tenure.

Xe Bang Fai basin initiative

23.10 The Government of Laos request UNDP and the World Bank to convene a Round Table meeting of prospective donors and other relevant agencies to discuss how best to proceed with a well-coordinated and funded Xe Bang Fai basin initiative.

Though impacts will vary from household to household, the NT2 project will have an adverse impact on 223 villages in the XBF river basin. Bearing in mind that the basin is one of Laos' most important and perhaps the nation's future bread basket, NTPC and the government have a major opportunity and a major responsibility to ensure the basin's sustainable development.

New recommendation

The POE recommends that:

- **21-11. As a more appropriate mechanism for achieving a well-coordinated and funded XBF initiative, the Terms of Reference (TOR) of the Committee on Flood Protection and Irrigation Development (CFPID) be expanded to encompass the basin's multipurpose development. Furthermore, that CFPID develop a proposal to GOL for the integrated development of the XBF river basin.**

The Committee was established in October 2006 by the Standing Deputy Prime Minister to coordinate discussions between NTPC XBF responsibilities and GOL flood protection and irrigation development interests. Reporting to the Deputy Prime Minister, the Chair is the Governor of Khammouane Province and the Vice-Chair and Standing member the Deputy Director of MAF's Department of Irrigation. Other members include

the Bureau Chief of the Bureau of the Secretariat for the Lao National Committee on Energy, the Vice-Governor of Savannakhet Province and the Manager of the RMU.

Following discussions with the Committee chair and vice-chair, the President of the State Planning and Investment Committee (which is responsible for technical aspects of major development initiatives), and the Standing Deputy Prime Minister, the POE recommends above that the CFPID develop a proposal to the government for the integrated development of the XBF river basin. Such a proposal would be a multi-sectoral pilot project on how to proceed with the development of Laos' other river basins. It would both prioritize initiatives and estimate donor requirements.

World Heritage application

28.10. GOL pull together the necessary research, assemble an authoritative presentation and apply for World Heritage status for the NPA without further delay, drawing inter alia on the expertise in the WMPA Secretariat.

Recent commercial gold mining within the boundaries of the NPA, rampant Rosewood extraction and ongoing illegal wildlife exploitation are major threats to the NT2 catchment's integrity. World Heritage status would significantly strengthen the ability and authority of the WMPA to manage a balanced program of NPA conservation and development in a sustainable fashion.

Watershed Access Strategy

29-10. WMPA continue development of the Watershed Access Strategy. The Strategy must be set within the framework provided by the Concession Agreement and the SEMFOP and must involve meaningful and effective consultation with the villagers.

The Watershed Access Strategy is being developed.

Reducing inspection visits

22.9. Ongoing discussions between NTPC, the IFIs and the Lenders drastically reduce the number of inspection visits.

Too frequent inspection visits to the Nakai Plateau are interfering with the ability, in particular, of the RO, RMU and DRWG to implement their resettlement responsibilities in a timely fashion. Now that the required Independent Monitoring Agency has been contracted, the frequency of inspection visits should be reduced. Better coordination between the IFIs, the Lenders, the IAG and the POE is also recommended as a means to reduce the extent to which those responsible for planning and implementing resettlement are required repeatedly to answer the same questions during different inspection visits.

Logging monitoring

27.9. The MAF logging monitoring program be in place on the ground as soon as possible since on the POE's observation so-called independent loggers and others are already harvesting timber without contributing to the GOL targets.

28.9. To reassure both the international community and GOL Ministers, random external monitoring along the lines of the earlier logging appraisal missions of the World Bank including satellite surveillance be initiated as a matter of urgency.

Recommendations 27-9 and 28-9 are closely linked. The extent to which Rosewood is being illegally removed and the threat that such removal poses to the WMPA for NPA conservation emphasizes the need for a stronger monitoring capability on the part of the Ministerial Salvage Logging Committee, with external monitoring a stand-by measure if leakage continues.

NTFP removal restricted to resettlers

35-9. Priority for collecting, and profiting from, NTFPs from the future NT2 reservoir basin during salvage logging be restricted to Nakai Plateau residents.

There are two major reasons why gathering of NTFPs during reservoir biomass clearance should be restricted to Nakai Plateau residents. The first is that the reservoir basin is the area in which resettlers had legitimate (under Lao law) customary rights to NTFP collection. The second is related to delays lasting into 2008 in the ability of the VFA and the DMC crop agriculture program to make a major contribution to resettler livelihood as expected in the CA and the SDP.

44-9. The WMPA develop an information management system for the vast amounts of information that come in from the patrols.

This recommendation may appear to be of secondary importance. It is not. Because of a yet to be designed information management system that is compatible with NTPC's system, invaluable information remains within individual PCs and hence is unavailable for planning and implementation purposes.

46-9. Particular attention be paid to ensuring effective training and leadership for the military who assist WMPA with conservation patrolling along the Vietnam border.

GOL has yet to take action on this important recommendation. It should also be extended to police stationed within the NPA as at Ban Maka. Such training should occur before military and police personnel are assigned to duty within or adjacent to the NP

ⁱ The DMC system is a response to concerns that the less diversified, yet more intensive crop agriculture and livestock development approach on infertile and erosion prone soils to resettler development in the Social Development Plan, and as implemented in the Pilot Village, would not be economically, culturally and environmentally sustainable. Less experimental, and hence less risky, the DMC approach has been implemented in other hill and plateau environments. Case material is included in the two volume 2005 National University/NAFRI/NAFES sourcebook on *Improving Livelihoods in the Uplands of the LAO PDR*.

ⁱⁱ See P. Julien, "Village Resource and Boundary Mapping & Livelihood Development Design. 21/03/06. Nam Theun 2 Power Company Ltd.

ⁱⁱⁱ Nam Theun 2 Hydroelectric Power Project Concession Agreement, Volume 2A, Schedule 9 Project Land Rights, Security Fencing and Security Personnel. Page 4 and Schedule 4 Part 1: Social Component (other than for Downstream Areas), page 93.

^{iv} See Morton, A.J. and E.A. Obot, "The Control of *Echinochloa stagnina* (Retz) P. Beauv. by harvesting for dry season livestock fodder in Lake Kainji, Nigeria – a modeling approach." *Journal of Applied Ecology* Vol 21: 687-694, 1984.

^v See P. Julien, "Village Resource and Boundary Mapping & Livelihood Development Design. 21/03/06. Nam Theun 2 Power Company Ltd. Page 16.

^{vi} P. Julien, "Nakai Livelihood Mission support: Mission 2 – October 2006, Nam Theun 2 Power Company Ltd, page 2.

ANNEX

1.1 NINTH AND TENTH REPORTS: LOWER PRIORITY RECOMMENDATIONS NOT ADEQUATELY DEALT WITH BY PROJECT AGENCIES

Policy Statement on NT2

1-9. The Lao National Committee on Energy (and/or the over-arching committee recommended by the POE, see Recommendation #3) issue a strong policy statement emphasizing the importance of environmental and social issues in the NT2 project and calling on all ministries and other governmental units involved to ensure that their activities reflect this importance. The NT2 Steering Committee could be tasked with monitoring the issue.

No action taken. However, the recent active involvement of the Standing Deputy Prime Minister has effectively notified government agencies of the importance of environmental and social issues in the NT2 Project.

NTPC Board Committee

2-9. The NTPC Board establish an independent Committee on Environment and Social issues that would report to the Board Chairman. The Committee should have at least two outside specialists and might include an At Large Member of the Board.

No action taken. Furthermore, an E & SD replacement on the Board had yet to be nominated at the time of the POE's January 2007 visit.

Administrative Reforms

8-9. The decision making authority of the RO be strengthened significantly, the relationship between NTPC Vientiane and NTPC Nakai be streamlined, and a budgeting process be established that will allow prompt implementation of decisions made.

It remains to be seen whether or not the January 2007 decision for NTPC's Chief Operating Officer to move to Nakai will allow prompt implementation of the necessary decisions.

Resettlement Priorities

14-9. Priority be given to villages most at risk. First priority should be given Ban Sop Hia. Not only is the lower portion of the village more apt to be flooded, but the

same applies to the road connecting the village to Route 8B at Ban Nam Nian. There are approximately 60 households in Sop Hia. Approximately half are Vietic while the other half are relatively recent immigrants from Khamkerd District whose wish to return there is the major reason for implementing the Nam Pan irrigation project near Lak Sao.

A major unexpected event, its impact on resettler decision making as where to relocate, and inadequate consultation with Vietic households have interfered with implementing this recommendation. The major unexpected event was the cancellation of the Nam Pan irrigation project because of water pollution from nearby gold mining. That unexpected event increased the difficulty of non-Vietic households deciding on where to relocate. Inadequate consultation has resulted in a confused understanding of the wishes of individual Vietic households. As a result of further consultation, most if not all non-Vietic households, as well as some Vietic households, have identified relocation sites while the remaining Vietic households will be temporarily moved uphill from Sop Hia to avoid 2007 flooding while consultation and site investigations continue within the spirit territory of the concerned households.

RO/NTPC Relationships

21-9. While also facilitating district strengthening, the implementation responsibilities of the RO be increased if the livelihood goals set for COD plus 7 years are to be realized. As already mentioned, for that to occur, the RO's decision making capacity must be increased along with prompt access to the budget necessary to finance decisions made. Relationships between the RO and NTPC, Vientiane also must be streamlined. These recommendations were discussed within NTPC and are reflected in new NTPC policies implementation of which will be expedited by NTPC's Chief Operations Officer working in close cooperation in the field with the resettlement office.

See Recommendation 8.9 on the first page of this Annex.

Environmental Impacts around Construction Sites

14-10. The success in reducing turbidity through flocculation be followed up fast in the many sedimentation ponds around the project.

The POE was not impressed by the level of commitment to this work among the NTPC Construction Team and expects a greater effort to be made over the next two years.

Social Advisers' Workshop(s)

15-10. NTPC management convene for all social advisers at the earliest possible date a workshop or workshops whose function is to thrash out differences of opinion to management's satisfaction.

Granted the divergent views of NTPC social advisers, a workshop remains important. It should be linked to prompt recruitment of the Nakai Plateau livelihood manager, who, as with the Nakai resettlement manager and the newly recruited downstream manager, would be responsible for overseeing the advisers in the field.

WMPA Checkpoint

32-9. The intention of the WMPA to establish as soon as possible a gate or checkpoint covering access to the watershed to interdict any potential poachers entering the watershed via the logging road up the escarpment from Route 12 be endorsed and acted upon.

WMPA has made a preliminary determination that roving patrols are more efficient and effective than fixed checkpoints and has initiated a roving patrol that visits the road. Effective control is clearly needed since POE saw rosewood boards that had been confiscated after being brought out the logging road, and met a group of villagers walking down the road who said they had been checking their snare lines. WMPA intends to try to determine whether roving patrols or a checkpoint prove to be the best option for this sensitive location.

33-9. When the salvage logging is completed the road down the escarpment to Route 12 be completely cut at the top and near the foot of the escarpment so that it is impassable to motorized vehicles.

The POE notes that villagers want to keep the road open after the salvage logging operations are completed, specifically so they have access to the resources of the NPA, which is part of the reason the POE opposed the road in the first place. Consequently, POE considers it very important for GOL, with leading advice from WMPA, to prepare and approve a management plan for effectively cutting the road as soon as salvage logging ceases.

34-9. When the salvage logging is completed the WMPA continue to maintain the gate or checkpoint covering access to the watershed via the remains of the logging road up the escarpment.

These three requirements (32-9, 33-9, and 34-9) must be monitored over the next two years as reservoir clearance proceeds.

WMPA

38-9. BOS request that WMPA and POE provide a briefing on the NPA and WMPA activities at a workshop to be held during a POE mission. The World Bank has offered to provide a venue. The attendees would include the WMPA Board members, key officials from relevant ministries, and representatives of the IFIs.

Not done yet. Such a briefing would be very useful to acquaint other parts of GOL with the WMPA, because WMPA is both a new GOL body and one different from other parts of the government.

53-9. The WMPA staff learn from past research, studying the reports of IUCN field teams working on livelihood development in watershed villages in the late 'nineties.

No evidence that this is being done, with key reports not being found at this point.

58-9. The WMPA develop further the emerging ideas on how to achieve on the ground integrated conservation and development.

This is challenging work but requires more conscious effort on the part of WMPA staff to learn from elsewhere, including in Laos itself.

Dam Road Replanting

70-9. The NTPC replant those areas (with native trees) along the dam road which have already been excessively cleared.

Yet to be implemented.

1.2. NINTH AND TENTH REPORTS: RECOMMENDATIONS WHICH HAVE BEEN PARTIALLY ADDRESSED OR ARE IN PROCESS BY PROJECT AUTHORITIES

Effective Interaction involving NTPC

2-10. NTPC act firmly to ensure that there is effective interaction, including consultation and timely preparation and review of environmental documents and plans, between and among the Head Contractor, the sub-contractors and the NTPC Construction and Environmental and Social Teams.

This recommendation has been adequately addressed at the dam site where serious environmental problems have been resolved. It remains to be seen if interaction dealing with project roads, other work camps, spoil rehabilitation and other construction activities is equally effective.

Development of Institutional Structures

3-10. NTPC and GOL develop the necessary reservoir, downstream and project lands institutional structures as a matter of urgency.

This recommendation has been partially addressed in that a new and effective RMU manager has been recruited and, more recently, a NTPC downstream manager has

been recruited. On the other hand, the critical position of NTPC livelihood manager on the Nakai Plateau remains to be filled, while improved NTPC policies for recruiting and retaining good quality staff are only now in the process of being implemented.

Data Management

4-10. NTPC recruit now another data management adviser and ensure that all relevant data sets (WMPA, Nakai Plateau and Downstream) be made compatible with, and incorporated within, a single information management system, and further that NTEC's 1998 random sample of dam-affected households on the Nakai Plateau be incorporated within the Nakai Resettlement Monitoring system.

Good progress has been made on this recommendation. Remaining concerns on the part of the POE are that the WMPA has yet to address the data management issue and its integration into the NT2 project-wide system and that data management system complexities may still require having a data management adviser on tap.

Statutory Environmental Controls

5-10. Methods of strengthening and extending the scope of the existing Lao system of statutory controls be researched and that precedents elsewhere for ensuring compliance and enforcement---and recognition of natural resource protection achievements---be examined for their relevance as models.

A belated and only partial start has begun addressing this recommendation in that Earth Systems Lao is working with GOL's EMU to use NT2 as a pilot project for developing a GOL environmental monitoring system. The issue of statutory controls has yet to be seriously addressed.

Involvement of Resettlers in all Village Activities

13-9. Resettlers be involved in *all* activities at the new sites. That means involving active members of each household in all activities including UXO clearance, cultivation of new fields, and building permanent housing and community infrastructure. Implementing this recommendation will require some villagers living in field shelters, while most elders and school age children can be expected to remain in their present villages until permanent housing and infrastructure, as well as livelihood activities, are available at the new site.

This recommendation paid inadequate attention to the labor constraints that the resettlement process places on resettler households, especially where they commute between old and new village sites. A good effort has been made by the project agencies to involve resettlers in various activities, although some possibilities, such as charcoal production from home and field sites, have been inadequately utilized.

Resettlement of Ban Sop Hia and Ban Nam Nian people

18-9. Since previous surveys suggest that available irrigation sites would be smaller than the Nam Pan one, the possibility that a larger number of Ban Sop Hia and Ban Nam Nian households might be interested in resettling in Nakai District be investigated as soon as possible. Consultations should involve both those permanent residents of Ban Sop Hia who had stated a preference for going to the Nam Pan irrigation project and the Khamkerd immigrants to Ban Nam Nian and Ban Sop Hia. Once the uncertainty surrounding the Nam Pan site is explained, the former might be willing to move to New Sop Hia near Ban Thalang where house sites and fields exist for another ten households. As for the latter, those who came to the Nakai Plateau to trade might be willing to relocate to Oudomsouk or return to their villages of origin in Khamkerd District if provided with project assistance to improve their livelihood.

See comments under Recommendation 14-9 on pages 1 and 2 of this Annex.

Responsibilities of DRWGs

19-9. The implications of the Concession Agreement statement that the DRWGs are the responsible agencies for “implementing the relocation, rehabilitation, compensation and development activities specific to their districts” be considered at this point. That statement is especially applicable to Nakai District which will have the responsibility for maintaining and improving the livelihoods of the resettled villages and the development of the district as a whole including the National Protected Area, the NT2 reservoir and the 20,800 ha resettlement area once the RMU and the RO cease to exist.

A more proactive approach, especially on the part of NTPC but also in regard to the RMU, remains necessary. See Recommendation 10-9 in Section 5.2 of the main report.

Dam Site Road

67-9. The NTPC urgently review the gradient and curve specifications of the dam site road so as to reduce the impact on the wildlife corridor.

68-9. The NTPC reduce the dam road width over the remainder of its length to the specified 7 meters.

69-9. The NTPC clear vegetation from either side of the dam road only to the extent that revised gradient and width specifications absolutely require.

These recommendations have been dealt with in as much as possible given the magnitude of the damage already inflicted on the area. But see further comment in main report.

VFA Management Expertise

20-10. Planning begin now to build up management expertise in the VFA (with understudies appointed to work alongside the experienced General Manager) so that the villagers may resume control of their forest resources on schedule in December 2008.

Because of VFA emphasis on providing timber for housing, satisfactory implementation of this recommendation has yet to begin.

Bio-mass clearance

22-10. Further advice be sought as a matter of urgency on the inter-relationships between residual bio-mass in the reservoir, water quality and fisheries and hence what quantities of bio-mass should be burned, removed or left intact in the period before inundation.

See recommendation 5-11 in the main report above.

Hydrology Report

27.10. The pending hydrology report on this and related [downstream hydrology] issues being prepared by the NTPC's Daniel Gunaratnam be fast-tracked and made available for public debate as soon as possible to clear up the uncertainties.

Issues here are more complicated than the POE realized. The POE has recommended in this report that NTPC request the Mekong River Commission to undertake an independent review of NTPC's hydraulic study.

River Basin Wide Approach to Irrigation Opportunities

59-9. A river basin-wide approach be adopted for taking up from the outset the opportunities for using the turbinated waters emerging from the NT2 powerhouse for dry season irrigation in the downstream areas of the Xe Bang Fai. It should be coordinated on a national basis and from a high level.

The Standing Deputy Prime Minister's formation of the inter-provincial Committee on Flood Control and Irrigation Management is a major step in this direction especially if the Committee's scope of work is expanded to propose to the government such a river basin wide approach.

61-9. Similarly, the prime opportunity for a ready made gravity feed irrigation project in the Eastern Gnommalath plain be developed further, preferably by a

design team including both the NTPC downstream consultant and the District Irrigation Department, and funding discussed with the ADB and/or the AFD.

NTPC has agreed to fund a pre-feasibility study to deal with the above opportunity. What is outstanding is funding for a full feasibility study if preliminary results are favorable. That will require donor funding.

WMPA Issues

37-9. Ensuring that NTPC personnel understand and support the conservation goals of the NPA be an appropriate area for attention, including monitoring, by the NTPC Board Chairman's Environmental and Social Advisory Committee, as well as the NTPC environmental officer resident on the Nakai Plateau.

The POE believes that more remains to be done, although the NTPC environmental officer recognizes and is working on the problem.

45-9. Steps be taken by the provincial and district governors, the NT2 Steering Committee and the WMPA Board to inform the other branches of government of the importance of cooperating with the WMPA.

There has been some progress but substantially more remains to be done. See recommendation 38-9 on page 3 of this Annex.

47-9. The WMPA conduct a careful participatory survey/study to determine what access to the NPA is really needed. Then, on the basis of the results, develop a comprehensive, integrated access plan for the entire NPA, along the lines specified in the 2005 POE report.

The development of the access plan is underway.

49-9. The GOL give the WMPA an advisory or decision making role for any proposals to conduct research in the NPA.

50-9. The WMPA establish criteria for acceptance of research proposals, including the requirement that the research be designed to contribute directly to the objectives of SEMFOP and that the WMPA receive the results of the research promptly. Wherever possible Lao students or other personnel should be involved in the research in order to build Lao capabilities in this area. Further, all researchers should sign an agreement not to remove biological specimens, or if they do, to ensure equitable sharing with Laos of any profits they realize from such specimens (see bioprospecting, section 3.1.7 below).

WMPA is making satisfactory progress with these recommendations.

52-9. There be a comprehensive plan prepared by the Contractor to control wildlife exploitation; that the plan be shared with WMPA; and that the plan call for zero tolerance, i.e., that workers who exploit wildlife will be fired immediately.

The Contractor has taken some steps, but there is still not a zero tolerance policy in place for Contractor and subcontractor labor.

54-9. The WMPA begin weaning the watershed dwellers away from the preoccupation with rice cultivation, looking instead to new nutritious crops and high value cash crops.

On reflection an over-stated case on rice production---but valid enough, and being partially experimented with, regarding other crops.

57-9. The WMPA build on success by holding the WMPA field teams together and moving on as swiftly as is prudent from land allocation and livelihood development in the pilot villages and cluster to other clusters throughout the watershed.

The loss of a valuable TA is regrettable. Some WMPA staff are of the view that the land use and development side of the organisation is “racing ahead” of the conservation work. Keeping a balance is important. This aspect of WMPA’s work calls for further study when the POE is in Laos again later in the year.

55-9. The WMPA staff identify areas for more effective preventive health work.

Successful preventive health measures in the pilot village need duplication in the watershed. Improvement this year in the medical box scheme and training of 31 health volunteers are welcome but family planning education and supplies are limited and overall spending on the health sector is low.

Watershed Access Strategy

29-10. WMPA continue development of the Watershed Access Strategy. The Strategy must be set within the framework provided by the Concession Agreement and the SEMFOP and must involve meaningful and effective consultation with the villagers.

The Watershed Access Strategy is being developed.

Transferring Know-how

30-10. WMPA ensure that there are Lao counterparts to take over when the TAs’ terms are completed; and that WMPA act on Dr. Robichaud’s proposal that Lao biologists undertake their Ph.D. research in the NT2 area to be mentored by him with the agreement that they would continue his work after he leaves.

WMPA has directed attention to this issue, particularly in terms of the student possibilities, but the issue remains one of concern to the POE.

1.3 NINTH AND. TENTH REPORTS: RECOMMENDATIONS ADEQUATELY ADDRESSED BY PROJECT AGENCIES

NT2 Project Planning

1-10. The Government of Laos appoint an overarching NT2 Project Committee preferably chaired by Deputy Prime Minister Somsavath Lengsavad and invested with decision-making authority, budget, secretariat and strong government support.

GOL has institutionalized the intent of this recommendation by directly involving Standing Deputy Prime Minister Somsavath Lengsavad in NT2 Project planning and implementation.

Stronger Over-arching Project Committee

3-9. The Government of Laos consider whether a stronger over-arching project committee, with adequate political backing, decision-making authority and budget should be soon established for overseeing implementation of the NT2 Project.

The intent of this recommendation has been met through the recent active involvement of the Standing Deputy Prime Minister.

Strengthening the LNCE Secretariat

4-9. The LNCE Secretariat be strengthened to more effectively deal with the NT2 Project by adding several senior staff members, with the necessary budget and transport, who would have full time responsibility for dealing with the NT2 Project.

GOL has taken appropriate action

External Monitors

6-10. The highest priority be placed by the GOL and the World Bank on ensuring that there are effective external monitors on the ground by the beginning of the next dry season in October 2006.

Though further unacceptable delays occurred, remaining contracts for the necessary external monitors had been signed by the end of January 2007.

IMAs on the Ground

23-9. Selection of the various International Monitoring Agencies be prioritized as a means for further reducing the frequency of inspection visits.

Finally appropriate action has been taken.

Camp Site Numbers

7-10. Requirement to produce assessment and protection plan for the camp site in consultation with the NTPC construction team and the POE, proof of implementation produced and written agreement in future that agreed numbers of camp occupants cannot be exceeded without concurrence of NTPC and POE.

These requirements met and the site inspected by the POE in January 2007.

Resettlement Issues

7-9. If further delays are to be reduced, NTPC and the World Bank be proactive in applying an adaptive management approach to resettlement activities.

NTPC and the World Bank are currently being proactive in applying an adaptive management approach to the resettlement process although it remains to be seen if delays can be made up in time to fill the reservoir during the 2008 rainy season

Prioritizing Village Movements

11-9. The order in which villages are to be moved be prioritized.

Appropriate action has been taken.

UXO Acceleration

12-9. UXO clearance of village resettlement sites be accelerated by increasing the number of UXO teams.

Appropriate action has been taken.

Replacement Site for Nam Pan Project

17-9. Surveys to find a new site for the irrigation project begin immediately.

The necessary surveys were carried out. Unfortunately, sites equivalent to Nam Pan in irrigation potential were not found.

RMU Reorganisation

20-9. The RMU, which has played a valuable role during project planning leading up to Financial Close, now accelerate the handing over of its implementation activities as well as its more experienced staff to the District, including the necessary

budget for upgrading district staff numbers, staff expertise and staff training, and for purchase of the necessary office space and transportation equipment

GOL has satisfactorily dealt with the intent of this recommendation by completing an efficient and effective reorganization of the RMU.

Baseline Survey

64-9. Regardless of what other surveys are agreed upon, the 1998 NTEC random sample survey of 320 dam affected households on the Nakai Plateau be used, with any appropriate modifications, as the baseline survey for livelihood monitoring and that households in that survey be re-interviewed twice annually until resettlement has been satisfactorily completed as stipulated in the CA and SDP.

The intent of this recommendation has been implemented. The POE will follow-up on the recommended (but subject to modification) issue of biannual monitoring during its August 2007 visit.

Righting Impact Problems

65-9. The NTPC devise more responsive and transparent systems for righting environmental impact problems as they arise.

NTPC appointment of an experienced and forceful Environment Manager and staffing increases have gone a long way in meeting the intent of this recommendation.

66-9. The Environment Office of NTPC have an experienced, senior environmental officer, supported by adequate staff, resident on the Nakai Plateau. The officer must have experience working with construction activities and must be solution-oriented, so that he/she would be able to identify potential problems and work out timely solutions with the Head Contractor or his officers.

Appropriate action taken (see under Recommendation 65-9).

Vietic Village Adviser

18-10. The World Bank recruit an ethnic specialist no later than September 2006 to carry out the necessary consultations and to make recommendations based on those consultations as to the siting of a Vietic village on the Nakai Plateau if so desired by Vietic households and procedures for enabling those Vietic households who so desire to return to the NPA.

The World Bank recruited James Chamberlain to deal with the recommended issues.

Timber for Resettlement Housing

19-10. NTPC and the VFA General Manager give priority to building up the supply of VFA sawn timber for resettlement housing, using non-VFA sawmills in the meantime and accelerating the process of bringing the new VFA mill into production as soon as possible.

This recommendation has been complied with though, due to uncertain timber supplies, it remains to be seen if CA housing requirements will be met by May-June 2008.

Salvage Logging

24-9. The [Salvage Logging] demarcation program be accelerated so that logging can begin across the reservoir as soon as feasible.

25-9. In those areas clearly within the felling area logging should begin now that tenders have been accepted.

26-9. The large logs to be removed from the plateau go out through Lak Sao until an acceptable alternative is available.

While it took until October 2006 to initiate the monitored logging, progress has been satisfactory since then---but see recommendation 5-11 under 2.4.1 in the main text regarding leakages.

30-9. The MAF draw up, put in place and supervise a route and traffic plan which endeavours to bring order to an extraction exercise which will become chaotic if there is not some overall direction.

Accomplished. If anything the hours for movement of logging trucks on the roads may be too restrictive, slowing down the legal trade.

Gnommalath Irrigation

28-10. NTPC promptly take the lead in determining the most reliable option for gravity flow irrigation in the Gnommalath District and in the planning and implementation of that option.

This recommendation has been satisfactorily dealt with.

Out-takes from Water Channel

60-9. Early consultations be held between the Company and the District authorities on the precise siting of out-takes from the Water Channel for irrigation of the Western Gnommalath plain.

Appropriate action has been taken.

WMPA Issues

32-9. The intention of the WMPA to establish as soon as possible a gate or checkpoint covering access to the watershed to interdict any potential poachers entering the watershed via the logging road up the escarpment from Route 12 be endorsed and acted upon.

Accomplished.

39-9. The WMPA give priority attention to institution building, including their internal training system (including SEMFOP, CA, etc.) which the POE considers as WMPA's greatest immediate challenge. But at the same time WMPA should maintain the momentum they have built in initiating the essential patrolling and village development work.

40-9. In building the WMPA as a new institution, a key concern be the linkage between its conservation and development activities, i.e., integrating the presently separate components into a cohesive whole.

WMPA is making satisfactory progress on addressing these issues. See Recommendation 14-11 in section 4-1 of the main report.

41-9. The Director of WMPA, and where appropriate, other key senior staff, undertake short term (probably on the order of three month) management training courses. The POE understands that the Director wishes to take advantage of such courses, and the Panel considers this to be of high priority.

The Director has completed such a course.

42-9. The WMPA move as quickly as practicable to establish, train and deploy the patrols and set up the key guard posts.

43-9. The WMPA apply an adaptive management approach to the development of the patrol program, monitoring the results carefully and adjusting or expanding the patrol system if experience indicates that it is necessary.

The WMPA has made excellent progress with developing the patrol system and deploying patrols, and it has done an outstanding job applying adaptive management, and modifying its patrol and checkpoint system on the basis of analysis of initial experience.

48-9. If WMPA wishes to experiment with the Khamkerd District to Ban Navang road as a two-wheel tractor track, it develop a management plan that specifies effective controls, a check point or gate, roving patrols on the track, careful monitoring, and review of the results after perhaps three years, before a final

decision is made on the future of the track.

The management plan has been developed and check point and roving patrols are in place.

51-9. Laos contact the secretariat of the Convention on Biological Diversity to explore potential assistance in developing national legislation and procedures to ensure that it receives appropriate benefits from any bioprospecting that is done in the country.

WMPA has contacted the Secretariat.

1.4. NINTH AND TENTH REPORTS: RECOMMENDATIONS TO BE DEALT WITH DURING THE POE'S AUGUST 2007 VISIT

No Unauthorized Households

16-10. No further "unauthorized households" as opposed to vulnerable individuals be authorized to join resettler villages on the Nakai Plateau.

Early Warning System

62-9. An Early Warning System for flooding be set up for the dam and the reservoir basin villages for the coming rainy season, to be extended subsequently by the NTPC to the downstream XBF zone.

ABBREVIATIONS, ACRONYMS AND GLOSSARY

ADB	Asian Development Bank
AFD	French International Development Agency
Ban	Village
BPKP	Bolisat Phathana Khet Phudoi (Mountainous Region Development Company)
CBD	Convention on Biological Diversity
CFCID	Committee on Flood Control and Irrigation Development
COD	Commercial Operations Date
Company	Nam Theun 2 Power Company Limited
DAFO	District Agriculture and Forestry Office
DRWG	District Resettlement Working Group
DUDCP	District Upland Development and Conservation Project of the World Bank
EAMP	Environmental Assessment and Management Plan
EMDP	Ethnic Minority Development Plan
EU	European Union
GIS	Geographic Information System
GOL	Government of Lao P.D.R.
IAG	The International Advisory Group for NT2 of the World Bank
IFIs	International Financial Institutions
IUCN	The World Conservation Union
Lao P.D.R.	The Lao People's Democratic Republic
LIL	Learning and Innovation Loan
IMA	Independent Monitoring Agency
LNCE	Lao National Committee on Energy
MAF	Ministry of Agriculture and Forestry
Nam	River
NBCA	National Biodiversity Conservation Area (protected areas created by GOL Decree)
NGO	Non-governmental Organization
NNT-NBCA	Nakai-Nam Theun National Biodiversity Conservation Area (a portion of the NT2 Project, most of which is in the water catchment area of the project reservoir) which was created in 1993
NPA	National Protected Area, the name now being used for the NNT-
NBCA	
NT2	Nam Theun 2 Hydro-electric Project
NTFP	Non Timber Forest Products
NTPC	Nam Theun 2 Power Company
Panel, POE	The International Environmental and Social Panel of Experts for the NT2
PICAD	Participatory Integrated Conservation and Development
PIZ	Peripheral Impact Zones
RAP	Resettlement Action Plan

RC	Resettlement Committee
RMU	Resettlement Management Unit
RO	Resettlement Office of the NTPC
SDP	Social Development Plan
SEMFOP-1	Social and Environmental Framework and 1 st Operational Plan for the Watershed Management and Protection Authority
TA	Technical Assistance (position)
TOR	Terms of Reference
UNDP	United Nations Development Programac
UXO	Unexploded Ordnance
VDC	Village Development Committee
VG1	Village Group 1
VG2	Village Group 2
WB	World Bank
WMPA	Watershed Management and Conservation Authority
XBF	Xe Bang Fai