

LAO PEOPLE'S DEMOCRATIC REPUBLIC

NAM THEUN 2 MULTIPURPOSE PROJECT

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

**[TO BE READ WITH REFERENCE TO
THE FOURTEENTH REPORT OF THE POE]**

**DAVID McDOWELL
THAYER SCUDDER
LEE M. TALBOT**

8 February, 2008

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ENVIRONMENTAL AND SOCIAL PANEL OF EXPERTS**

**For the Nam Theun 2 Project
Lao People's Democratic Republic
8 February, 2008**

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LIST OF RECOMMENDATIONS

The POE requires:

- 1/13 That the CA call for irrigation for each 0.66 ha farm lot be met at the very latest by COD.

The POE recommends:

- 2/13 Re-establishment of and capacity building for the water user group in Nong Boua and the formation of and capacity building for similar groups in the other resettlement villages.

The POE requires:

- 3/13 That the CA provision for clearing and fencing of 0.66 ha. for each household be completed as a matter of urgency before the next wet season, so that rain-fed planting may be undertaken by the resettlers.

The POE recommends:

- 4/13 That greater emphasis and resources be placed on the land-for-land option for Project Lands' PAPs and that a creative approach be adopted to achieve this, including working with PAPs to identify available lands and the development of a partnership approach to existing proposals and prefeasibility studies involving NTPC and the World Bank to develop the irrigation potential of the Nam Kathang, for example .

The POE requires:

- 5/13 That electricity connections in houses and community buildings must be in place and operating by 15 June 2008 and follow-up advice be provided after installation.

The POE recommends:

- 6/13 That the Company addresses the resettler village waste disposal issue urgently and seeks a permanent solution in cooperation with the RMU and the District Administration. Before the dam gates are closed is not too soon.

The POE recommends:

- **7/13 That the entitlement to house plot fencing be made known to the villagers and help be provided according to the CA where requested.**

The POE requires:

- **8/13 In conformity with the CA that the setting up and activation of an agreed number of effective village tree nurseries be undertaken as matter of urgency, having relevance as this does to both social and livelihood requirements. Nursery supplies of seedlings should be available by the onset of the 2008 wet season to enable villagers to begin planting. This will obviously call for some fast and concerted action.**

The POE requires:

- **9/13 That before the target date of 15 June 2008 the remaining uncertainties regarding community buildings listed in the CA be resolved and made known, not least to the villagers themselves who are confused as to what their collective entitlements now are and seem to be entirely unaware of some of them. There should be no further delays in getting on with building the warehouses, the cattle yards and crushes, the seed processing facilities and the fertilizer factories. Providing rice mills may not be required for two to three months after that.**

The POE recommends:

- **10/13 That most of the additional 1,500 ha. of biomass should be removed from the permanently inundated area.**

The POE requires:

- **11/13 That as originally agreed, the salvage logging road down the escarpment near Ban Thongkong must be completely severed and made impassable, even to hand tractors and motorcycles, both at the top and bottom of the escarpment to preclude it being used by wildlife poachers and others illegally seeking resources from the plateau and watershed.**

- **12/13** That the Company think long and hard before making a final decision on this particular budgetary provision and that there be immediate action to ensure that an adequate protein deficiency program is in place before the tunnel is sealed. Similarly, the village consultations must be brought forward and the drawing up of plans expedited so that implementation of the Village Action Plans can be initiated before impacts occur not afterwards.

The POE recommends:

- **13/13** Establishment of a reservoir management committee whose responsibilities are largely for coordination. The membership would include the Vice Governor of Khammouane Province as Chair, District Governors of Nakai and Khamkeut Districts, and the NTPC's O&M Director, as Vice Chairs, with other members to include representatives of the WMPA Secretariat, the Head of the RMU, the NTPC Livelihood Manager, MAF, and others deemed appropriate. Provision for adequate funding for the organization, not from WMPA, is essential.

The POE further recommends:

- **14/13** That a Decree of the Prime Minister be drawn up that establishes the above Reservoir Management Committee, requires implementation and enforcement of the CA requirement that exploitation of the fishery resource, fish processing and fish trading be restricted to resettlers for a period of at least ten years, that requires that productive use of the drawdown area between the resettlement area and Nam Theun is restricted to resettler villages, and that assigns WMPA responsibility for the drawdown zone adjacent to the NPA. The Decree must also address on-going funding.

The POE requires:

- **15/13** That a POE-acceptable agreement be reached between the WMPA, the RMU, and the RO on use of a portion of the Corridor by a portion of the villagers.

The POE recommends that:

- **16/13** NTPC purchase at replacement cost for healthy stock approximately half of the 4,206 buffalos owned by resettler

The POE recommends:

- **17/13 That the produce marketing problem that continues to exist in the Pilot Village (Nong Boua) even under conditions of reduced production be addressed as a matter of urgency.**

The POE recommends:

- **18/13 That the need for extending or re-introducing the provision of rice, protein and food supplements because of insufficient household income to purchase basic needs food be reassessed on a household by household basis in seriously affected villages.**

The POE recommends:

- **19/13 That the resettlement of the core population (14 households) of Old Sop Hia at their current site in the Corridor be considered permanent.**

The POE recommends:

- **20/13 That prior to closure, the E&S Division be given the additional technical advisors, staff, and budgetary resources, necessary to get on with plan implementation.**

The POE recommends:

- **21/13 That the Company and the GOL approve the draft Downstream Implementation Plan as a matter of urgency, recruit competent replacement managers and seek to make up lost time in putting the DSIP into effect before impacts occur.**
- **22/13 That the NTPC endeavor to fit the comparatively low cost of repairing the 14 water gates within its Downstream budget for the pre-impact period.**
- **23/13 That the NTPC consider the advantages of protecting existing natural fish ponds and making them more productive by building levees around them and seeding them periodically with selected fingerlings.**

The POE recommends:

- **24/13** That the aquaculture program be stepped up, with additional human and financial resources made available to narrow the emerging protein gap and preparations made to bridge the gap when it emerges.

The POE recommends:

- **25/13** That NTPC provide a substitute road around the Nam Malou area to service district villages below the escarpment in the Nam Hinboun Basin.

The POE recommends:

- **26/13** That the WMPA Secretariat be allowed to get on with needed reorganization and acquisition of outstandingly qualified staff and as appropriate, TAs.

The POE recommends:

- **27/13** That the proposal for excision from VFA lands of the “urban area” be dropped.

The POE recommends:

- **28/13** That the remaining roading rehabilitation work should be more closely monitored by the Head Contractor.

1. INTRODUCTION

This is the thirteenth report of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) Multipurpose 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 been strongly supportive of the project since its first visit in January, 1997, and it remains so. We regard many of its features and procedures as models for other projects elsewhere in Laos and beyond. As it has steadily evolved in more recent years from a one sector hydropower project into a multipurpose development enterprise we have become the more convinced of its potential as a global model. And the solemn undertaking by the Concession Agreement (CA) parties to continue to meet their obligations and responsibilities until in the opinion of the POE the CA's social and environmental goals have been met---a period of nine years or possibly more---is a breakthrough in implementing infrastructure projects of this scale.

This has not inhibited the Panel from frankly criticizing those aspects of the project with which we have found fault. We have thereby sought to improve, through constructive comment, on the performance of those who have responsibility for managing the whole complex effort through to completion. The Panel has drawn on its extensive collective experience to point out problems and inadequacies but always to make positive recommendations for improvement, and as appropriate we have addressed the NTPC, GOL, and the International Financial Institutions.

This 13th mission is occurring at a particularly crucial time for the project. NTPC wishes to seal the diversion tunnel and thereby commence impoundment of the reservoir on 10 April, 2008. **Only two months remain before that date, and as detailed in this report, the POE questions whether or not the 10 April date can be met in view of various considerations including the number and magnitude of CA requirements that have not yet been met. However, in the hope that the target can still be met, we have set out below what needs to be accomplished in the time available.**

1.1 The Panel's Mandate

The Panel derives its mandate from the Concession Agreement covering the project. This is a 600 page legal document which assigns the POE a contractual responsibility to provide independent review of and guidance on the treatment of environmental and social issues associated with the Project, and after the Implementation Period of nine years or more, to determine whether the Project's environmental and social goals have been met. The POE submits its findings to the GOL Minister of Energy and Mines, may address recommendations to the NTPC (and frequently does so), and is required to assess the extent to which NT2 meets the requirements of the safeguard policies of the World Bank and the Asian Development Bank on such issues as the environment, indigenous peoples and resettlement with development.

1.2 Panel Activities

Arriving in Vientiane on 19 January, 2008, the Panel met with relevant ministries and agencies of the GOL and NTPC, plus the World Bank and NGOs, and then proceeded south to Thakhek to meet the Acting Governor of Khammouane Province and to be briefed on the Downstream and Project Lands Programs. Having visited villages along the Xe Bang Fai, and in the Gnommalat area, the Panel then spent five days on the Nakai Plateau. While on the Plateau the Panel held useful discussions with several GOL agencies concerned with the Project, the GOL RMU and the NTPC's RO team with special emphasis on the Livelihood Section, NTPC's Environment Management Office (EMO), the EMU, the Village Forestry Association (VFA), the Salvage Logging Committee (SLC), the Watershed Management and Protection Authority's (WMPA) Secretariat and the Nakai District Governor. The Panel visited most of the resettlement villages, the dam, damsite camp, various roads and the wetlands project. En route back the Panel visited the site of the illegal mining at Ban Nakadok ---now effectively closed down following decisive action by the Government in 2007---and met with the Deputy Governor of Khamkeut District.

Returning to Vientiane the Panel met with the Minister, Vice Minister, and Director General of Agriculture and Forestry, the Minister to the Prime Minister's Office and Head of the Water Resources and Environment Administration (WREA), the Department of Energy Promotion and Development (DEPD), and the NTPC Board. A round table discussion on WMPA issues was held, and the Panel had a most useful session with the Hon. Somsavat Lengsavat , Deputy Prime Minister, Standing Member of the Government, and Deputy Prime Minister Asang Laoly. Debriefings of NTPC, GOL and IFI and other stakeholders wrapped up a full mission. The Panel members departed Vientiane variously on 9 February.

1.3 Acknowledgements-Appreciation

The Panel expresses its appreciation for the organizational time and energy devoted by GOL, NTPC and WMPA staff to setting up a most worthwhile schedule, not least Phalim Daravong. It is grateful to the Standing Deputy Prime Minister, Hon. Somsavat Lengsavat, the Deputy Prime Minister, Hon. Asang Laoly, the Minister of Energy and Mines, Hon. Bosaykham Vongdara, the Minister of Agriculture and Forestry, Hon. Sitaheng Rasphone, Minister to the Prime Minister's Office, Hon. Mme. Khempheng Pholsena, and the Governors of Khammouane Province and Nakai District and the CEO of NTPC, Jean-Pierre Katz, for their insights and time.

2. OVERARCHING CONSIDERATIONS

2.1 Introduction

From its first visit in January 1997 the POE has emphasized the potential that the multipurpose NT2 Project has not just for project affected areas but also for Lao PDR as a nation. For that reason the POE has been a consistent and strong supporter of Project implementation throughout the planning process prior to Financial Close and since. This remains our position.

There is much to admire in the way this project was planned and in many aspects of its implementation. The Concession Agreement itself is an extraordinary document whose practical utility at the implementation stage is now very apparent. The original decisions to permit the villagers to stay on the plateau within their spirit territories, to give them continuing and exclusive rights to substantial natural resources so that they could continue to harvest NTFPs and aquatic products, and to set aside the entire watershed of the Nam Theun as a protected area as an offset to inundation of the plateau were enlightened moves. The housing, roading and health programs for the resettlers have been of high standard although we have felt that the roading access should have been more sensitively achieved in environmental terms. And many of the planning concepts, like the setting up of the WMPA and the Village Forestry Association to conserve resources, the establishment of a demonstration farm and nursery, a pilot village to learn early lessons about livelihood development on the ground, the creation of new village environments which are a quantum step up from the old villages in the area to be inundated, and the establishment of new wetlands to replace those lost to the rising waters were innovatory and essentially sound concepts though they need further development to be counted fully successful. The fact that the cost of the social and environmental programs has mounted by over fifty percent since the original estimates may say more about the original under-estimation of what is involved in managing a multipurpose development project like this than about adaptive responses to needs, but the Company nevertheless deserves credit for making additional funding provisions.

All that said, realization of the full potential of the Project requires a continuing and dynamic application of adaptive management to emerging problems. The lessons learned thus far should be both absorbed and applied.

While the POE has documented and reported on implementation deficiencies and constraints on the part of all stakeholders over the years, the situation has not changed markedly. We have accordingly come to the tentative conclusion that **it may prove to be unrealistic to be planning to seal the diversion tunnel on 10 April 2008. The POE accepts that delays beyond this date will involve risks, possibly involving postponement of impoundment until the next rainy season. A sustained drive to avoid these risks will require a major effort on the part of all parties and substantial additional funding. We trust and hope that this will all be forthcoming for we too want this project to meet expectations.**

It should be understood that this report was drawn up under time constraints since it seemed important that we report back on our findings quickly in order to maximize the period available for the principal stakeholders to address our concerns. It was presented in draft form to the stakeholders before the POE left Vientiane. **Given the time factor the POE has not spelled out in detail the more positive of its conclusions and findings but has instead concentrated on those issues which are immediately relevant to the current situation and which need remedying.** Readers should bear all this in mind as they peruse the text and refer back to earlier more complete reports which spell out the success stories of the project.

2.2 Resettler Livelihood Development

One of the deficiencies referred to above is a lack of synchronization of the Company's construction and social programs and schedules. The most crucial area affected is livelihood development. The first dramatic illustration of this was the loss of time, energy and funds involved in the unexpected requirement to move resettlers prematurely when the coffer dam backed up beyond expectations. The second instance will be the livelihood impacts of the pending impoundment.

These impacts are not always recognized. There is a tendency on the part of NTPC officials to over-emphasize, for example, the living standard importance of housing and of the acquisition of such assets as hand tractors, satellite receivers and television sets and motor cycles. As household residents frequently told the POE they are very grateful for improved housing but they are concerned about delayed implementation of the livelihood program and the availability of rice.

The more expensive assets such as hand tractors and satellite receivers are owned by less than 20 percent of households and the POE observes that an important source of income for those items came from wages for project activities only available during the construction phase which is now drawing to a close.

There was undoubtedly an initial improvement in resettler living standards following physical relocation to the new sites. The available evidence is that this has started to reverse, a conclusion that would have been less tentative if the required monitoring systems had been in place and available for analysis at this time.

Reversal occurred first in the Pilot Village (Ban Nong Boua) where the first resettlers arrived in 2002. During the next three years living standards improved but in 2007 they began to decline. Following their relocation, living standards and the quality of life also improved initially in the other villages because of the greatly improved standard of housing and a significant improvement in people's health which is an important success associated with the NT2 Project. But an overall living standard decline now appears to be occurring in most villages and standards can be expected to stagnate or decline further during most of 2008.

Stagnation can be expected because of delayed implementation of the Project livelihood program. Further decline is likely if dam closure occurs as scheduled because,

unlike the situation during 2007, resettlers will be unable to cultivate the drawdown area in rice during the 2008 rainy season, there is a continuing die-off of buffalos from disease and starvation in many villages and a gradual reduction in employment opportunities associated with the Project's construction phase.

Reasons for this unfortunate situation are many and most are Project-related. They include the Company's failure over the years to anticipate adequately the staff and budget requirements of the NTPC's Social Department, micro-management of the Social Department from Vientiane and a failure to make adequate use of existing expertise in Laos, plus failure to fully adapt GOL's village consolidation policy to resource availability and over-optimistic assumptions in the Social Development Plan as they relate to agriculture and to the Village Forestry Association.

The POE believes that there are solutions to these problems. They are presented below as largely CA-related requirements and/or recommendations that must be implemented respectively before tunnel sealing can occur, before the CA's "Financial Close plus 36 months" deadline for many programs expires on 16 June 2008, before the dam gates are closed, and before COD occurs in December 2009.

3. REQUIREMENTS AND/OR RECOMMENDATIONS BEFORE DAM CLOSURE AND SUBSEQUENT DEADLINES

The POE believes that there is a series of actions that must be undertaken or agreed to prior to impoundment of the reservoir if the NT2 Project is to be in full compliance with the Concession Agreement (CA) and achieve its promise as a world class model for development projects. Consequently these actions must be taken and agreements made before POE agrees to the sealing of the diversion tunnel which is the commencement of impoundment. There are four sets of these actions.

The first two sets are the explicit requirements in the CA. The first includes the infrastructure and service elements that are explicit preconditions for the commencement of impoundment. The second set includes those measures which the CA requires to be accomplished within 36 months of financial closure. That period concludes on 16 June of this year. Consequently, if impoundment does not occur before 16 June these measures also become explicit prerequisites to impoundment.

The third set of actions for POE approval includes those other measures that common sense indicates should be accomplished before impoundment, such as measures intended to mitigate the more serious impacts of impoundment. And the fourth set includes those urgent measures which, if not taken at an early date, will involve serious reputational risk for the NTPC, and/or GOL, and/or the International Finance Institutions.

The remainder of this section presents the actions listed under each of these four sets. In each case the issue is briefly described along with the specific actions that are needed to accomplish the measure and the relevant deadlines.

3.1 Explicit Concession Agreement Pre-Impoundment Requirements

The CA explicitly states that a number of requirements be met before impoundment occurs. The CA list is not intended to be comprehensive. There is little room for flexibility in interpretation of these prerequisites. **They must be regarded as substantially mandatory.** The requirements are as follows.

Village access road: all resettlement villages are to have an all-weather access road before impoundment. This has been achieved in the case of all villages except the road to the southern cluster. Progress on completing this road is being held up by salvage logging trucks using it instead of the road down the escarpment to Ban Thongkong cut for the purpose. **This situation must be resolved and the road completed before the diversion tunnel is sealed.**

Houses: all resettlement houses are to be new and to meet detailed specifications spelled out in the CA. Those thus far constructed are impressive and very much welcomed by the resettlers. A quarter of the total remains to be completed. The POE found that some have not progressed beyond concrete uprights, notably in Nakai Tai,

Nakai Neua, Oudomsouk and Thalang. The Company is confident that all will be ready by the end of March, six weeks away, although it admits that two contractors will have to be pressured to complete by then. This is cutting it fine in the light of plans to seal the diversionary tunnel shortly after that. **All houses must be built and families relocated before impoundment.**

Water for households: while many good bore holes have been dug and pumps installed, the CA requirement that there be one such amenity for every five households has seldom been met on the POE's observation. Present plans call for one borehole for every six households. **The CA standard of one-for-five, plus adequate drainage, must be met in all villages and water quality targets attained.**

Farm plots allocated: though farm plots have largely been allocated the CA requirement that the work of clearing and fencing the land for agriculture be completed by Financial Close plus 30 months has not been fully met. Nor have the irrigation requirements for the 0.66 ha. plots been met (but see paragraph 3.2 below for requirements).

Primary schools, nursery schools, school teachers' and health workers' housing and health centers: these buildings are either completed or under construction and should meet the impoundment deadline. **The requirements for equipping them are detailed and will require checking before impoundment occurs.**

Villagers' assent to relocation: preference of resettlers is the primary factor in locating village sites and determining their size provided those sites can meet livelihood objectives. **This CA requirement must be applied to the siting of the core Vietic population in old Sop Hia.**

3.2 Concession Agreement Requirements for Financial Close plus 36 Months

The CA states that a number of requirements are to be met by Financial Close plus 36 months. Since FC was on 15 June 2005 **this deadline is 15 June 2008**, a little over four months from now. It is therefore timely to include these requirements in this review of compliance with the CA by the parties. The main elements are addressed below.

Provision of irrigated water and distribution systems for each farm plot:

This CA requirement was set aside for much of 2007 because of the focus on the agro-ecological system favored by some NTPC consultants. While the POE sees considerable merit in the latter system in some conditions and locations it should not have been seen as a complete replacement for the irrigated systems provided for in the CA, which specifies for example that at least 0.16 ha. of irrigated land be developed for paddy rice production.

The POE accordingly requires:

- **1/13 That the CA call for irrigation for each 0.66 ha farm lot be met at the very latest by COD.**

This requirement does not necessarily involve the supply of irrigation water to the full extent of the 0.66 ha plots. A cluster of plots may be able to be supplied by one bore or gully scheme. But an acceleration of the present experimental development of a pilot groundwater scheme and studies on gully dams for irrigation (and fishing) purposes and an expanded investment of funds and human resources will be called for to meet the above requirement in the time available. This is a high priority.

The POE recommends:

- **2/13 Re-establishment of and capacity building for the water user group in Nong Boua and the formation of and capacity building for similar groups in the other resettlement villages.**

Clearing and fencing agricultural land:

This is also a CA requirement and includes the provision of labor, barbed wire, fence posts etc. Good progress has been made in some villages on this front but there remain some sites (Oudomsouk, for example) where negotiations for suitable land are still going on and not all households have cleared land let alone started fencing. This was intended to be accomplished by FC plus 30 months so the deadline has already passed.

The POE requires:

- **3/13 That the CA provision for clearing and fencing of 0.66 ha. for each household be completed as a matter of urgency before the next wet season, so that rain-fed planting may be undertaken by the resettlers.**

Replacement of land by land:

The CA states that Project Lands' PAPs who have lost 10% or more of their productive land assets are entitled to land of equal productivity. Irrigated land must be replaced by irrigated land and rainfed land by either rainfed or irrigated land. In both cases production assistance is required for two years to ensure that the land actually reaches production targets. The Project has concluded that adequate replacement lands are not available so that other options acceptable under the CA can be pursued. The option preferred by PAPs is a cash payment so that they can purchase paddy land which they believe is available. They said that they could access this existing paddy land and purchase it through their own networks and also showed the POE a significant block of available land, some of which was already being cleared, near the channel tunnel and

which could be gravity-fed irrigated from the channel. PAPs' desire for irrigated paddy land to replace paddy land losses to the project is such that at least some would also consider walking to or moving near land to be irrigated from the regulating reservoir along the upper Nam Kathang.

The POE notes that experience elsewhere has shown that the direct provision of land-for-land is the most effective way of helping restore incomes of PAPs on a permanent basis and strongly favors this alternative. The PAPs' assurance that some undeveloped replacement land is available suggests that there remains scope for direct land for land negotiations and some creative approaches in this area. Where recourse is made to cash payments as a second if less desirable option (and the POE notes that this has already happened in several cases), then so long as this is achieved without disadvantage to the PAPs involved and they do gain land of proven equivalent value and productivity then this alternative appears to be acceptable. Such solutions should be closely monitored to safeguard the PAPs' entitlements. The CA decrees that the livelihoods of PAPs impacted by Project Lands "should be restored on a sustainable basis...no later than eighteen (18) months" from impact. This deadline has already been passed in many instances.

The POE accordingly recommends:

- **4/13 That greater emphasis and resources be placed on the land-for-land option for Project Lands' PAPs, including working with PAPs to identify potentially available lands and the development of a partnership approach to existing proposals and prefeasibility studies involving NTPC and the World Bank to develop the irrigation potential of the Nam Kathang, for example.**

While these measures will take time to be accomplished the target date for restoring livelihoods has already been passed so **a target date for significant progress on land-for-land issues should be say, 31 December 2008.** This is another high priority.

Electricity for houses and community buildings:

The CA requires the installation of electrical wiring and safety devices in each resettler house and community building (the latter where the Company is so obliged) plus fittings, by FC plus 36 months. The POE found that in a village where electricity is already connected (Bouama) there is a need for follow-up advice on the use and maintenance of the new technology, with some resettlers having difficulties in replacing failed fluorescent tubes, for example.

The POE requires:

- **5/13 That electricity connections in houses and community buildings must be in place and operating by 15 June 2008 and follow-up advice be provided after installation.**

A roofed granary and compost bin per family:

These are required by FC plus 36 months but there is no sign of either seen by the POE in any village. While it may be reasonable to accept that the granary might await the production of rice (though bought rice also needs storage) and there may be little organic matter to compost when pigs, poultry and dogs are foraging, the obligation to build the required structures nonetheless exists.

There is also, on the POE's observations, an imminent need for a village waste disposal system to be put in place quickly. We found behind houses, and beside one nursery school, growing piles of rubbish of all varieties doubtless attracting rodents.

The POE recommends:

- **6/13 That the Company addresses the resettler village waste disposal issue urgently and seeks a permanent solution in cooperation with the RMU and the District Administration. Before the dam gates are closed is not too soon.**

Fencing around houses:

This is a CA requirement where sought by the resettler. They do not seem to be aware of the entitlement though they have problems with cattle and buffalos straying into their household gardens.

The POE recommends:

- **7/13 That the entitlement to house plot fencing be made known to the villagers and help be provided according to the CA where requested.**

Establishment of tree nursery:

The CA requires that one tree nursery ("at least") be provided for each village by FC plus 36 months. This is sensible to provide for shade, fruit (the villagers are missing the productive trees left behind in the old sites) and for aesthetic reasons. The only nurseries known to the POE are in Nong Boua, Phonesavang, and Nakai Neua. It may prove cost-effective to establish a more extensive nursery for every two or three villages but their establishment and propagation and distribution of a range of species is overdue. One of the existing nurseries should retain an experimental/research role.

The POE requires:

- **8/13 In conformity with the CA that the setting up and activation of an agreed number of effective village tree nurseries be undertaken as matter of urgency, having relevance as this does to both social and livelihood**

requirements. Nursery supplies of seedlings should be available by the onset of the 2008 wet season to enable villagers to begin planting. This will obviously call for some fast and concerted action.

Community buildings:

The CA calls for the completion by FC plus 36 months of the following community buildings or facilities for each village:

- a meeting hall and village office
- a roofed market
- a warehouse or godown
- a rice mill and workshop for every 50 families
- a cattle yard and crush for every 50 families

There are also to be a seed processing and storage facility and an organic fertilizer factory for each group of villages (two in the north and two in the south). The first two buildings on the above list are already in place or under construction and should be ready on time. There seem to be no plans for building the warehouses. Discussions are still going on regarding the rice mill and cattle yards, with the Livelihood staff arguing that it is premature to build the rice mills until the distribution and levels of production are known. While that argument makes sense, will the necessary infrastructure staff be available at that time?

The cattle yard issue needs to be resolved quickly once decisions are taken about the large livestock carrying capacity of the resettlement lands and about Company purchase of existing stock.

The POE requires:

- **9/13 That before the target date of 15 June 2008 the remaining uncertainties regarding community buildings listed in the CA be resolved and made known, not least to the villagers themselves who are confused as to what their collective entitlements now are and seem to be entirely unaware of some of them. There should be no further delays in getting on with building the warehouses, the cattle yards and crushes, the seed processing facilities and the fertilizer factories. Providing rice mills may not be required for two to three months after that.**

3.3 Serious impacts from impoundment

Completion of biomass clearance:

From the start of the project it has been recognized that if significant amounts of biomass remain in the reservoir after inundation there will be serious impacts on water quality. The anticipated results include delays in the build up of the reservoir fish

populations along with fish kills and reduced fishery yields both below the dam and in the Xe Bang Fai. POE has emphasized the seriousness of the issue and consequent need for timely biomass removal in almost every mission, yet other than salvage logging, no clearance was initiated until this year. MAF states that because of time and financial constraints, their contractor is planning at this point to clear 1,500 ha out of 3,000 ha. of biomass identified for clearance. **POE considers this insufficient and gathers that there are resources available to clear a wider area.** Removal after impoundment will be more expensive and in some areas impossible and it appears that there will be time to achieve the additional clearance since many of the areas for clearance are in higher sections of the inundated area.

The POE recommends:

- **10/13 That most of the additional 1,500 ha. should be removed from the permanently inundated area.**

Completion of salvage logging:

The salvage logging operation including removal of the existing down logs and toppings is scheduled for completion by the coming rainy season. POE notes that this target must be met before inundation. Completion of salvage logging also requires definitively cutting the temporary salvage logging road from the plateau down the escarpment to Route 12 near Thongkong. This requires making the road completely unusable by vehicles. On 4 February, 2008, the Salvage Logging Committee formally turned over the road to the Nakai District authorities.

The POE requires:

- **11/13 That as originally agreed, the road must be completely severed and made impassable, even to hand tractors and motorcycles, to preclude it being used by wildlife poachers and others illegally seeking resources from the plateau and watershed.**

Protein deficiencies in villages below the dam:

Immediate impacts of impoundment will be serious. The flow of water in the Nam Theun will reduce quickly to a fraction of its former level. The impact on aquatic species, animal and vegetation, will be substantial. The 37 villages downstream which fish and gather other aquatic species in the river and its tributaries will lose much of their major source of protein within a short period of time though the impacts will be felt more gradually in the tributaries. The plans to cope with this long foreseeable situation are rudimentary at this point only a couple of months from the planned tunnel sealing. The Company has belatedly recognized the impending emergency situation and plans to set in place a monitoring process to assess pending protein deficiencies. "Contingency plans" for protein distribution are to be in place before April. But village consultations originally

to have taken place in 2007 have been delayed because of managerial problems and have yet to begin. The Village Action Plans are not scheduled to be initiated until May i.e. after the initial impacts of impoundment have been felt .

The POE understands that the latest budgetary provision to cover measures to compensate for fish losses calculated on the basis of the FCM is a fraction only of the funds earlier calculated by the experts in the field who were employed to make this calculation. One authoritative estimate is that the cost of impoundment to fisheries downstream of the dam is around US\$1.826 million. Other estimates are higher. This appears to be a prime example of CA requirements for irrigation and/or compensation for impacts being set aside for purely financial reasons.

The POE recommends:

- **12/13 That the Company think long and hard before making a final decision on this particular budgetary provision and that there be immediate action to ensure that an adequate protein deficiency program is in place before the tunnel is sealed. Similarly, the village consultations must be brought forward and the drawing up of plans expedited so that implementation of the Village Action Plans can be initiated before impacts occur not afterwards.**

Establishment of the Reservoir Management Organization:

POE has previously recommended establishing a reservoir management organization to approve reservoir management policies, set regulations for and coordinate the use of the reservoir beyond power generation requirements, and to implement policies and regulations and deal with day to day issues as they arise. **Such a reservoir management organization must be established before impoundment.** However, POE has seen the English translation of a ministerial decision establishing a **Reservoir Management Sub-Committee of the WMPA that the POE does not support.** There are several key reasons for our position:

- First, the proposed Sub-Committee would come under the WMPA which was established specifically for a different purpose -- the conservation and development of the watershed. As noted below (Section 3.4) the WMPA is not yet adequately fulfilling its existing mandate. Diluting it with a further mandate, and one that has substantially different functions, would weaken the WMPA;
- The proposed Sub-Committee would not ensure that all the benefits (fishing, processing and trading) of the reservoir fishery along with the use of the drawdown zone are for the exclusive use of the resettlers;
- No funding is allocated for the proposed Sub-Committee, so there is the implication and danger that funding for it would be drawn from the WMPA;
- Institutionally the proposed Sub-Committee is described as a sub-committee of the WMPA. Consequently it falls under the WMPA Board of Directors. The decision document specifies that most key functions must be submitted to the Board of

Directors for approval. As with the WMPA itself (see Section 3.4 below) at best this arrangement would lead to delays and reduced effectiveness of the Sub-Committee.

- The proposed Sub-Committee appears to be a largely operational institution with a number of functions, many of which already under the mandates of the other committees and organizations (e.g., RMU) with responsibilities that would involve the reservoir.
- POE notes that in a meeting on a potential reservoir management organization held on 24 November, 2007, the GOL technical experts (Forestry, Agriculture, Fisheries, Livestock and Conservation) indicated that it is not clear “that RMA inclusion in the WMPA is workable or desirable.” The participants proposed that the RMA regulation and establishment should be a separate PM decree and that drawdown zone management would be part of its responsibility.
- The IMA and some IFIs agree with the POE that the RMA should not be a part of WMPA.

The POE recommends:

- **13/13 Establishment of a reservoir management committee whose responsibilities are largely for coordination. The membership would include the Vice Governor of Khammouane Province as Chair, District Governors of Nakai and Khamkeut Districts, and the NTPC’s O&M Director, as Vice Chairs, with other members to include representatives of the WMPA Secretariat, the Head of the RMU, the NTPC Livelihood Manager, MAF, and others deemed appropriate. Provision for adequate funding for the organization, not from WMPA, is essential.**

The POE further recommends:

- **14/13 That a Decree of the Prime Minister be drawn up that establishes the above Reservoir Management Committee, requires implementation and enforcement of the CA requirement that exploitation of the fishery resource, fish processing and fish trading be restricted to resettlers for a period of at least ten years; that requires that productive use of the drawdown area between the resettlement area and Nam Theun is restricted to resettler villages; and that assigns WMPA responsibility for the drawdown zone adjacent to the NPA. The Decree must also address on-going funding.**

This recommendation is essential before dam closure to make up for the impact on village incomes of the reduced area of VFA production forest, agricultural constraints where soil quality is poor, reduction of buffalos, and consolidation of too many villages on the Thalang Peninsula. The increased emphasis by the Livelihood Section on the reservoir fishery is one way of offsetting the above constraints. Successful implementation will require a major capacity building program for the Village Fishery Association. It will also require association ownership of the ice

plant(s) and any processing facilities and a monopoly on trading, since fish processing and the fish trade will provide the main source of income from the fishery.

Resettler use of the entire draw-down area is essential if living standards are to improve. As a complement to the production system of each village and household, it will be necessary to zone the drawdown area for agriculture, large livestock grazing, and other resettler activities. Linkage of the upper portion of the drawdown area with the lower portion of many 0.66 ha. household plots provides the opportunity of extending the required irrigation of household plots into the upper portion of the drawdown area.

The grazing potential of the drawdown area is especially important because the area involved increases as the dry season progresses and as inland grazing and browse becomes less available. Experimentation with aquatic, semi-aquatic, and water-tolerant grasses is essential to optimize grazing potential. In Nigeria, for example, production of reservoir grasses behind the Kainji Dam is an important source of ‘cut and carry fodder’ for large herds of cattle and an important cash crop.

The Thalang Peninsula consolidation problem needs further explanation. Of the six villages currently resettled there, the original intention was to relocate only Ban Thalang, Ban Sophene, Ban Sop Ma and a minority of households from Ban Nam Nian and Ban Sop Hia. The second largest village, Nong Boua Kham, was a new one of army personnel for raising cattle on the Nakai Plateau. The POE was informed that the Ministry of Defence would relocate them outside the project area; a relocation that did not occur. The majority of residents in Nam Nian and Sop Hia were largely migrants from Bolikhamxay who wished to return to the Lak Sao area. A Project-financed irrigation project was designed for them at Ban Nam Pan but was cancelled by the GOL for the good reason that there was a water pollution problem from an illegal gold mine.

Even without the addition of households from the above three villages, the consolidation of the other three villages may well have exceeded the carrying capacity of available land and water resources. For that reason the POE recommended in its 29 September, 2007 report that the WMPA, the RMU, and the Livelihood Section of the RO “agree no later than December 2007 on the type of access to the NNT-PHP corridor needed for the northern cluster of villages on the Thalang Peninsula to meet the income requirements of the Concession Agreement.” **Such a POE-acceptable agreement, yet to be reached, is a POE requirement for dam closure given its importance for livelihood incomes.**

The POE requires:

15/13 That a POE-acceptable agreement be reached between the WMPA, the RMU, and the RO on use of a portion of the Corridor by a portion of the villagers.

Buffalo purchase and compensation

The POE recommends that:

- **16/13 NTPC purchase at replacement cost for healthy stock approximately half of the 4,206 buffalos owned by resettler households, and NTPC provide compensation for buffalos which have died since October 2007.**

Buffalos are currently starving because of lack of grazing. As a protective measure in anticipation of reservoir closure on April 10, resettlers have been instructed by the Nakai District Governor to bring their buffalos from the east bank of the Nan Theun and the reservoir basin to their new village sites. **The problem is that insufficient grazing exists outside of the reservoir basin.** The POE recommendation for compensation to be paid for buffalos that have died since October 2007 is due to coffer dam-related destruction of reservoir basin grazing when the reservoir partially filled following heavy rainfall in the NPA that month.

Villagers reported to the POE that buffalos never died of starvation when they lived at the old village site. Resettlers had also stopping selling buffalos as required by Project policy because prices offered were reduced due to the animals' poor condition.

Marketing problems:

The POE recommends:

- **17/13 That the produce marketing problem that continues to exist in the Pilot Village (Nong Boua) even under conditions of reduced production be addressed as a matter of urgency**

The NTPC failure to pay proper attention to the marketing problem threatens the successful implementation of the Livelihood Section's horticultural program. This is a constraint which the POE has emphasized repeatedly. During this visit marketing was a major issue that we explored during a full day visit to Nong Boua where irrigated vegetable cultivation is intended to provide an important source of income.

Agriculture is an important source of income for the poorest households. The marketing difficulties will be magnified when every resettler village attempts to market vegetables grown in their home gardens and in the irrigated portion of their 0.66 ha plots. There are possible solutions. One is contract farming with which MAF has experience and expertise. Though the contract farming of sweet corn is carried out in neighboring Khamkeut District and contract farming of tobacco in at least one district along the XBF, the contract farming of other higher value crops has yet to be explored by the Project in spite of the fact that the livelihood program has a large productive force in households on the Plateau and a vast one of about 200 villages in the downstream program. Even in small plots, together households could be organized to grow the volume of crops required by public and private contract farming operations which could

not only take over marketing but would also provide seed, other inputs and technical assistance.

Provision of rice, protein and food substitutes in Nakai Plateau resettlement villages.

The POE recommends:

- **18/13 That the need for extending or re-introducing the provision of rice, protein and food supplements because of insufficient household income to purchase basic needs food be reassessed on a household by household basis in seriously affected villages.**

Based on household interviews in the Pilot Village and World Bank village income assessment based on the livelihood records of each household, **the number of vulnerable households needing food substitutes may have doubled.** The Pilot Village has more livelihood advantages than any other resettled village. As the first village relocated, its residents have received a disproportionate number of project-related jobs. Other advantages include provision of the largest irrigation project and closest access to the Oudomsouk market for selling irrigated vegetables and other produce. **It is reasonable to expect that some of the other villages, and perhaps all, will have a still greater need for additional food supplements.** Hence the POE requirement for re-assessment.

Resettlement of Old Sop Hia

The POE recommends:

- **19/13 That the resettlement of the core population (14 households) of Old Sop Hia at their current site in the Corridor be considered permanent.**

The POE visited the 14 Vietic households that were temporarily resettled, at their request, above their pre-project village to avoid reservoir flooding during the 2007 rains. As on all prior POE visits, they emphasized their desire to remain permanently at that site. The wording of the Concession Agreement, which both GOL and NTPC signed, makes it clear that the Project is obligated to accept that request. According to CA Schedule 4, Part 1, 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 and other vulnerable groups into separate administrative village units with clearly demarked boundaries and rights to resources.” That is the case with the villagers’ preferred village site above Old Sop Hia which has immediate access to the reservoir and ample access to non-timber forest products, grazing land for buffalos, and arable land for gardens. Such is not the

case in the resettled village of Nam Nian where the site selected for the 14 households is not a separate administrative unit but rather is located in a corner of a larger village which in turn has been consolidated with three other villages whose leadership is dominated by non-Vietic people. Furthermore the site selected has insufficient grazing land for buffalos and is adjacent to the northern access road rather than to the surrounding forest.

As stated in the POE's 23 February, 2007 report, the Constitution of Lao PDR is fully supportive of the above CA requirements. "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 Environment Management Standard for Electricity Projects...Clause 4.6.4 states 'In order to minimize social and cultural disruption of vulnerable ethnic minorities, the option of resettlement within indigenous areas is to be favoured.'"

It will be necessary for GOL and NTPC to adapt the Project's infrastructure and livelihood components to the fact that the customary lands of the 14 households have more recently been incorporated within the Corridor. Rather than providing a new habitat-destroying and expensive access road, for example, the project should provide at least one boat engine for the community to ensure all-year access to emergency health facilities. The Project requires 1 boat for every 2 households. Houses should also be further improved and the community provided with a piped water supply, all project social (including educational and health) requirements, and services for the households' preferred livelihood components which include large livestock, NTFPs, fishing, and gardens.

3.4 Reputational Risks

NTPC micro-management of the E&S Division.

Fostering livelihood development is a complex and time consuming process which cannot easily be accelerated. Proving new technologies and convincing people that it is to their advantage to adopt them take resources and time. They also require a degree of management delegation to the managers who are handling the situation on the ground. The POE has seen frequent evidence of head office interference in the operations and functioning of the E&S Division.

The POE recommends:

- **20/13 That prior to closure, the E&S Division be given the additional technical advisors, staff, and budgetary resources, necessary to get on with plan implementation.**

Prolonged delays in finalizing Downstream Implementation Plan (DSIP)

The Company is substantially out of compliance in respect of the timing of the submission of the Downstream Implementation Plan to the GOL and the Panel of Experts. This poses a reputational risk. The Plan was required by the CA to be submitted in June 2006. It was finally handed over on 14 January 2008 and has yet to be approved by GOL. One result is that a number of the time-bound deadlines set out in the CA have not been or will not be met. The implications of this are serious. While the formulation of the draft plan has gone on its leisurely way the construction program has forged ahead. As a result **many impacts felt below the powerhouse will occur before the remedial or compensatory measures are in place.**

The POE pointed out in its Twelfth Report of 29 September 2007 that the prospects were that a **timing gap** would emerge in endeavouring to counter impacts. The Company partially responded to our recommendation that the budget be front-end loaded accordingly but the likelihood of both timing and funding gaps occurring has not lessened with the passage of time.

The first impact on **water quality** may now be expected in March 2009---perhaps earlier according to some sources----when some water will be released into the Xe Bang Fai from the first generating unit to be commissioned. There is a reasonable prospect that before that time the 82 riparian villages will have clean domestic water supplies together with improved sanitation facilities and modified irrigation connections to counter water level fluctuations. That is satisfactory.

The two sectors in which timing is more obviously a negative factor are the **XBF fishery and the planned repair of 14 water gates**. Both seem to POE to be measures which self-evidently should be completed before increased flows are encountered but neither is scheduled to be completed before the releases start. The prospect now is that the gates will not be repaired before 2009-2010, well after COD.

The POE has doubts about the capacity of the existing downstream institutional and staffing structure, weakened as it has been by managerial problems and loss of key personnel, to achieve the big expansion of its livelihood and micro-credit operations now called for. Much will depend on the quality of those appointed to replace the lost staff members and the feasibility of implementing the DSIP with the restricted available funds. **We remain convinced that the \$16 million in total resources will not prove adequate to achieve the Plan targets.**

There seems also some doubt now about the planned **mini-polder experiment** proceeding, with the decision to be made by the Provincial authorities. For its part the POE suggests that consideration be given to **building up levees around existing highly productive natural fish ponds** to protect them from floods. Some seeding of these ponds may also be worthwhile in terms of bridging the expected protein gap.

The **aquaculture/fish culture activities** alone are unlikely to be proven and producing at a level which will bridge the protein gap in 2009. The POE found that the results thus far in introducing aquaculture through fish ponds are not always successful,

the technology proving to be more complex and demanding than anticipated. A number of ponds have been dug in areas where the soil is too permeable to hold sufficient water. Ensuring enough food to grow the fish while not blowing the budget is often a problem.

The POE recommends:

- **21/13 That the Company and the GOL approve the draft Downstream Implementation Plan as a matter of urgency, recruit competent replacement managers and seek to make up lost time in putting the DSIP into effect before impacts occur.**
- **22/13 That the NTPC endeavor to fit the comparatively low cost of repairing the 14 water gates within its Downstream budget for the pre-impact period.**
- **23/13 That the NTPC consider the advantages of protecting existing natural fish ponds and making them more productive by building levees around them and seeding them periodically with selected fingerlings.**
- **24/13 That the aquaculture program be stepped up, with additional human and financial resources made available to narrow the emerging protein gap and preparations made to bridge the gap when it emerges.**

The Nakai Plateau

The POE recommends:

- **25/13 That NTPC provide a substitute road around the Nam Malou area to service district villages below the escarpment in the Nam Hinboun Basin.**

Improving protection of the biodiversity of the NPA:

As the POE has emphasized since its first visit to the area in 1997, **the NPA is immensely important globally because of the unique biodiversity it protects. It is an integral part of the NT2 Project, and because of its world class biological diversity it has been a key element in the support the NT2 project as a whole** and has received support from the International Financial Institutions and important parts of the world's NGO community. The POE is convinced **that without the NPA component the NT2 Project as such would not exist.** The original decree establishing WMPA (Prime Minister's Decree No. 25) states that "For the purpose of the conservation and protection of the richness of the nature and considerable cultures in the area, the Prime Minister Issues this Decree." The SEMFOP (Executive Summary) states: "The SEMFOP-1 is the management plan for conservation of the NT2 watershed..." In the Vision Section it states "The purpose of the Watershed is the conservation and protection of its natural riches and its many cultural groups..." Under the CA (Schedule 4, Part 3, clause 2.2) and the

SEMFOP (Part 1, clause 1.2.1), the first two WMPA objectives, in order of listing, are:
1. Protection and rehabilitation of forest cover; and 2. Biodiversity conservation.

In spite of all this, and in spite of the considerable conservation efforts of the WMPA, **the area's globally-important biodiversity is declining.** The problem is illustrated by a recent study which found that "In 2004 people from 54 villages in and around the Nakai Nam Theun NPA reported up to 75% decline in large-bodied wildlife species as well as a near complete removal of valuable plants...in the last decade" (IUCN, WCS and WWF, 2007. *Consuming the Future: the real status of biodiversity in Lao PDR*). This was the situation that faced the WMPA when it was established, and which WMPA has documented through biodiversity monitoring in the NPA in 2006 and 2007 using extensive camera traps. These surveys showed that wildlife, especially the larger forms, was substantially depleted in the areas monitored.

It would be quite misleading to suggest that the WMPA has failed in its duty by not heading off decline of wildlife diversity. Much of the problem predates establishment of the WMPA. And many of the factors which have produced the situation---the huge and insatiable demand for wildlife and wildlife products among neighboring countries, the returns available to those indulging in the wildlife trade, the situation in other protected areas in Asia---are beyond the control of the GOL itself let alone the WMPA. Since its establishment the WMPA has made very considerable efforts to protect the area's biodiversity, both through patrolling and through seeking to educate and gain the villagers' support for conservation. To date the patrolling activities have had some success. That said, the results are still inadequate. Part of the problem has been that unless and until there are alternative livelihood options available the villagers have often tended to adhere to traditional ways of supplementing their resources from the forest. The WMPA is seeking to address this problem. Another part of the problem has been the need to focus much attention on the recent epidemic of rosewood poaching. But a larger factor is the WMPA's organization, structure and staffing, and the limitations on WMPA Secretariat actions to improve the situation due to directives and micro-management from the Board. The POE and International Monitoring Agency have both made recommendations for organizational changes and the IMA has twice carried out staff evaluations, all with apparently little response to date. The Secretariat also is short on national or international TAs, as well as qualified counterparts to work with and take over from the TAs. There is also a preponderance (around 90%) of staff seconded from GOL agencies instead of staff hired on the basis of outstanding qualifications as was anticipated in the SEMFOP.

The POE recommends:

- **26/13 That the Secretariat be allowed to get on with needed reorganization and acquisition of outstandingly qualified staff and as appropriate, TAs.**

Ineffective protection of VFA forests and removal of the "urban area" from the VFA Forest:

On this and previous missions the POE frequently has been informed about **illegal logging in the VFA Forests**. Resettlement villagers and others have told of meeting men with arms and vehicles cutting VFA timber, and also meeting men from the salvage logging contractor cutting trees in the VFA forests. The VFA forests were intended to provide an important component of the resettlers' livelihood. If these illegal actions cannot be controlled, they deny the resettlers benefits they are entitled to receive from the VFA and threaten the viability of the project. Of course, they reflect poorly on the NT2 Project and all involved. **POE recommends that much tighter control be instituted to protect the VFA forest resources for the resettlers.**

The proposed excision of a 1,500 ha. "urban area" from the VFA is a further problem which threatens the Project's viability. POE was given maps showing a 1,500 ha. section in the center of the VFA forest, near Oudomsouk, which was to be removed from the permanent VFA forest as "urban area." The VFA production forest originally was to comprise about 10,000 ha., and this has since been reduced to under 6,000 ha. The proposed excision of the "urban area" would divide the forest into two separate pieces, and **would further reduce the already minimal VFA forest area.**

The POE recommends:

- **27/13 That the proposal for excision of the "urban area" be dropped.**

Roading incompetencies

Reference is made above to the delays in completing the southern village access road because of logging trucks using it and hence interfering with the road contractor's work. Other village access roads are now largely completed. The POE has noted before how over-engineered some of them are and that many involve excess clearance of forest. The dam site road remains a mess. The subcontractor has clearly invested additional funds in moderately successful revegetation measures and in endeavoring to shore up--- with less success--- collapsing banks and subsiding hill sides. But there remains a risk of drainage systems being unable to cope with wet season rains and in several places of subsidences into the Nam Theun.

The POE recommends:

- **28/13 That the remaining roading rehabilitation work should be more closely monitored by the Head Contractor.**

4. SCHEDULE FOR MEETING CA AND BROADER REQUIREMENTS

Set out below is a summarized version of requirements and recommendations in this report, reordered to show the time sequences involved. The figures in brackets refer to paragraphs in Schedule 4, Part 1 of the Concession Agreement.

BEFORE TUNNEL DIVERSION:

- Explicit CA pre-impoundment requirements; village access roads, houses, schools, and health clinics completed, and water available for houses and “as far as possible” for gardening.(This is a “without limitation” list i.e. it is not intended to be comprehensive or to exclude additional items.) (8.7.1)
- All villages to be relocated to sites acceptable to them, including the 14 households of Ahoé choosing to remain above their old site(7.3.3, 7.8.2 and 9.1.4).
- Serious impacts involved if not completed before tunnel diversion: biomass clearance, preferably going beyond the 1500 ha. presently planned ; salvage logging removal; protein provision program for 37 villages below the dam affected by fish kills after tunnel diversion; reservoir management structure in place and funded; Prime Ministerial Decree enforcing the CA requirement that exploitation of the fishery, fish processing and fish trading be restricted to the resettlers for at least ten years; Decree also to provide the reservoir drawdown area for agricultural, large livestock grazing and other resettler activities; POE acceptable agreement concerning nature and extent of fishing, drawdown and NTFP uses of Nam Malou extension settled between WMPA, RMU, and Livelihood Division of RO; buffalo purchase by NTPC at replacement cost for the stock not able to be fed in the new sites or lost during or since the October floods; extension of rice and protein for those whose income has been adversely affected; and Downstream Implementation Plan approved and being funded and implemented as a matter of urgency.

BEFORE EXPIRY OF CA DEADLINE OF 15 JUNE 2008 (FC PLUS 36 MONTHS) FOR FOLLOWING MEASURES:

- Electricity to all houses and (where required) community buildings (8.6.6)
- Fencing around houses where requested.
- Clearing and fencing land for agricultural activities (8.2.1)
- Establishment of tree nurseries according to agreed plan (8.5.20).
- Teachers’ and health workers’ housing completed.(8.5.8 and 8.5.11)
- School and health clinic equipment delivered (8.5.9)
- Community buildings completed: meeting hall and office; roofed market; warehouse; cattle yards as appropriate for reduced buffalo herd.(8.5.6)
- Land-for-land search stepped up in Project Lands, with target of completion by COD.

BEFORE DAM GATES ARE CLOSED:

- Roofed granary and compost bin per family (or alternatives) (8.6.4 and 8.6.5) and village solid waste disposal systems installed.
- Seed processing and storage facilities (2 in each cluster).(8.5.17).
- Organic fertilizer factory (2 per cluster) (8.5.18).
- Any remaining threatened cultural heritage artifacts or buildings moved or replaced as agreed (8.5.21).
- Marketing options especially models for contract farming researched and active steps taken to adapt for NT2 conditions.
- VFA forest adjacent to Oudomsouk presently defined as “urban area” be recovered for VFA production forest as planned.
- Reasons for declining village incomes be analysed and remedial measures taken to help reverse the trend.
- NTPC management restructuring be undertaken to eliminate micro-management from the center, give field managers more financial delegatory powers and establish a working relationship among the EMO, the Construction Division and the Head Contractor.

BEFORE COD (DECEMBER 2009) AND COVERED BY SOME FORM OF BOND:

- Provision of irrigation to 0.66 ha. plots completed.(8.5.5).
- CA requirements for fishing infrastructure (landing places, ice plant etc.) agreed with Village Fishing Committees and in place.
- VFA management handed back to villagers.
- Land-for-land program on Project Lands successfully completed.
- Nam Malou escarpment road completed.
- The 14 downstream watergates be rehabilitated.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

NAM THEUN 2 MULTIPURPOSE PROJECT

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

**[TO BE READ WITH REFERENCE TO
THE THIRTEENTH REPORT OF THE POE]**

**DAVID McDOWELL
THAYER SCUDDER
LEE M. TALBOT**

4 April, 2008

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

**For the Nam Theun 2 Multipurpose Project
Lao People's Democratic Republic
4 April, 2008**

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LIST OF RECOMMENDATIONS

The POE recommends:

PART A

- **1/14 That top priority now be given not only to finishing the building of the two health centers in Sop On and Nong Boua Kham but to equipping them fully as planned and staffing them as agreed. A revised target date of 15 May for completion of these steps seems reasonable.**
- **2/14 That consideration be given to improving on the otherwise well built and finished school buildings by equipping each class room with at least two fans and by leveling out, surfacing and planting trees in the school grounds.**
- **3/14 That the southern access road be completed in time to handle the wet season rains.**
- **4/14 That agreement be reached as a matter of urgency between the GOL and the NTPC on the remaining strategic areas of biomass for clearance and the contractor be engaged to undertake this work immediately since it will only be possible to do it up to around mid-May.**

PART B

- **5/14 That an NTPC commitment with World Bank advice concerning format to fund and implement the following two agreements be signed between NTPC and the GOL:**
 - (1) **That as stated in the POE's 13th Report, the CA call for irrigation for each 0.66 ha farm lot be met at the very latest by COD.**
 - (2) **That, in principle, future contracts (both extended and new) for essential NTPC staff be for at least a two year period rather than merely through COD.**
- **6/14 That the agreed upon marketing expert be recruited on a two year contract before gate closure and that provision be made to finance external technical assistance from CIAT or elsewhere where requested.**

PART C

- **7/14** That as soon as boundaries are fixed for 0.66 ha farm plots, GOL commence issuing certificates signed by both husband and wife for those plots and for resettler housing.
- **8/14** That detailed planning commence for integrating a livelihood strategy into NTPC plans for operating the reservoir during the next two years.
- **9/14** That every effort be made to acquire the necessary boats and fishing gear for use following impoundment and that the contract to the supplier of the fibre glass boats include the requirement to establish in each of the three village clusters a workshop to repair such boats and to train villagers to make such repairs.
- **10/14** That detailed planning commence for addressing the gradual handover of NTPC assets to GOL and the handing over of NTPC staff responsibilities to GOL provincial, district and village staff.
- **11/14** That the open mine shafts and diggings near Ban Nakadok be covered, sealed, and revegetated, both for safety and to discourage attempts to renew mining; and that the recently constructed basin for mercury mining wastes be completely destroyed. Because of the pollution and human health dangers from the past use of the mercury holding basin, specialized assistance should be sought.
- **12/14** That an order confirming the permanent closure of the mining operations within the NPA near Ban Nakadok be issued by the Ministry of Energy and Mines and that authority be given to the Provincial and District Governors to close down any such mining operations in the future.

1. INTRODUCTION

This is the fourteenth report of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) Multipurpose Project in the Lao People's Democratic Republic. Unlike the POE's previous reports this one is not a stand-alone document describing the context of the Panel, the mission and providing detailed findings and recommendations. Instead this report is a brief follow up to the POE's thirteenth report prepared on the completion of its last mission less than two months ago. It is basically an assessment of the status of actions to meet the recommendations the Panel presented in Report Thirteen. As such it is not intended as a comprehensive assessment of the Environment and Social aspects of the NT2 Project as a whole. It does not, for example, cover those areas of satisfactory progress such as the exemplary work of the EMO, progress in development of the EMU, and the patrol and biodiversity activities of the WMPA.

This report is presented in three parts. Part A focuses on the issues associated with sealing the diversion tunnel and thereby initiating impoundment of the reservoir on April 10, 2008. It is in very brief summary form.

Part B focuses on the actions which must be accomplished in order for the dam gates to be closed on or around June 15, 2008. Since there is now a coincidence of dates this section also includes actions required by the CA to be completed before Financial Close (June 15, 2005) plus thirty-six months.

Part C presents recommendations relating to longer term interests.

1.1 Panel Activities

Starting in Vientiane on 26 March, 2008, the Panel met with H.E. Somsavat Lengsavat, Deputy Prime Minister, Standing Member of the Government, H.E. Bosaykham Vongdara, Minister of Energy and Mines, other relevant GOL officials and NTPC, plus the World Bank and other IFIs. It then proceeded south to Thakek to meet the Governor of Khammouane Province and to be briefed on the Downstream Programs. After visiting the Gnommalat area for briefing on the Project Lands Program, the Panel

was briefed on the program for biomass removal from the reservoir and visited active clearance areas, subsequently meeting with the WMPA Secretariat. Over the next two days members of the Panel were briefed on the Livelihood and Infrastructure Programs, visited all the resettlement villages on the Nakai Plateau and talked to resettlers, walked down the temporary salvage logging road near Thongkong Village to inspect the ongoing decommissioning of the road, again met with WMPA, inspected the illegal gold mine area at Ban Nakadok, now closed down by GOL action, were briefed on the Health, Protein Supply and Livelihood Programs for the area downstream of the dam, and met with the Deputy Governor of Khamkeut District..

Returning to Vientiane the Panel prepared this report and briefed the various stakeholders on its findings, including the Deputy Prime Minister, Standing Member of the Government. Debriefings of other relevant GOL officials, NTPC, the IFIs and other stakeholders completed a brief but full mission. The Panel members departed Vientiane variously on 2 and 5 April.

1.2 Acknowledgements-Appreciation

The Panel expresses its appreciation for the organizational time and energy devoted by GOL, NTPC and WMPA staff, not least Phalim Daravong, to setting up a most worthwhile schedule. It is grateful to the Standing Deputy Prime Minister, Hon. Somsavat Lengsavat, to the Minister of Energy and Mines, Hon. Bosaykham Vongdara, to the Governors of Khammouane Province and Nakai District and the Vice Governor of Khamkeut District, and to Jean-Pierre Katz, CEO of NTPC, for their insights and time.

2. OVERVIEW

In our last report we emphasized that from our first visit in January, 1997, the POE believed that the NT2 Project had the potential to be a world class model of a large scale project that could benefit the nation, the affected people, and the environment. But we also emphasized that by early February, 2008, the project had reached a decisive point in its development and that the actions taken at that time could determine whether or not the project would indeed achieve its potential. NTPC wished to seal the diversion tunnel which would initiate the impoundment of water behind the dam on 10 April, 2008. Because of various considerations, including the number and magnitude of the Concession Agreement (CA) requirements that had not yet been met, it appeared unlikely to us that the April 10 date could be met. Accordingly, the Panel emphasized how critical we believed the situation was and laid out what needed to be done in the form of 28 specific recommendations.

Recognizing that the impoundment date was important for the GOL and NTPC, as well as the project-affected people, the Panel conducted the present follow up mission at this time to determine the status of those recommendations. **We were pleased to find that the CA and other requirements have been met or are sufficiently far advanced that we believe impoundment can proceed as planned on April 10.**

We are particularly impressed with the rapid and effective responses to our recommendations by GOL. (A chronological outline of GOL responses is attached in Annex 1). We believe that there are few other governments that could mobilize and achieve such a set of actions in such a short time. We also recognize and appreciate that the NTPC has made extraordinary efforts to accelerate or initiate the actions required to accomplish the Panel's recommendations.

The Panel's assessment of progress on the specific recommendations and issues is presented in brief summary form in the following sections of Part A of the report. We have limited our discussion to those points which are directly related to the April 10 date.

PART A. SEALING OF THE DIVERSION TUNNEL

3. **The Panel supports the plan to seal the diversion tunnel on or about 10 April 2008.** The requirements and recommendations to be met before this phase of the impoundment process begins---set out in the POE's thirteenth report---have largely been met. Where there remain items to be completed they are already substantially underway, are on closely monitored schedules for finishing and are fully funded.

This is a remarkable achievement in the eight weeks since the POE listed the explicit Concession Agreement pre-impoundment requirements together with additional items which would involve serious impacts after tunnel diversion if not addressed. It is clear that the recommendations issued in our previous Report were accepted and acted

upon by all parties. Particular credit should go to Deputy Prime Minister Somsavat Lengsavat and NTPC Chief Executive Officer Jean-Pierre Katz who personally drove the process, but all staff on both the GOL side and the NTPC side, together with the IFIs, not to mention the resettlers themselves, played a part. It has been an impressive collective performance.

The Panel does not intend listing its findings in detail but for the sake of completing the record sets out below in summary form the main features.

The **housing program** must be counted one of the most impressive aspects of the entire project. Around ninety five percent of the 1272 houses are completed and most families have moved in. These sturdy dwellings are a considerable step-up from the bamboo and reed houses most villagers have come from and represent a substantial lift in the quality of their lives. There remains a handful of houses in Oudomsouk, Nakai Tai, Nakai Neua and Thalang to be completed. The POE is confident that these will be finished and occupied by the end of April.

Of the other infrastructure requirements before tunnel sealing, the POE recommends as follows:

- **1/14 That top priority now be given not only to finishing the building of the two health centers in Sop On and Nong Boua Kham but to equipping them fully as planned and staffing them as agreed. A revised target date of 15 May for completion of these steps seems reasonable.**
- **2/14 That consideration be given to improving on the otherwise well built and finished school buildings by equipping each class room with at least two fans and by leveling out, surfacing and planting trees in the school grounds.**

Our reasons are that in the case of the health centers they appear to be the last of the community buildings to be completed though they are the sole such buildings, along with schools, specifically mentioned in the CA pre-impoundment list. The resettlers have gone through multiple stresses in the past couple of years, moving house twice, changing work habits, learning new skills and working hard, so the ready availability of health advice and care is very desirable. As for the fans, window sills in the schools are above the level of seated pupils so the classrooms are hot at this time of the year. Provision of fans would improve concentration. Finishing work on the grounds appears desirable for recreational, aesthetic and reputational reasons.

The target of **one water bore hole for every five houses** has been met---indeed additional wells have been dug for community buildings. There are a few glitches as water supplies from a couple of bores at least have run low at this end of the dry season. NTPC staff have taken note of this and will remedy the situation. Villagers interviewed expressed themselves satisfied otherwise with the potability and volume of house water supplies.

The standard of roads within the villages themselves is high. There remains work to be done on the **access road to the southern cluster** of villages though it is usable at this time.

The POE recommends:

- **3/14 That the southern access road be completed in time to handle the wet season rains.**

There has been useful improvement in the situation of the **14 households of Ahoe** who have chosen to remain on a site within the wildlife corridor and above their old site. Following a 22 February meeting the Governor of Khammouane Province and the RMU Chair signed a MoM approving the residents of these households staying in old Sop Hia and transferring their family registrations from Nakai District back to Khamkeut. At the village water bore holes have been drilled, a boat and engine are to be procured shortly, vegetable gardens are being developed and the Khamkeut District is prepared to supply one staff member to be based there. This is commendable and reassuring.

GOL and NTPC actions taken on other impact recommendations are:

- Fast and effective moves by GOL to set up a **Reservoir Management Committee** to oversee this new area of responsibility.
- A Prime Ministerial Decree to reserve for the **resettlers exclusive rights for ten years to catch, process and market fish from the reservoir** and to authorize for their use **exclusive rights to agriculture and livestock grazing in the village drawdown zone (DDZ) on the south side of the reservoir and in an extension recommended by the POE adjacent to the northern cluster of villages near the Nam Malou area.**
- **Approvals to reduce the buffalo herds and to establish an NTPC scheme to pay for buffalos lost to flooding since August 2007.**
- **Accelerated salvage logging removals from the inundation area by the contractor.**
- **Extension of rice and protein provision for those resettlers whose income levels and livelihood have yet to reflect project targets,**

The only comments the POE would make on the above are that:

- (1) The Reservoir Management Committee need pay special attention to drafting unambiguous regulations that protect resettler use rights to the southern portion of the drawdown area, including lagoons and channels, from other users including outside interests catering to sport fishing and tourism.
- (2) Any **draft fishing regulations** providing for sports fishermen to have access to the reservoir fishery should require such fishers to pay a license fee for the privilege (which should go into the RMC funds), daily catch limits should be set and such activities should be closely monitored. This exception should not

become a cover for poaching from the resettlers' preserve or for large-scale tourist operations by outside interests.

(3) Management changes in the WMPA have understandably delayed the negotiations among the WMPA, the RMU, the Livelihood Division of the RO and presumably now the Reservoir Management Committee Secretariat over the nature and extent of **various potential uses of the Nam Malou extension**. These negotiations need to be moved along quickly if the potential of the decision to open the area up to the resettlers is to have an early effect on livelihoods and incomes.

Cutting of the Temporary Road Near Thongkong

As agreed with the POE earlier, the temporary salvage logging road constructed down the escarpment near Thongkong is to be made unusable. A commendable start has been made but additional work remains to make the road completely unusable to two or four wheel vehicles.

PART B. ACTIONS BEFORE GATE CLOSURE AND CA DEADLINE

3.1 Introduction

Reference should be made to the POE's Report Thirteen for the full list of measures required or recommended to be completed before dam gate closure and/or before the CA deadline of 15 June 2008. This list remains valid.

Some of the measures listed have already been actioned, which is commendable. Thus, there has been fast action to establish the beginnings of tree nurseries in each village, to clear and fence land for agricultural activities and to begin to address the emerging waste disposal problems in the villages. There has also been fast action in constructing the range of community facilities called for in the CA, the schools in particular being very solidly built. The priority, as mentioned above, is getting the two village health centers up and running. Finally, repairing or replacing the 14 water gates on the Xe Bang Fai so that they are in service before impacts begin has now been budgeted for, which is welcome.

Negotiations have been held over the 1,500 ha of VFA land which was to have been designated as "urban area" and lost to VFA. The outcome is that 690 ha of this land will be returned to VFA. This is not entirely satisfactory---though we do not doubt the need for land for the fast-growing town of Oudomsouk. **The POE seeks assurance that at least the 690 ha are forested land rather than cleared land.**

3.2 Further Actions Needed

The POE believes that there is a series of actions that must be undertaken or agreed to prior to gate closure and before the coincidental CA deadline of 15 June,

2008, if the NT2 Project is to be in full compliance with the Concession Agreement (CA) and achieve its promise as a world class model for development projects.

3.2.1 Biomass clearance

Two of the issues listed in our Thirteenth Report as warranting attention if not addressed before tunnel diversion should be mentioned. First, the POE visited several sites where biomass was being cleared and burned. Some of the time lost in the past through indecision has been made up and the first target of removing 1,500 ha. of biomass is about to be met. The POE's view that the second tranche of 1,500 ha. should also be removed is shared by the Project Lenders' technical advisors who said in a recent report that selective clearance of an additional 1,500 ha. would assist with livelihood options of resettlers and would complement the fill-flush strategy for improving water quality in the reservoir. Similarly, the NTPC Board has approved additional funds to this end.

The POE recommends accordingly:

- **4/14 That agreement be reached as a matter of urgency between the GOL and the NTPC on the remaining strategic areas of biomass for clearance and the contractor be engaged to undertake this work immediately since it will only be possible to do it up to around mid-May.**

3.2.2 Downstream areas

The second impact issue relates to the **downstream areas**. Here again some of the time lost last year is being made up, with approval of the Downstream Implementation Plan now apparently imminent, agreement by the NTPC Board to a higher ceiling of ten million dollars on the Downstream Program up to COD, a new Downstream Manager appointed and on the job, consultations under way with villagers below the dam on livelihood options and measures in place for the provision of protein for those affected by the expected impact on fishing once the tunnel is sealed. An eighteen month or so "rolling plan" to cover specific action in the period to COD is under preparation and should also be approved shortly. Pending the review of the Downstream Saving and Credit Scheme, **the POE favors continuing to advance loans for the forthcoming wet season to cover essential inputs. The POE will be monitoring this work closely in the months ahead, including results associated with the commendable rolling plan approach. As the planning approach shifts from mere mitigation and compensation to the integrated development of the XBF river basin as a model for other Lao river basins, the POE urges both ADB and AFD to commit further resources with special emphasis on flood management and dry season irrigation.**

3.2.3 Written Agreements

The POE recommends:

- **5/14 That an NTPC commitment with World Bank advice concerning format to fund and implement the following two agreements be signed between NTPC and the GOL:**

(1) That as stated in the POE's 13th Report the CA call for irrigation for each 0.66 ha farm lot be met at the very latest by COD.

The POE was impressed by the detailed NTPC irrigation planning currently underway on the Nakai Plateau, planning that includes a range of options in both the 0.66 ha farm lots and adjacent drawdown areas. The recommended agreement should cover the financing and implementation of such irrigation plans for every farm lot prior to COD

(2) That, in principle, future contracts (both extended and new) for essential NTPC staff be for at least a two year period rather than merely through COD.

All current NTPC E & S contracts terminate at or before COD. This practice gives the impression that NTPC sees its obligation to provide senior staff only until that date. Indeed, on occasion, the POE has had to remind senior NTPC managers that the company's E & S responsibilities continue until an acceptable handing over process to GOL has been completed. That fact need be acknowledged by extending essential contracts that end before COD into 2010 and by providing two year contracts for new staff as they are required. Renewal of contracts in this way reflects the importance of maintaining continuity of required staff.

An example of the need to maintain continuity relates to the NTPC Project Lands staff. Adequate replacement paddy land has now been found for those who lose over 10% of their fields and wish paddy land replacement. In such cases, the Concession Agreement requires two years of technical assistance to ensure that the productivity of the replacement land is equal to that of the land lost. Furthermore, the experience of the Project Lands staff is a valuable resource for implementing the long delayed DSIP.

Specific staff renewals should include a two year contract for the current Project Lands manager whose contract ends in December 2008 as well as for other Project Lands staff whose contracts end before COD. As for new two year contracts, an example is the current search for a marketing expert to join the NTPC Nakai Plateau Livelihood staff.

It is acknowledged that there has been significant growth in the numbers of staff in the NTPC's E&S Division, which is a welcome development.

3.2.4 Marketing

The POE recommends:

- **6/14 That the agreed upon marketing expert be recruited on a two year contract before gate closure and that provision be made to finance external technical assistance from CIAT or elsewhere where requested,**

As emphasized under recommendation 17/13 of the POE's 13th report, inadequate attention to marketing issues is a continuing livelihood constraint which the POE has pointed out repeatedly. It relates not only to the Nakai Plateau Livelihood Section's crop agriculture and livestock program but also to marketing problems in project affected areas throughout the XBF basin. Careful assessment of marketing opportunities within and without Laos, including contract farming, and marketing constraints need be prominent in the marketing expert's terms of reference which should also include the option of the expert requesting additional technical assistance.

3.2.5 Actions still outstanding

To remind those involved of additional requirements already set out in our Thirteenth Report we record below other actions required by 15 June and not referred to above:

- **Electricity connections to be installed in all houses and (where required) in community buildings. Several villages already have such connections.**
- **Fencing to be done around houses where requested.**
- **Teachers' housing to be completed.**
- **School equipment delivered. Furniture made by the VFA is already in many schools.**
- **Roofed granary and compost bin per family (or suitable alternatives) installed and village waste disposal systems in place.**
- **Seed processing and storage facilities and organic fertilizer factories constructed.**
- **Any remaining threatened cultural heritage artefacts or buildings moved or replaced as agreed.**
- **All community buildings including meeting hall and office, roofed market, warehouse and cattle yards as appropriate for the reduced buffalo herd. As**

noted above many of these strongly built and attractive structures are already completed though there remains finishing and rubbish clearance work to be completed.

PART C. RECOMMENDATIONS RELATING TO LONGER TERM ISSUES

3.3 Ownership Certificates

The POE Recommends:

- **7/14 That as soon as boundaries are fixed for 0.66 ha farm plots, GOL commence issuing certificates signed by both husband and wife for those plots and for resettler housing.**

The experience elsewhere is that delays in issuing such certificates reduces the sense of resettler ownership and commitment to the project.

3.4 Integrating Livelihood Strategy into Reservoir Operations

- **8/14 That detailed planning commence for integrating a livelihood strategy into NTPC plans for operating the reservoir during the next two years.**

The POE understands that resettlers will have little opportunity to utilize the drawdown area through early 2010. While the intended operational strategy will have a negative impact on the extent of drawdown agriculture and grazing for buffalo and cattle, it will have a positive impact on fishing. For this reason, **the POE recommends:**

9/14 That every effort be made to acquire the necessary boats and fishing gear for use following impoundment and that the contract to the supplier include the requirement to establish in each of the three resettlement clusters a workshop to repair such boats and to train villagers to make such repairs.

Of major importance, the reservoir operational strategy will also have a positive impact on developing cost effective and efficient irrigation systems for the lower portion of the majority of 0.66 ha plots adjacent to the drawdown area. Such irrigation systems need to incorporate resettler experience with low-cost (1.5 to 2 million kip) multifunctional gully dams such as those already being built by resettlers in Nakai Noua. The usefulness of lining such gully dams with polythene to reduce seepage should be investigated.

Planning need commence in anticipation of such impacts, including implementing policies for dealing with a continuing shortfall in feed for buffalo and cattle.

3.5 Handover of Assets and Staff Responsibilities

The POE recommends:

- **10/14 That detailed planning commence for addressing the gradual handover of NTPC assets to GOL and the handing over of NTPC staff responsibilities to GOL provincial, district and village staff.**

The NT2 multipurpose project involves a wide range of assets that need be handed over to GOL during the months and years ahead. Almost without exception the experience elsewhere with asset handover from such projects has been unsatisfactory with the governments involved losing out. As a model project such should not be the case with the NT2.

Assets include 140 km of renovated and new roads, the cost of which equal the cost of the NT2 dam. They include schools, hospitals and clinics as well as such construction requirements as labor camps, workshops, quarries, borrow pits and spoil disposal areas. Starting now it should be the responsibility of NTPC and the HC to arrange with GOL a smooth transfer of all such “assets” so that their use can serve the development of affected households and the districts in which they live. Some borrow pits, for example, could easily be modified to become fish ponds, while spoil areas could be developed as sports fields and for other purposes.

Such a handing over process should also include a careful assessment on the part of GOL on the increased staff requirements to finance, manage and develop assets at the time that they are received.

The POE has observed a worrisome gap between NTPC and GOL expectations as to the speed with which the handing over of assets and staff responsibilities can occur. The POE discussed the handing over issue with both NTPC staff and with the Khammouane Provincial Governor and Vice Governor and with the Nakai District Governor. The Nakai District Governor pointed out that the best approach for the resettler villages, granted the District’s reputation for isolation, is to train the necessary staff from those affected villages.

It is not too soon to start serious planning; indeed the lesson of similar projects elsewhere is that if planning is not handled well ahead of time the orderly handover of assets and staff responsibilities fails and the project suffers accordingly. Special attention need be paid to the number and type of additional GOL staff needed to take over development (including monitoring) activities at provincial, district and village levels. **The fact that additional staff will be required means that increases in staff quotas need be approved before necessary staff are hired so that staffing gaps do not occur.**

Though the numbers are small (according to POE enquiries between 0 and 6 per village), already village youth are graduating from the Oudoumsouk secondary school. Plans should include working with students before graduation to alert them to GOL employment needs and opportunities and to help them find the necessary training programs. For project affected secondary school graduates to complete relevant university and other educational and training programs will require one to four years of further education.

Several major problems must be addressed to help the best primary school graduates to attend secondary school and subsequent training courses. One is financial assistance. Another is housing while attending school. In one resettler village the POE was told that none of the six primary school graduates during this past year were able to attend secondary school for those two reasons. The training center planned for the Ital-Thai camp in Gnommalat provides an opportunity not just to train students in fields relevant to project affected areas, but also to provide the necessary dormitory facilities. Addressing the financial problem will require a broader planning process.

3.6 Watershed Management Protection Authority (WMPA)

POE is pleased with the progress that WMPA is making toward revised structure and more effective working relationships with the WMPA Board of Directors. The POE supports the proposal for a revised approach to the use of TAs, including the use of short term TAs for specific issues, such as enforcement and enforcement training.

The plateau wildlife programs funded and contracted by the NTPC EMO, are progressing satisfactorily. They include baseline survey on fish and aquatic habitats; the Asian elephant program to estimate populations, seasonal movements, and monitor and develop ways to control human/elephant contacts; creation of wetlands above FSL to replace those lost to inundation; plateau wildlife baseline survey and management planning; conservation projects involving specific species; and development of a program to rescue certain species of wildlife as their habitat is inundated by the reservoir.

3.7 Illegal Mining near Ban Nakadok

Thanks to the actions by the Governor of Khamkeut, the extensive mining operations near Ban Nakadok inside the NPA have been shut down. These operations were documented by the POE and were the subject of past POE recommendations. After the ordered closure in 2007 some mining was resumed, and thanks to the prompt action of the Khamkeut authorities the leaders of the illegal actions have been arrested.

The POE recommends:

- **11/14 That the open mine shafts and diggings near Ban Nakadok be covered, sealed, and revegetated, both for safety and to discourage attempts to renew mining; and that the recently constructed basin for mercury mining wastes be**

completely destroyed. Because of the pollution and human health dangers from the past use of the mercury holding basin, specialized assistance be sought for this operation.

- **12/14 That an order confirming the permanent closure of the mining operations within the NPA near Ban Nakadok be issued by the Ministry of Energy and Mines and authority be given to Provincial and District Governors to close down any such operations in the future.**

4. CONCLUSIONS

In a very real sense the more easily accomplished phase of the project's environmental and particularly the social programs is coming to an end and the hard part is upon us. By comparison with the largely physical tasks of infrastructure building the challenge now is to move on to help convert these aggregations of houses, community facilities, cleared patches of still smoking vegetation and disrupted families into self-managed and self-sustaining communities, viable in all dimensions.

That is not an easy process to initiate or to drive through to a successful conclusion. Changing the attitudes, behavior and the technologies of human beings is involved. That takes time. It takes longer term inputs of energy and resources. And it cannot be accomplished by expatriates. The latter's role will increasingly metamorphose into that of technical advisors, trainers and mentors. Leadership and motivation will have to come largely from the Lao side, notably from the villagers. The expatriates will have to learn to step back though their role will still be of vital importance for years to come.

The POE has no doubt that the leaders and motivators will emerge from the ranks of the resettled villagers. These are a dynamic, adaptable and hard-working people. They did not wait for the project staff to tell them to make use of the partly fortuitous opportunities for production opened up in the drawdown areas last October. Many families have not waited for the company trucks to help them move to their new homes but have simply moved themselves. They have taken up with enthusiasm the chances to earn wages opened up by the project's construction activities and by the need to clear biomass from the inundation and cultivation areas and have acquired some new skills at the same time.

But they will need help and some sound planning ahead of time to handle the handing over of assets and responsibilities, to develop new livelihoods now that their access to the alluvial soils of the Plateau floor is denied them and to train a new generation of young village-based managers to address the new problems which will inevitably emerge. Hence the emphasis in our recommendations above on asset handover, livelihood development in all three zones and the creation of wider and more advanced educational opportunities.

The infrastructure phase is almost finished---and with considerable success. Now comes the tougher, more extended and more sensitive bit. It will also be the most rewarding phase if success is achieved in addressing these fresh challenges.

ANNEX

GOL Actions from 1 February to 25 March 2008

4 Feb. 08 KM-055 – Governor issues notification prohibiting use of Thongkong Road.

13 Feb. 08 PM Decree 24 – Nam Theun 2 Reservoir Decree (3 in 1 Decree):

- a) Fish catch, processing & trade exclusivity for resettlers for 10 years;
- b) Establishes framework for creation of the Reservoir Management Committee;
- c) DDZ area for resettler use for agriculture and livestock grazing between 525.5 – 538 masl and Nam Malou extension now part of VFA lands.

13 Feb 08 Extraordinary NT2 Steering Committee chaired by DPM Somsavat.

28 Feb 08 KM – 0088 RC instruction to proceed with infrastructure improvement works at Ban Sop Hia.

29 Feb 08: KM – 0091-RC decision for payment of compensation to people affected by construction and improvement of Roads 12 and 8B.

1 Mar 08 RC meeting held in Thakek.

2 Mar 08 2nd Extraordinary NT2 Steering Committee chaired by DPM Somsavat in Thakek to check on progress on POE recommendations.

7 Mar 08 KM – 103: RC endorsement of agreement between Oudomsouk and VFA regarding Oudomsouk Urban Area (811 ha. now instead of 1,500 ha.).

7 Mar 08 KM-0174-RC instruction to NTPC to begin construction of houses and to ensure agriculture plots are available for villagers from Sop Hia in case the villagers change their decision in the future: instruction for NTPC to supply Sop Hia with rice in their current location: instruction to NTPC to promote cultivation of family garden plots in accordance with their local environment.

12 Mar 08 KM – 0303: RC approval of principle to make direct payment to PAH's for those impacted more than 10%.

14-15 Mar 08 Site visit and inspection of the implementation of the environmental protection plan and related compensation by DPM Asang Laoly

17 Mar 08 Draft hunting/fishing regulations available for comment.

17 Mar 08 NK – 066 – Boat regulations signed by Nakai District Governor.

18 Mar 08 KM 0116---RC confirmation to Prime Minister's Office to ensure an auspicious date is chosen for diversion tunnel closure

20 Mar 08 322 – MEM/DEPD – Approval of Emergency Contingency Plan.

21 Mar 08 PM Decision 32 – to establish Reservoir Management Committee (RMC) signed.

24 Mar 08 KM 0126 RC decision providing additional guidance to NTPC regarding compensation on Roads 12 and 8B.

24 Mar 08 KM-0353-RC decision to grant tax exemption for buffalo purchases related to NT2 to maximize the net revenue to the villagers and to facilitate the trade/sale of buffalos.
