

**LAO PEOPLE'S DEMOCRATIC REPUBLIC  
NAM THEUN 2 PROJECT**

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

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February 15, 2006

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INTERNATIONAL ENVIRONMENTAL AND SOCIAL  
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**For the Nam Theun 2 Project  
Lao People's Democratic Republic  
February 15, 2006**

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## SUMMARY OF RECOMMENDATIONS

For the reasons outlined below in Section 1, Overview, this report has a large number of recommendations. While all the recommendations are important and it is the intent of the POE that they should all be implemented, because of time constraints some are more urgent than others. Consequently the recommendations that POE considers first priority in terms of urgency are presented in bold type, those that are second priority in terms of urgency are presented in bold italics, and the remainder, less urgent but still important, are in normal type.

### GENERAL

The POE recommends that:

1. The Lao National Committee on Energy (and/or the over-arching committee recommended by the POE, see Recommendation #3) issue a strong policy statement emphasizing the importance of environmental and social issues in the NT2 project and calling on all ministries and other governmental units involved to ensure that their activities reflect this importance. The NT2 Steering Committee could be tasked with monitoring the issue.
2. The NTPC Board establish an independent Committee on Environment and Social issues that would report to the Board Chairman. The Committee should have at least two outside specialists and might include an At Large Member of the Board.

### INSTITUTIONAL CONSTRAINTS

The POE recommends that:

3. **The Government of Laos consider whether a stronger over-arching project committee, with adequate political backing, decision-making authority and budget should be soon established for overseeing implementation of the NT2 Project.**
4. **The LNCE Secretariat be strengthened to more effectively deal with the NT2 Project by adding several senior staff members, with the necessary budget and transport, who would have full time responsibility for dealing with the NT2 Project.**

### NT2 RESERVOIR RESETTLEMENT

*Resettlement Scheduling Delays and Sustainability*

The POE recommends that:

5. **If reservoir filling is to commence on time, priority be given to resettlement equal to that given to construction activities.**
6. **The Head Contractor more closely monitor the activities of subcontractors to ensure that they are compatible with the resettlement process.**
7. If further delays are to be reduced, NTPC and the World Bank be proactive in applying an adaptive management approach to resettlement activities.
8. **The decision making authority of the RO be strengthened significantly, the relationship between NTPC Vientiane and NTPC Nakai be streamlined, and a budgeting process be established that will allow prompt implementation of decisions made.**
9. *The RO be provided in the field with a fulltime senior adviser with resettlement expertise who can also coordinate activities with the RC, the RMU, and the various DRWGs.*
10. **The capacity (numbers, expertise, training and equipping of staff ) of the Nakai District government be increased significantly to implement a sustainable resettlement process.**
11. The order in which villages are to be moved be prioritized.
12. *UXO clearance of village resettlement sites be accelerated by increasing the number of UXO teams.*
13. Resettlers be involved in *all* activities at the new sites. That means involving active members of each household in all activities including UXO clearance, cultivation of new fields, and building permanent housing and community infrastructure. Implementing this recommendation will require some villagers living in field shelters, while most elders and school age children can be expected to remain in their present villages until permanent housing and infrastructure, as well as livelihood activities, are available at the new site.

*The Coffe Dam*

**The POE recommends that:**

14. *Priority be given to villages most at risk. First priority should be given Ban Sop Hia. Not only is the lower portion of the village more apt to be flooded, but the same applies to the road connecting the village to Route 8B at Ban Nam Nian. There are approximately 60 households in Sop Hia. Approximately half are Vietic while the other half are relatively recent immigrants from Khamkerd District whose wish to return there is the major reason for implementing the Nam Pan irrigation project near Lak Sao.*

15. Within Sop Hia, priority be given to the Vietic households who live in the lower portion of the village. Among the northern cluster of four VG1 villages that will be resettled near Ban Thalang, priority should be given to 19 of the 29 Vietic households who wish to resettle to new Sop Hia. The POE expects that the other ten Vietic households will also agree to move there for two reasons. First, the suitability of the proposed Nam Pan irrigation project is questionable (see below). Second, should all or most Vietic households move there, cultural continuity will be more easily maintained especially if they have access to a school in which local language instruction is available. Since the proposed village site is in a densely forested area, collection of non-timber forest products (NTFPs) will be a much appreciated livelihood complement.

16. Resettlers be actively involved in all resettlement activities so as to reduce to the minimum possible compensation in the form of cash and/or rice and food supplements. Unable to separate Coffey Dam impacts from natural flooding, the Company plans to provide compensation for any flooding and livelihood losses that may occur to villages living close to the Nam Theun. Involving each household to the extent possible in livelihood activities at both the new sites and in existing villages will serve a number of desirable purposes. They include keeping resettlers active, helping them identify themselves with the new villages by participating actively in their development, and avoiding the type of dependency relationship that a compensation policy as opposed to a development one is apt to foster.

#### *Gold Mining*

#### **The POE recommends that:**

#### **17. Surveys to find a new site for the irrigation project begin immediately.**

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

#### *RMU, DRWG, and RO Implementation Relationships*

#### **The POE recommends that:**

19. The implications of the Concession Agreement statement that the DRWGs are the responsible agencies for “implementing the relocation, rehabilitation, compensation and

development activities specific to their districts” be considered at this point. That statement is especially applicable to Nakai District which will have the responsibility for maintaining and improving the livelihoods of the resettled villages and the development of the district as a whole including the National Protected Area, the NT2 reservoir and the 20,800 ha resettlement area once the RMU and the RO cease to exist.

**20. The RMU, which has played a valuable role during project planning leading up to Financial Close, now accelerate the handing over of its implementation activities as well as its more experienced staff to the District, including the necessary budget for upgrading district staff numbers, staff expertise and staff training, and for purchase of the necessary office space and transportation equipment.**<sup>1</sup>

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

*Too Frequent IFI, Lender and Other Inspection/Monitoring Visits*

**The POE recommends that:**

**22. Ongoing discussions between NTPC, the IFIs and the Lenders to coordinate and drastically reduce the total number of inspection visits while improving their targeting and effectiveness.**

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

## **SALVAGE LOGGING AND THE SALVAGE LOGGING ROAD**

*The Salvage Logging Operations*

**The POE recommends that:**

**24. The demarcation program be accelerated so that logging can begin across the reservoir as soon as feasible.**

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

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<sup>1</sup> The POE suggests that a special effort be made to utilize, either with the district or another NT2-involved agency the experience and long association with NT2 resettlement planning of the RMU manager.

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

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

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

29. Possible funding sources for the external monitoring be investigated immediately (one option being to draw on as yet unutilized project monitoring funds designated originally for other monitoring work).

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

31. MAF develop a plan to control and monitor exploitation of wildlife from the plateau, resettlers reserves or NPA by the loggers, logging truck drivers, and others involved with the salvage logging. There should be zero tolerance, with anyone found with such wildlife fired immediately.

#### *The Salvage Logging Road*

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

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

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

#### *Removal of Plateau NTFPs By Immigrants*

**The POE recommends that:**

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

36. The berberin processing activity near Sop On be closed down.

## **THE WATERSHED AND THE WMPA**

### *Ensuring Understanding and Support for Conservation Goals*

#### **The POE recommends that:**

37. Ensuring that NTPC personnel understand and support the conservation goals of the NPA be an appropriate area for attention, including monitoring, by the NTPC Board Chairman's Environmental and Social Advisory Committee (Recommendation # 2), as well as the NTPC environmental officer resident on the Nakai Plateau (Recommendation #65).

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

### *WMPA Institution Building*

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

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

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

### *Patrolling*

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

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

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

#### *Cooperation with other Governmental Units*

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

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

#### *Access to the NPA*

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

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

#### *Research in the NPA*

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

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

#### *Bioprospecting*

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

#### *Wildlife Exploitation by Contract Labor*

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

*Livelihood Development*

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

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

***55. The WMPA investigate why the trained teachers are not being paid and restore their salaries***

56. The WMPA staff identify areas for more effective preventive health work

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

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

**THE XE BANG FAI**

**The POE recommends that:**

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

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

***61. Similarly, the prime opportunity for a ready made gravity feed irrigation project in the Eastern Gnommalat plain be developed further, preferably by a design team including both the NTPC downstream consultant and the District Irrigation Department, and funding discussed with the ADB and/or the AFD.***

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

## MONITORING AND ENVIRONMENTAL IMPACTS

The POE recommends that:

**63. The GOL and the World Bank give very high priority to the establishment and support of both the internal and external monitoring systems called for in the Concession Agreement.**

*64. Regardless of what other surveys are subsequently agreed upon, the 1998 NTEC random sample survey of 320 NT2 dam affected households on the Nakai Plateau be used, with any appropriate modifications, as the baseline survey for livelihood monitoring and that households in that survey be re-interviewed twice annually until resettlement has been satisfactorily completed as stipulated in the CA and the SDP.*

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

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

*The Dam Site Access Road*

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

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

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

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

## INTRODUCTION

### **The Panel, Its Role, and Previous Missions**

This is the ninth report of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) Project in the Lao People's Democratic Republic.<sup>2</sup> The Panel's previous reports covered visits to Laos in January and February 1997, July 1997, January 1998, January 1999, January 2001, January 2003, February - March 2004, and January 2005. The Panel and the International Advisory Group of the World Bank (IAG) issued a report on a joint mission to Laos in August 2005. In addition an Interim Report was prepared in March 2002, and a joint World Bank, Watershed Management and Projection Authority (WMPA), IAG and POE visit to Vietnam followed the end of the 2004 visit. Members also have represented the POE on the 2001 and 2002 World Bank logging missions and at the July 2002 Round Table Meeting on NT2 in Vientiane.

In the past the Panel's primary responsibility has been to provide independent review of, and guidance on, the treatment of environmental and social issues associated with the NT2 Project.<sup>3</sup> This responsibility remains but is now enshrined in the Concession Agreement as a contractual right---and applies to both the GOL and the NTPC. In addition, under the Concession Agreement the POE is accorded compliance supervision functions in respect of the environmental and social activities and obligations of the parties. It is required to act independently of the parties and in a manner which best protects the environment and the interests of those impacted by the project.

The Panel's findings and recommendations are submitted to the Minister of Industry and Handicrafts of the Lao P.D.R., as Chair of the NT2 Steering Committee of the Government of Lao PDR (GOL), which itself is a committee of the Lao National Committee on Energy chaired by the Deputy Prime Minister. The POE may also address comments and recommendations to the Nam Theun 2 Power Company Ltd. (NTPC), and its reports are also made available for distribution to the World Bank, other International

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<sup>2</sup> The members of the Panel of Experts are:  
D. K. McDowell, Consultant, Otaki, New Zealand  
T.Scudder, California Institute of Technology, USA  
L.M.Talbot, George Mason University, Virginia, USA

<sup>3</sup> The Terms of Reference for the POE are under Annex 1 of the First Report of the Panel, February, 1997, and Schedule 4 of the Nam Theun 2 Hydroelectric Power Project Concession Agreement (2005 Financial Close) Consolidation, Volume 2A, of 25 April, 2005.

Financing Institutions, other cooperating organizations and the public. The Panel is free to make its own determination on which environmental and social issues it should focus, and has the final say as to what is incorporated within its reports.

The Panel's area of responsibility includes the entire Nam Theun basin from the border of Vietnam to the Mekong River, the Nakai-Nam Theun National Biodiversity Conservation Area (NNT-NBCA or the NPA) which includes the NT2 project catchment area, inter-basin transfers from the Nam Theun to the Xe Bang Fai and Nam Hinboun river basins, the NT2 transmission line, and whatever enhancement and other projects are impacted upon by water releases from the Nam Theun reservoir. The Panel is also obligated to assess the extent to which the NT2 project meets relevant World Bank and Asian Development Bank safeguard policies including, but not restricted to, those for environment, indigenous people, and resettlement with development.

### **Summary of Panel Activities**

Since the 8th visit in January 2005, Panel members have represented the POE at meetings with the World Bank in Washington D.C., representatives of the NGO community, and scientific organizations. Panel members have also read and commented on a series of NT2 Project reports and documents. In August 2005, the Panel also conducted a joint mission to Laos and the project area with the IAG.

For this 9<sup>th</sup> Mission the Panel members arrived in Vientiane on January 15 2006. This was the first full POE mission since the signing of the Concession Agreement (CA) and the formal initiation of the NT2 Project, so an important objective was to determine how well the evolving project activities were complying with the terms of the CA. The first three days were spent in Vientiane meeting with the relevant ministries and agencies of GOL, NTPC, the World Bank, Asian Development Bank (ADB), the French International Development Agency (AFD), and the CARE Livelihood Project, and reviewing Project documentation. Preliminary meetings were also held with the Minister of Industry and Handicrafts and the Vice Minister of Agriculture and Forestry. The Panel then drove to the Nakai Plateau, en route participating in a meeting of the Executive Board of NTPC, and subsequently following the route of the recently constructed road from the Gnommalat Plains through the Nam Malou area of the plateau. The next ten days were spent on the plateau, in the watershed, at Thakhek and Lak Sao. After meetings with the Nakai District Governor, NTPC and the Watershed Management and Protection Authority (WMPA), part of the Panel (Scudder) spent three days inspecting the resettlement activities including visiting seven of the nine plateau villages that are scheduled to be resettled during 2006. The other part (McDowell and Talbot) went by boat and foot to Ban Navang, which is the pilot village in the catchment area for the initial work of the WMPA. In Thakhek a meeting chaired by H.E. the Minister of Industry and Handicrafts was held with officials including the governors or vice governors of Khammouane, Savannakhet and Bolikhamxay Provinces, and those of several districts, along with subsequent briefings on the livelihood and fisheries and other development activities on the lower Xe Bang Fai. On the plateau visits were made to the

route of the salvage logging track, the saddle dam and resettlement area at Oudomsouk Village, the salvage logging area and demarcation activities, the dam site, dam site labor camp, and access roads. To the north in Khamkerd District visits were made to the WMPA, the Ban Nakadok gold mining area and village, and the gold mines above the Nam Pan that are polluting the river at the resettlement site.

On return to Vientiane the Panel spent January 31 to February 4 reviewing and discussing its findings in detail with representatives of GOL, including the Secretariat of the Lao National Committee on Energy, Director General of Irrigation, H.E. the Minister of Industry and Handicrafts, H.E. the Vice Minister of Agriculture and Forestry, and H.E. the Deputy Prime Minister. Debriefing sessions were also held with other relevant GOL officials, and those from NTPC, the World Bank, ADB and AFD and with resident experts.

### **Organization of this Report**

The POE's past reports were written as stand-alone documents, providing extensive analysis and descriptions of the project, its national and global significance, and the environmental and social issues involved. Previous POE reports have also reviewed actions taken on earlier recommendations.

Because the project has now started, the Panel has focused on important implementation issues, particularly those which, if not addressed, could threaten the timely and successful completion of the project. This report identifies and describes such issues and presents recommendations for dealing with them.

### **Acknowledgments - Appreciation**

The Panel met with GOL officials at Central, Provincial and District levels, with WB, ADB, AFD, NTPC, and other local personnel, and with villagers in the areas visited. We wish to acknowledge with gratitude the information, advice and assistance, as well as the warm welcome, that we received from everyone to whom we talked. Special thanks are due to H.E. the Minister of the Ministry of Industry and Handicrafts for approving our visit and organizing and chairing the comprehensive meetings in Thakhek, to H.E. Dr. Thongloun Sisoulith, the Deputy Prime Minister, to the Vice Minister of Agriculture and Forestry, and to the Secretariat of the Lao National Committee on Energy (LNCE) to which we reported and especially to the Secretariat's Xaipaseuth Phomsoupha and Sychath Boutsakitirath.

We are particularly grateful for the organization and arrangements made for us in LAO P.D.R. by the Secretariat of the Lao National Committee on Energy, and by Bernard Tribollet, Christophe Maurel, Jean Foerster, François Obein, Michael Beauchamp, John Harrison, Patrick Dye, Phalim Daravong and other staff of the NTPC, by WMPA Director Sangthong Southammakhoth and his Executive Secretariat and Technical Assistance Advisors, by the RMU's Hoy Phomvisouk; by the Governor of

Nakai District who received our mission on the Nakai Plateau; and the Governor and Deputy Governor of Khammouane Province who received us in Thakhek; by the Governor of Khamkerd District who entertained the Panel in Lak Sao, by local district and village officials who enabled the Panel to make the village visits; and by village residents who met with us throughout the project area.

Thanks to these fine arrangements it was possible for the Panel to see and accomplish so much in a short time.

## **1. OVERVIEW**

The present visit marks the tenth year of POE missions to the NT2. As noted above it is the first full mission since the signing of the Concession Agreement and the initiation of the project, and the first such mission under the expanded responsibilities assigned it by the CA. The POE is acutely aware of the importance of the NT2 meeting its environmental and social requirements and the Panel recognizes that it has a heavy responsibility to try to ensure that those requirements are indeed met. There are three reasons for this. One is simply that this responsibility is conferred by the POE's terms of reference. Secondly, and of most importance to GOL and NTPC, construction has now started under a tight schedule for project completion but the schedule cannot be met unless the social and environmental requirements are adequately implemented. In the CA, for example, Schedule 4, Part 1, clause 8.7.2 and Article 5.12 of the NT 2 Resettlement Policy appearing in Schedule 4 Part 1 require that there shall be no impoundment of dam waters until the resettlement is completed as defined in the CA. And thirdly, GOL, NTPC, the IFIs, POE and IAG are all committed to the NT2 being completed as a truly world class development project, one that will serve as a pilot or model for future projects throughout the world.

Global experience with such projects has shown that the key to avoiding serious problems is to recognize and do something about them early in project implementation, rather than waiting until later when there is not time nor opportunity to do so. Consequently, on this mission the POE has sought to provide an early warning of what we see as possible problems which, if not addressed early, could become serious and mar or delay the successful completion of NT2.

An example of a fundamental problem that has been a common weakness with dam and other development projects worldwide is that environmental and social activities do not have equal standing with civil works construction and resource extraction such as logging. The POE sees this issue as a potential major problem, but notes emphatically that it is still early enough in the NT2 implementation to take steps to avoid the problem.

It is particularly important that policy emphasizing the importance of environmental and social issues be firmly established from the highest levels of the organizations involved.

## Recommendations

**In terms of urgency of timing, but not of importance, first priority recommendations are in bold type, second priority are bold italics, and third priority in normal type:**

**The POE recommends that:**

- 1. The Lao National Committee on Energy (and/or the over-arching committee recommended by the POE, see Recommendation #24) issue a strong policy statement emphasizing the importance of environmental and social issues and calling on all ministries and other governmental units involved to assure that their activities reflect this importance. The NT2 Steering Committee could be tasked with monitoring the issue.
- 2. The NTPC Board establish an independent Committee on Environment and Social issues that would report to the Board Chairman. The Committee should have at least two outside specialists and might include an At Large Member of the Board.

As it has indicated in its previous reports, the POE is convinced that NT2 can be a global model that avoids the mistakes that virtually all other projects have made. In the sections that follow the POE addresses a series of problems, providing an early warning and making recommendations intended to help GOL and NTPC avoid the unfortunate consequences and ensure that NT2 achieves its potential.

## 2. INSTITUTIONAL CONSTRAINTS

NT2 is Laos' number one development project with the potential to catalyze a process of regional development in the central part of the country from the Vietnam border to the Mekong. The POE believes that the institutional structure for overseeing project implementation does not reflect the project's importance to the economy and people of Laos. The two major committees dealing with the NT2 project are the Steering Committee chaired by the Minister of Industry and Handicrafts and the National Committee on Energy chaired by the Deputy Prime Minister. The Secretariat for both is the understaffed and underfinanced Board of the Secretariat which is headquartered in the Ministry of Industry and Handicrafts.

The large NT2 Steering Committee contains representatives from a number of ministries as well as from Bolikhamxay and Khammouane Provinces. We understand it is not a decision-making body. Ad hoc, it serves an ombudsman-type function. The National Committee on Energy is much smaller, the four members being the Deputy Prime Minister, the Minister of Industry and Handicrafts, the Minister of Commerce and

the Vice President of STEA. Its responsibilities include NT2 as only one of a number of power producing companies. Neither Committee has the capacity to oversee, in a proactive fashion, the implementation of the NT2 project nor to deal rapidly and effectively with problems as they arise.

**The POE recommends that:**

- **3. The Government of Laos consider whether a stronger over-arching project committee, with adequate political backing, decision-making authority and budget should be soon established for overseeing implementation of the NT2 Project.**
- **4. The LNCE Secretariat be strengthened to more effectively deal with the NT2 Project by adding several senior staff members, with the necessary budget and transport, who would have full time responsibility for dealing with the NT2 Project.**

### **3. NT2 RESERVOIR RESETTLEMENT**

#### **3.1 Introduction**

Nakai Plateau resettlement of approximately 6,000 people from the future NT2 reservoir basin was the most critical issue that the POE addressed during the January 15 – February 5 2006 visit. Aside from the pilot village that was resettled during 2002-2003, the first group of villages (VG1) were scheduled to be resettled by May-June 2006 and the second group (VG2) by May - June 2007. At the time of the POE's visit, however, a four to six month delay already had occurred with further delays likely unless resettlement was given higher priority and unless the resettlement process was accelerated.

Implementing successful resettlement requires an adaptive management approach. Unlike dam construction which can usually proceed relatively smoothly once the design phase is over, changes that require revisiting and altering plans are to be expected with resettlement. Numbers of resettlers change as new households are formed while unexpected events like the pollution of the Nam Pan by gold mines upstream require new approaches. Monitoring is essential to identify solutions for new problems as they arise such as the drop in prices between 2005 and 2006 for cabbage and mushrooms grown by pilot village households, a drop that requires prompt implementation of a marketing study as well as consideration, as one example, of small-scale but high quality, Nakai Plateau-based, agro-industries to process resettler crops and add value. The increasing importance of livestock sales from both the demonstration farm and the pilot village is another example of why an adaptive management approach is essential for dealing effectively with changing inter-relationships between the various livelihood options.

Reasons for expecting further delays were discussed in detail with GOL, NTPC and the international financial institutions (IFI) with the result that commitments were made by all sides to take prompt corrective action with the POE requested to return in August 2006 to evaluate in the field the effectiveness of their implementation. That is the type of proactive approach needed to get resettlement back on track and to realize the very real potential of NT2's state-of-the-art plans to increase significantly the living standard of resettlers.

The major reason why effective implementation of resettlement with development is essential is because the construction and resettlement with development schedules are so interrelated in the NT2 Concession Agreement that reservoir impoundment cannot begin during 2008 until resettling villages have been moved into permanent housing, have essential infrastructure including access roads, water supplies, schools and clinics, and have begun livelihood activities, including agriculture on allocated farm plots (Schedule 4, Part 1, 8.7). Though key project officials were largely aware of this linkage, the unwarranted assumption was that current delays were not too serious because resettlement was scheduled to be completed a full year before the commencement of reservoir impoundment at the beginning of the June – October 2008 rainy season. Hence, the assumption that even if further delays occurred resettlement could still be completed before impoundment began. It was the task of the POE to convince the project authorities that the further delays expected could delay impoundment to the extent that no reservoir filling would be possible during the second half of 2008. In that case an entire rainy season of filling would be lost with a major financial cost due to delayed power generation.

Reasons for delay are complex and interrelated. They involve all project agencies: GOL, IFIs, the Lenders and NTPC including the Head Contractor and the subcontractors. Six are especially serious. They are (1) resettlement scheduling and sustainability; (2) salvage logging and the salvage logging road down to Route 12; (3) the NT2 coffer dam; (4) the Nam Pan gold mines; (5) GOL Resettlement Management Unit (RMU), Nakai District Resettlement Working Group (DRWG) and NTPC Resettlement Office (RO) implementation relationships; and (6) constraints imposed by too frequent IFI, Lender and other inspection/monitoring visits.

### **3.2 Resettlement scheduling delays and sustainability**

#### **Constraints**

At the time of the POE's visit expected VG1 resettlement had been postponed until November – December 2006 and the sustainability of the resettlement process was under threat. Though reasons for the delay are many, with three discussed under points (4)-(6), the major one in the POE's opinion, was the lower priority given to resettlement activities by GOL, NTPC, the Head Contractor and the subcontractors. Past examples of this include NTPC's tighter funding restrictions on resettlement versus construction activities. Also relevant are World Bank procurement requirements which are more

suitable for large scale construction projects than for the type of micro-financing in the field that a successful resettlement process requires.

Granted the fundamental importance of the forest reserves as a key component in the resettlers' livelihood options which must be safeguarded, the POE was especially concerned about efforts to acquire logging rights to timber that has been allocated to the Nakai Plateau Village Forest Association. Counterproductive NTPC activities include delayed undertaking of the RO requested marketing study, the importance of which is crucial if resettler crops and livestock are to be profitably sold. Counterproductive activities of the subcontractor responsible for road construction on the Plateau include placing village forest resources at risk by burning felled timber at the forest edge rather than separating it by a fire break, and ignoring resettlement needs in road design and in the road construction schedule.

**The POE recommends that:**

- **5. If reservoir filling is to commence on time, priority be given to resettlement must equal that given to construction activities.**
- **6. The Head Contractor more closely monitor the activities of subcontractors to ensure that they are compatible with the resettlement process.**
- 7. If further delays are to be reduced, NTPC and the World Bank be proactive in applying an adaptive management approach to resettlement activities.
- **8. While the operations of the RO are becoming more efficient and effective, they have been too restricted by micromanagement from NTPC headquarters, the NTPC Board and the IFIs, including the World Bank. That restriction has become another cause of resettlement delays. The time has come to increase significantly the decision making authority of the RO, streamline the relationship between NTPC Vientiane and NTPC Nakai, and implement a budgeting process that will allow prompt implementation of decisions made.**
- **9. The RO needs in the field a fulltime senior adviser with resettlement expertise who can also coordinate activities with the RC, the RMU, and the various DRWGs.**
- **10. The capacity (numbers, expertise, training and equipping of staff ) of the Nakai District government be increased significantly to implement a sustainable resettlement process.**
- 11. The order in which villages are to be moved be prioritised.

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

### 3.3 Salvage Logging and the Salvage Logging Road

#### Constraints

Salvage logging and resettlement with development are two important activities associated with the NT2 project. They are also in conflict. According to government estimates approximately 750,000 m<sup>3</sup> of woody vegetation remain to be cleared from the reservoir basin during the 2006, 2007 and 2008 dry seasons. Worth approximately \$40 million, salvage logging is not only a government responsibility but a necessity due to Parliament's decision that the country's entire 2006 quota (plus the revenue from that quota) must come from logging the NT2 reservoir basin.

Until recently, no one, including the POE, had carefully examined the impacts of such a major salvage logging operation on the environment, on plateau villages, livelihood and society, and on the resettlement process. **CORRECT HERE**

Though estimates vary as to the number of workers required to cut and remove vegetation, they range from several thousand to 10,000<sup>4</sup>. Most will be immigrant laborers since Nakai Plateau village labor need be fully occupied in existing livelihood activities and preparation of new village sites.

Nor had a timely options assessment process been carried out to examine carefully alternate routes for removing the logs from the Nakai Plateau in a way that would enhance future development while minimizing environmental and social (resettlement especially) impacts. Rather, to reduce joint use of the major construction roads, a GOL decision was made to export logs and forest byproducts the length of the reservoir basin and down the escarpment to Route 12.

Serious impacts on village health (especially sexually transmitted diseases) and family stability (including possible competition over women) can be expected. The resettlement process also will be adversely affected. For example, during the dry season over a three year period, a logging truck every 10 to 15 minutes could be driving the length of the reservoir basin. During much of that period, the logging route will separate

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<sup>4</sup> See Clarification at the end of the Report

11 of the 16 villages to be resettled from their resettlement sites. One reason why further resettlement delays can be expected is because it is will not be possible to shift all VG1 households at one time to a new site (see below), with the result that people will have to move back and forth across the logging route.

For specific recommendations on the salvage logging and salvage logging road see section 4 below.

### 3.4 The Cofferd Dam

#### Constraints

February 2006 completion of the coffer dam will have a greater impact than expected during the 2006, 2007, and 2008 rainy seasons on a majority of VG1 and VG2 villages located along the Nam Theun. This is because the backwater effect of the coffer dam will not only flood portions of most villages situated close to the Nam Theun during a two to five year flood but will also flood lower level rainy season fields. During 2005, for example, villagers reported to the POE that a significant number of households lost crops to flooding from the Nam Theun on five to ten occasions between August and October. Some households lost all of their rice and maize crops. Though young rice plants can tolerate flooding for a number of days, the POE was told that three days of flooding will destroy flowering rice while maize is less tolerate of flooding.

The POE recommends that:

- **14. *Priority be given to villages most at risk. First priority should be given Ban Sop Hia. Not only is the lower portion of the village more apt to be flooded, but the same applies to the road connecting the village to Route 8B at Ban Nam Nian. There are approximately 60 households in Sop Hia. Approximately half are Vietic while the other half are relatively recent immigrants from Khamkerd District whose wish to return there is the major reason for implementing the Nam Pan irrigation project near Lak Sao.***
- 15. Within Sop Hia, priority be given to the Vietic households who live in the lower portion of the village. Among the northern cluster of four VG1 villages that will be resettled near Ban Thalang, priority should be given to 19 of the 29 Vietic households who wish to resettle to new Sop Hia. The POE expects that the other ten Vietic households will also agree to move there for two reasons. First, the suitability of the proposed Nam Pan irrigation project is questionable (see below). Second, should all or most Vietic households move there, cultural continuity will be more easily maintained especially if they have access to a school in which local language instruction is available. Since the proposed village site is in a densely forested area, collection of non-timber forest products (NTFPs) will be a much appreciated livelihood complement.

- 16. Resettlers be actively involved in all resettlement activities so as to reduce to the minimum possible compensation in the form of cash and/or rice and food supplements. Unable to separate Coffey Dam impacts from natural flooding, the Company plans to provide compensation for any flooding and livelihood losses that may occur to villages living close to the Nam Theun. Involving each household to the extent possible in livelihood activities at both the new sites and in existing villages will serve a number of desirable purposes. They include keeping resettlers active, helping them identify themselves with the new villages by participating actively in their development, and avoiding the type of dependency relationship that a compensation policy as opposed to a development one is apt to foster.

Not ideal, such a policy will require flexibility – indeed adaptive management applied to each household. Properly implemented it will not only speed up the resettlement process but will actively involve resettlers in resettlement implementation. Such a policy is feasible, since in each of the seven Nam Theun villages visited over a two day period the POE found household members who wished to begin immediately field preparation at the new sites. Should that be approved, they presented a remarkably similar list of requirements. Included were waterproof roofing on field shelters, a nursery school for young children so that women could more actively participate in field activities, a safe water supply, and the necessary tools.

Furthermore, during each household interview, members wanted to know the exact date when they could be expected to commence cultivating at their new sites. They also emphasized that they needed to know either immediately or within a week whether they should cultivate existing fields or pioneer new fields from temporary field shelters at the resettlement site. Their sense of urgency was based on the fact that clearing of vegetation from fallowed or new fields must commence in February in the upper river villages and in January in the lower river ones.

### **3.5 Gold mining along the upper Nam Pan**

#### Constraints

After an extensive options assessment process, GOL and NTPC selected Ban Nam Pan as the most logical site for an irrigation project for the immigrant population of two group one villages who were willing to return to Khamkerd District provided the NT2 project provided them with an irrigation project which would also incorporate the host village. By October 2005, topographical surveys had been completed along with village layouts, initial planning for the irrigation project, and logging along the proposed access road. That same month the host village reported to the district authorities pollution from apparently unlicensed gold mining along the upper Nam Pan. Water monitoring by the Company the next month reported heavy outflow siltation due to the mining along with pollution from mercury, arsenic, lead, iron and faecal coliforms that exceeded WHO

standards. As a result, further planning and implementation for the irrigation project was stopped.

The gold mines, which the POE, at government invitation, visited on January 30, are an example of the kind of unexpected and adverse event that can be expected to arise during the long planning and implementation process for large dams. Involving two companies, their size at the top of a ridge from which two Nam Pan tributaries arise was much greater than had been previously realized. Even if shut down, the extent of the pollution that the POE observed may require finding a new site for the irrigation project. In addition to the three months already lost, that could set back the resettlement schedule another four months due to the requirement for new topographical surveys and new village and irrigation layouts.

**The POE recommends that:**

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

### **3.6 RMU, DRWG and RO implementation relationships**

#### Constraints

Based on discussions with all three agencies, the POE agrees that the unsatisfactory working relationships between the RMU, Nakai District (and the DRWG), and the RO are a cause for past delays and can be expected to cause future delays. Resettlement is a process which requires a dynamic adaptive management approach. We have discussed constraints in detail with the RMU, the District and NTPC. We are pleased to note that NTPC has moved rapidly to address organizational problems and speed up the resettlement process by, for example, increasing UXO teams from 1 to 4.

**The POE recommends that:**

- 19. The implications of the Concession Agreement statement that the DRWGs are the responsible agencies for “implementing the relocation, rehabilitation, compensation and development activities specific to their districts” be considered at this point. That statement is especially applicable to Nakai District which will have the responsibility for maintaining and improving the livelihoods of the resettled villages and the development of the district as a whole including the National Protected Area, the NT2 reservoir and the 20,800 ha resettlement area once the RMU and the RO cease to exist.
- **20. The RMU has played a valuable role during project planning leading up to Financial Close. Now that implementation has begun, the POE recommends that the RMU accelerate the handing over of its implementation activities as well as its more experienced staff to the District, including the necessary budget for upgrading district staff numbers, staff expertise and staff training, and for purchase of the necessary office and transportation equipment.**<sup>5</sup>
- 21. While also facilitating district strengthening, the implementation responsibilities of the RO be increased if the livelihood goals set for COD plus 7 years are to be realized. As already mentioned, for that to occur, the RO’s decision making capacity must be increased along with prompt access to the budget necessary to finance decisions made. Relationships between the RO and NTPC, Vientiane also must be streamlined. These recommendations were discussed within NTPC and are reflected in new NTPC policies implementation of which will be expedited by NTPC’s Chief Operations Officer working in close cooperation in the field with the resettlement office.

### **3.7 Too frequent IFI, Lender and other inspection/monitoring visits.**

#### Constraints

A sixth reason for delays is a serious overemphasis by the IFIs and other agencies on project inspection. The frequency of such inspection is far greater than on any other large dam with which POE members have been associated around the world during the last fifty years. RMU, District and especially RO staff spend far too much time preparing for, and traveling with, inspection agencies. The head of the RO explained, for example, that over the past seven months approximately 60% of his days involved catering to visitors.

We understand and share the concern and desire of the IFIs and other agencies for NT2 to be implemented as a world class project. But their too frequent activities in the field have become a reason for ongoing delays with resettlement. However, there is an urgent and ongoing need for targeted, more effective monitoring. Elsewhere in this

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<sup>5</sup> The POE suggests that a special effort be made to utilize, either with the district or another NT2-involved agency the experience and long association with NT2 resettlement planning of the RMU manager.

report we have noted a series of activities that should have been identified early as being potentially counter-productive. Among others these include the inappropriate dam site road, delayed resettlement due to inadequate oversight and coordination, ignoring resettlement needs in road design and in the road construction schedule, placing village forest resources at risk by burning felled timber at the forest edge rather than separating it by a fire break, the salvage logging and its road, and some waste disposal issues.

**The POE recommends that:**

- ***22. Ongoing discussions between NTPC, the IFIs and the Lenders to coordinate and drastically reduce the total number of inspection visits while improving their targeting and effectiveness.***
- ***23. Selection of the various IMAs be prioritized as a means for further reducing the frequency of inspection visits.***

**3.8 Concluding statement – Resettlement**

Let the POE repeat, if these problems are not adequately dealt with, and if the responsible agencies are not able to respond rapidly to the inevitable new problems that can be expected to arise during the next three years, delayed project completion is a major risk that none of us wishes to occur.

**4. SALVAGE LOGGING ISSUES AND THE SALVAGE LOGGING ROAD**

**4.1 Salvage Logging**

As already noted above, one of the contributors to the lack of synchronization between the NT2 civil works program and the resettlement program is the inadequate planning and delayed initiation of the salvage logging of the reservoir. This is a serious issue not only because of its impact on resettlement and potential impact on long-term water quality in the inundated area but because the GOL is expecting substantial financial returns from the logging. If the revenue does not come from the reservoir it will have to be sought from elsewhere in the national forest estate.

The endeavor must therefore be to maximize the returns to the national coffers from reservoir logging while safeguarding both the resettlers' forest reserves and the forest boundaries of the NNT Protected Area.

**The POE recommends that:**

- **24. The demarcation program be accelerated so that logging can begin across the reservoir as soon as possible.**

- 25. In those areas clearly within the felling area logging begin immediately now that tenders have been accepted.
- 26. The large logs to be removed from the plateau go out through Lak Sao until an acceptable alternative is available.
- **27. The MAF logging monitoring program be in place on the ground as soon as possible since on the POE's observation so-called independent loggers and others are already harvesting timber without contributing to the GOL targets.**
- **28. To reassure both the international community and GOL Ministers, random external monitoring along the lines of the earlier logging appraisal missions of the World Bank also be initiated as a matter of urgency.**
- 29. Possible funding sources for the external monitoring be investigated immediately (one option being to draw on as yet unutilised project monitoring funds designated originally for other monitoring work).
- 30. The MAF draw up, put in place and supervise a logging route and traffic plan which endeavours to bring order to an extraction exercise which will become chaotic if there is not some overall direction.
- 31. MAF develop a plan to control and monitor exploitation of wildlife from the plateau, resettlers reserves or NPA by the loggers, logging truck drivers, and others involved with the salvage logging. There should be zero tolerance, with anyone found with such wildlife fired immediately.

## 4.2 Salvage Logging Roads

As to how to remove the big logs in 2006/2008 the POE agrees that it is impracticable for existing roads to be used for this purpose but it does not concur in the proposed solution. The POE's view is that the proposed logging road running the length of the reservoir, exiting from it in the far southeast corner and leading down to Route 12 will interfere seriously with the resettlement process, especially now that several villages will have to straddle the reservoir and the road until full relocation is achieved. It also will open up a new access route to the forest area reserved for the resettlers and, potentially most significant in the long run, to exploitation of the endangered wildlife of the NNT watershed.

The POE is of the opinion that:

- The full range of options for removing salvage logs from the demarcated area was not examined thoroughly.
- Thus, the possibility of investment in a development road leading from the Nam Malou basin (where most of the logs are) directly down the escarpment, along the foot of the escarpment and joining the NT2 water channel north bank road opposite Tsa That near Gnommalat, was not according to our information investigated fully.
- If a professional roading assessment had shown that such a road (which would largely follow existing roads) was feasible and fundable it would have been a permanent asset to the district.
- A decision on the logging track leading down to Road 12 had been made before examining all other options.
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With the passage of time---and given the extended period which environmental and social impact studies, on an alternative route, plus negotiations with landholders, would take at this late stage---the POE does not stand in the way of the proposed southeast road but regrets the flawed procedure followed in arriving at the decision.

**The POE recommends that:**

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

When the salvage logging exercise is completed and the plateau section of the logging road is inundated in three years' time, the POE proposes that the following measures be taken:

- 33. When the salvage logging is completed, the road down the escarpment to Route 12 be completely cut at the top and near the foot of the escarpment so that it is impassable to motorized vehicles.
- 34. When the salvage logging is completed, the WMPA continue to maintain the gate or checkpoint covering access to the watershed via the remains of the logging road up the escarpment.

**4.3 Removal of Plateau NTFPs by Immigrants**

On January 22 the POE found a Vientiane-based company building a processing plant for berberin (a medicinal plant for diarrhea) close to the Nam Theun, Sop On Village, and the NPA before receiving the necessary license. As with a similar operation closer to the NT2 dam site, the company's activities also should be stopped for three reasons. First the collection and sale of such NTFPs should be restricted to Nakai Plateau residents. Second, daily wages based on kg of product collected are exploitative of the

local villagers who would receive no more than half the minimum wage. Third, if local wage labor is unavailable, the company is apt to hire immigrant labor. That would pose a threat to the NPA where, the POE was told, berberin exists in much greater quantities than in the NT2 reservoir basin.

**The POE recommends that:**

- **35. *Priority for collecting, and profiting from, NTFPs from the future NT2 reservoir basin during salvage logging be restricted to Nakai Plateau residents.***
- 36. The berberin processing activity near Sop On be closed down.

## **5. THE WATERSHED AND WMPA**

### **5.1 Biodiversity and Conservation Issues**

#### **5.1.1. Introduction**

In its previous reports the POE has described the NNT NBCA (hereafter called NPA) and its globally significant biodiversity and cultural diversity. From those standpoints the NPA is one of the most valuable protected areas on earth. As the POE's first hand knowledge of the area has expanded with each new field visit it has become increasingly impressed with the outstanding international importance of the area's unique biodiversity values, along with the magnitude of the threats they face. Protection of the NPA is also of crucial interest to GOL and NTPC. The area serves as the watershed for the NT2 reservoir, so protection of the NPA with its rich vegetation cover intact is essential to ensure that siltation does not shorten the life of the project and impair its power (and therefore income) generation, and NTPC has provided thirty years of funding to contribute to the area's conservation. But we have also become impressed with the fact that not everyone involved with the NT2 project recognizes the importance of the area or its significance to the project itself.

Conservation of the biodiversity of the NPA and protection and maintenance of forest cover in the watershed have remained fundamental objectives of the NT2 Project. Moreover, they were and they remain a key to the support of NT2 by the World Bank and the other IFIs. This is in part because protection of the NPA is an explicit offset for the area to be inundated under the IFI requirements (e.g., those of the World Bank's OP4.04) and in very large part because the conservation of the NPA provides a very strong and visible environmental benefit for a type of project that otherwise would be considered to have overriding negative environmental effects.

The POE reports for the past two years emphasized that, "it appears to the POE that not all the GOL personnel share the conservation goals for the NPA." During this year's mission it became obvious that the same must be said of NTPC personnel. Understandably enough, many of the staff in the field are focused on their construction

work for that is what they see as their job. However, it is important that there be clear recognition among the senior staff that the conservation of the NPA has been and remains a key factor in enabling them to undertake NT2.

The POE recommends that:

- 37. Ensuring that NTPC personnel understand and support the conservation goals of NPA would be an appropriate area for attention, including monitoring, by the NTPC Board Chairman's Environmental and Social Advisory Committee (Recommendation # 2), as well as the NTPC environmental officer resident on the Nakai Plateau (Recommendation # 69).
- 38. BOS request that WMPA and POE provide a briefing on the NPA and WMPA activities at a workshop to be held during a POE mission. The World Bank has offered to provide a venue. The attendees would include the WMPA Board members, key officials from relevant ministries, and representatives of the IFIs.

### **5.1.2 WMPA Institution Building**

The Watershed Management and Protection Authority is a totally new type of government unit for Laos. It has responsibilities for conservation activities and protection of the NPA, including the essential patrolling, establishment of guard posts or gates on areas of access, boundary demarcation, research, biodiversity monitoring and public awareness and education. The critical patrolling involves establishing Village Conservation and Monitoring Units (VCMUs) that provide local staff for patrol and monitoring, and all of this requires extensive training and provision of equipment. Further, their area of responsibility extends beyond the NPA itself to the buffer or peripheral impact zones (PIZs), especially in the area of high population to the northwest in Khamkerd District but also on the Nakai Plateau and along Route 12 and the Gnommalat Plain.

In addition to these direct conservation activities, the WMPA is responsible for assisting with development activities for the roughly 6,000 people who live in the watershed. This includes such concerns as land reallocation, development of alternative livelihoods including in the agriculture and food security sectors, and improvements in the health and education areas. There are major planning responsibilities along with the need to develop infrastructure, and all this has to be carried out in ways that augment biodiversity conservation in the NPA.

There is no real precedent for the WMPA in the GOL that can be copied. Therefore the whole organization has to be created and developed from the ground up, including staffing, training, and the finance and administration activities. One result is that it has gotten a slow start, both with institution building and with the field work. However, the POE was very impressed with the very significant start that WMPA has

made in the past two months or so in development work at the Ban Navang cluster of villages (see below, under Development) and in establishing guard posts and patrolling in the Khamkerd District PIZ.

**The POE recommends that:**

- **39. The WMPA give priority attention to institution building, including their internal training system (including SEMFOP, CA, etc.) which the POE considers as WMPA's greatest immediate challenge. But at the same time WMPA should maintain the momentum they have built in initiating the essential patrolling and village development work.**
- 40. In building the WMPA as a new institution, a key concern be the linkage between its conservation and development activities, i.e., integrating the presently separate components into a cohesive whole.
- **41. *The Director of WMPA, and if appropriate, other key senior staff, undertake short term (probably on the order of three month) management training courses. The POE understands that the Director wishes to take advantage of such courses, and the Panel considers this to be of high priority.***

### **5.1.3 Patrolling**

To maintain the integrity of the NPA it is hard to overestimate the importance of guards and patrolling. Experience throughout the world has shown that the number and effectiveness of guards is the most important single factor that determines whether or not protected areas are truly protected. Consequently, WMPA's success in protecting the NPA with both its biological and cultural diversity will be determined by its success in developing and deploying an effective patrol force. The WMPA's initial plans for expanding the VCMUs, patrols and guard posts appear to be practical and within reach of the budget. The POE questions whether the total patrol force in the plans will prove adequate to protect the NPA.

**The POE recommends that:**

- **42. *The WMPA move as quickly as practicable to establish, train and deploy the patrols and set up the key guard posts.***
- 43. The WMPA apply an adaptive management approach to the development of the patrol program, monitoring the results carefully and adjusting or expanding the patrol system if experience indicates that it is necessary.
- 44. The WMPA develop an information management system for the vast amounts of information that come in from the patrols.

#### **5.1.4 Cooperation with other Governmental Units.**

Since the WMPA is such a new unit of government, older units may not be adequately aware of it or of its mission. For WMPA to operate effectively it will need to have good cooperation with several other governmental units. Among these are the Ministry of Agriculture and Forestry, the Immigration Authorities, the Military, and district police and courts. The district police and courts play an important role because when the WMPA patrols apprehend poachers they must take them to the police for legal action. In many countries the police and courts do not recognize the importance of conservation laws and often release poachers with minimal punishment, resulting in the poachers simply returning to continue their activities. It is most important that the police and courts around the NPA take the conservation regulations seriously and deal effectively with persons apprehended by the WMPA patrols.

It is also important that the immigration authorities at the border posts on Routes 8 and 12 strictly enforce Laos' wildlife laws. Reportedly, some of the wildlife poached from the NPA is taken into Vietnam, so strict enforcement at the border posts helps support the WMPA's conservation work.

The Lao military is needed to assist the WMPA by patrolling along the international border with Vietnam. International experience indicates that unless the military are well trained and led, they themselves may represent a threat to wildlife.

#### **The POE recommends that:**

- 45. Steps be taken by the provincial and district governors, the NT2 Steering Committee and the WMPA Board to inform the other branches of government of the importance of cooperating with the WMPA.
- 46. Particular attention be paid to ensuring effective training and leadership for the military who assist WMPA with conservation patrolling along the Vietnam border.

#### **5.1.5 Access to the NPA**

In most of its previous reports the POE has emphasized the importance of strictly limiting access to the NPA. The extraordinary biological and cultural richness of the NPA is due to the lack of access from the outside, coupled with a low human population with a relatively light impact on the biota of the area—which itself is largely due to the lack of easy access. As the POE noted in 2005, “Study after study has shown that the greatest and most globally widespread single threat to the survival of biodiversity is access, and that roads allowing vehicular travel are by far the most dangerous form of that access. This is a worldwide phenomenon, operating in industrialized nations as well

as developing ones, although the impacts are generally much greater in developing nations where legal protections for biodiversity, and the means to enforce them, tend to be less rigorous. Consequently, unless it is extraordinarily well done, provision of access from outside can and almost surely will lead to the demise of the globally important biodiversity values of the NPA and undermine a key component of the rationale for the NT2.”

In the 2005 and earlier POE Reports there was detailed discussion of access, specifying that at maximum two-wheel tractor tracks from the Nakai Plateau be used, with monitoring and check points. The POE prefers that the road from eastern Khamkerd District into Ban Navang be kept as a foot path.

**The POE recommends that:**

- 47. WMPA conduct a careful participatory survey/study to determine what access to the NPA is really needed. Then, on the basis of the results, develop a comprehensive, integrated access plan for the entire NPA, along the lines specified in the 2005 POE report.
- 48. If WMPA wishes to experiment with the Khamkerd District to Ban Navang road as a two-wheel tractor track, it develop a management plan that specifies effective controls, a check point or gate, roving patrols on the track, careful monitoring, and review of the results after perhaps three years, before a final decision is made on the future of the track.

**5.1.6 Research in the NPA**

In previous reports the POE has discussed the desirability of establishing small field research stations in the NPA for approved biological and social research. Any research that is undertaken will require some investment of time and/or facilities by WMPA. Therefore it is important to assure that any research that is conducted by outside individuals or organizations be designed to contribute directly to the objectives of the SEMFOP, and that the WMPA receive the relevant results promptly. Consequently, the WMPA must have a central role, with the Ministry of Foreign Affairs and STEA, in coordinating, reviewing and approving or recommending approval of proposals for such research. The POE learned that several botanic surveys in the NPA from outside institutions or companies had been approved by GOL with no reference to WMPA and apparently no consideration to protecting itself from bioprospecting.

**The POE recommends that:**

- 49. GOL give the WMPA an advisory or decision making role for any proposals to conduct research in the NPA.
- 50. The WMPA establish criteria for acceptance of research proposals,

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

### **5.1.7 Bioprospecting**

The indigenous medical knowledge (e.g., of medicinal plants, animals, etc.) of the people living in the NPA, along with the richness of biological diversity, offer a great potential for discovering biological materials of significant value in pharmaceuticals and other biotech endeavors. Until recently foreign biotech or pharmaceutical companies have conducted bioprospecting (searching for biological-based materials of value) in developing nations, occasionally finding substances that netted the companies millions or hundreds of millions of dollars, without returning a cent to the countries of origin. The POE believes that Laos should protect itself from this kind of biopiracy, and receive the economic benefit of any bioprospecting that is done in the country. The Convention on Biological Diversity (CBD) was developed, in part, to stop this biopiracy and assure that the countries of origin receive fair recompense.

#### **The POE recommends that:**

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

### **5.1.8 Wildlife Exploitation by Contract Labor**

With hundreds of laborers on and around the plateau there is a certainty that without effective control they will hunt or purchase wildlife from the local villagers, both for food and for animal products (skins, medicines, etc). This poses a threat to the resettlers' reserves, wildlife on the plateau itself, and the more abundant wildlife in the NPA. Senior contract and other NTPC staff have a clause prohibiting such trade in their contracts, but the problem will be with the labor force. The POE was pleased to be informed that there was an intent by the Contractor to provide ongoing (since workers shift into and out of the labor force) instruction to the labor force.

#### **The POE recommends that:**

- *52. There be a comprehensive plan prepared by the Contractor to control wildlife exploitation; that the plan be shared with WMPA; and that the plan call*

*for zero tolerance, i.e., that workers who exploit wildlife will be fired immediately.*

## **5.2 Livelihood Development**

In this first year of operations there are some imbalances between the resources and energies going into conservation activities in the watershed as compared with development activities. This is to be expected in a period when a new and unique institution is being created from the ground up. Conservation is attracting marginally less investment from the WMPA budget and there is less conservation work underway than developmental. But this current imbalance is less marked in the important Khamkerd peripheral impact zone (PIZ) where the Khamkerd Division of WMPA has initiated more comprehensive monitoring and patrolling in recent months.

An impressive start on livelihood development has been made in the adjacent pilot villages of Ban Navang and Ban Kajing. The POE spent a couple of days there. Absorbing the lessons of rural development projects elsewhere, the first step taken by the WMPA has been to work closely with the villagers on boundaries, land use zoning and allocations. Broad agreement has already been reached on the delineation of three forest zones (for conservation, protection and use) and on the allocation of almost two thirds of the planned new padi to poor families in the less affluent village of Ban Kajing. They will be issued Temporary Land Use Certificates and will have access to hand tractors to plough the padi land and to rice seed. This is a significant first move in terms of poverty alleviation.

The next step in a multiple step process is to agree on detailed family-by-family agricultural land allocation plans. The expectation is that this will be completed within the next month. Negotiations over forestry allocations will follow.

This is good progress and reflects credit on the flexibility of the villagers and their negotiators and on the WMPA staff working with them. Some issues which have arisen during the process are the existing uneven distribution of land from earlier allocation exercises, with land held by influential families not being fully used---and the better off tending to influence the participatory processes more than their neighbors. Nevertheless, as already observed, more equity has now entered into the distribution of new padi land and further adjustment of historical imbalances can be expected to follow.

A review of lessons learned thus far is underway. The next phase is for the Village Development Committee (VDC) to start taking decisions on how the funds available for livelihood development are to be used. Decisions on fund and resource use will continue to be participatory. Progress is not confined to the Ban Navang area---a start has been made on data collection in seven PIZ villages looking to developing plans for promoting forestry and agriculture in the vital buffer zone areas.

POE Views:

It is too soon to be predicting the eventual outcome of these promising first steps. The history of such programs is a checkered one, not least in Laos. Some of the lessons learned in other Nam Theun tributary valleys eight or nine years ago about what new crops are attractive to the watershed dwellers, and how well they adapt to the new techniques required to cultivate them successfully, bear study by the WMPA's livelihood specialists. Weaning the villagers away from a preoccupation with trying to expand rice production in essentially unpromising circumstances is a key goal. Convincing them that growing vegetables, fruit and cash crops is a surer way to break out of the poverty cycle is the next objective. But the pragmatic step-by-step process being followed in Ban Navang/Ban Kajing is encouraging in its early successes and high level of acceptance and involvement by the villagers.

A slower start has been made in getting planning, let alone action, going in the health and education sectors. Morale among teachers in the cluster is low because the nine teachers trained by the World Bank's LIL program have not received pay for around eighteen months. The reasons for this are far from clear but the matter calls for quick investigation by the District authorities. One trained paramedic working with basically trained health volunteers provides the only health service in the nine cluster villages. The early provision of a motor cycle and fuel would help him visit patients around his substantial parish more often. Further identification of areas for building up preventive health services is needed.

The glue which is intended to bind the various programs---including the conservation side---together is the Participatory Integrated Conservation and Development (PICAD) approach. In a nutshell, PICAD is an endeavor to link conservation and development activities so that each benefits the other. The object is to bring the villagers into the conservation process in an active way and to compensate them for giving up those traditional livelihood activities---hunting and foraging of rare and endangered species, for example---which are detrimental to conservation by introducing other less damaging livelihood options. At this point some villagers argue that they have given up more than they have gained, which underlines the urgency of building on the land allocation and livelihood advances thus far achieved in Ban Navang---and of moving on as swiftly as possible from the pilot village cluster to other clusters in the wider watershed. The WMPA management is aware of this.

In summary, the WMPA, bolstered by some good local staff and able and committed technical assistants, is making good progress its initial months in operation. The usual question marks over capacity remain but training at all levels---not least top management---is being given attention. There is much cause for optimism since the Authority's finances are guaranteed for three decades ahead, a far cry from the stop-start situations of the past. The POE will help where it can to maintain the momentum in this key sector of the project.

**The POE recommends that WMPA:**

- 53. Learn from past research---study the reports of IUCN field teams working on livelihood development in watershed villages in the late 'nineties.
- 54. Begin weaning the watershed dwellers away from the preoccupation with rice cultivation, looking instead to new nutritious crops and high value cash crops.
- **55. Investigate why the trained teachers are not being paid and restore their salaries.**
- 56. Identify areas for more effective preventive health work.
- **57. Build on success by holding the WMPA field teams together and moving on as swiftly as is prudent from land allocation and livelihood development in the pilot villages and cluster to other clusters throughout the watershed.**
- 58. Develop further the emerging ideas on how to achieve on the ground integrated conservation and development.

## **6. THE XE BANG FAI RIVER BASIN**

For nearly a decade the POE has been pointing out that in this multi-sectoral poverty alleviation project the greatest number of affected people live in the area through which the inter-basin transfer of large volumes of water will flow. This represents both a threat and an opportunity. The threat lies in the risk of greater flooding, in backwater effects on the Xe Bang Fai and its tributaries, in surge problems arising out of the variable weekly production cycle, in the probable loss of water quality in the short term, in the predictable loss of riverside gardens and fish stocks. The opportunity lies in making maximum use of the turbined and aerated waters to sustain year-round and diversified cropping and fish farming. Less than three years from when the water transfers begin there is no concerted river basin wide plan to alleviate the risks or exploit the opportunities. Partly as a result, donors are hanging back.

The public sector in Laos has been decentralized. That is often advantageous especially if responsibilities and resources are moved closer to the development front as has largely happened in Laos. But the center retains a coordinating role in a decentralized system: it must view issues from a national viewpoint, plan on a nation-wide scale, assign national and donor resources to priority areas and ensure that inter-provincial cooperation occurs. In the case of a project like NT2, the nation's largest, it may be only at the national level that the mountains-to-the-Mekong approach we have advocated can be achieved.

There is little evidence that such planning is occurring at the moment. The POE is aware of no documentation from the Lao National Committee on Energy, the NT2 Steering Committee or the Committee on Planning and Investment that addresses NT2 regional or integrated river basin planning and development issues. What irrigation planning is ongoing is on a scale which does not take into account either the dearth of donor funds or the growing body of technical opinion that “small is beautiful” in designing rural irrigation and flood control mechanisms and systems in Laos---as elsewhere (See the final report of MAF’s Decentralized Irrigation, Development and Management Sector Project(DIDM) and Tan Piao Projects Evaluation Mission, September 2005). The most recent report from the center, for example, proposes a million dollar pre-feasibility study for a 20,000 ha irrigation development in the Upper XBF Area, 80,000 ha in the Middle Area and 100,000 ha in the Lower Area. While the Khammouane Department of Irrigation several years ago drafted a proposal for pre-feasibility studies of smaller scale community irrigation projects in the Upper Area, at the 25 January 2006 Thakhek meeting with the POE the two provinces involved emphasized high cost major flood control projects, including water gates at the mouth of major tributaries, as opposed to a more realistic and smaller-scale flood management approach for increasing agricultural and fisheries productivity. The final report cited above suggests that it is the modest mechanisms, largely managed by the immediate users themselves but with technical backing from the District, well operated and maintained and tied to well-researched and implemented crop diversification and marketing plans which are the most sustainable irrigation initiatives.

What this suggests is that the emerging proposals of the consultant engaged by NTPC to work on downstream impact mitigation, while not yet in final form, appear to incorporate many of the lessons learned over the years. What is needed in his view is rehabilitation of existing gates, improved community operation and management of them and an adequate early warning system when flooding is expected. There are tentative proposals for a new reregulating weir on the Nam Phit below the project water channel, the object being to enlist the natural wetland there to help absorb some of the expected 2-3 metre surge problem on weekends from the weekly shut down of the turbines. The POE would wish to see more testing of this concept--- this is envisaged.

Beyond the mitigation projects there is scope for a number of small gravity-fed irrigation schemes drawing on the turbinized waters of the project channel. A recent World Bank report by Chris Jackson suggests that a number of such new schemes are likely to be economically justified, his view being that converting high-cost lift-irrigation (pump) schemes to become gravity-fed schemes sourced from the downstream channel are probably the most attractive. We agree.

In the meantime the NTPC is pressing ahead with planning for out-takes from the downstream channel to the existing irrigation area on the Gnommalat plain to the West of the channel. This is a gravity-fed system and should permit significantly increased dry season crop cultivation. Jackson stresses that: "It is incumbent on both the Government and NT2 contractors to ensure the construction of the channel includes an appropriate number of gates not only for immediate need, but to cater for future schemes. The

additional cost of retro-fitting out-takes is likely to be very high." The POE trusts that there will be early and productive consultations between the District and Provincial irrigation people and the NTPC on the precise number and siting of out-takes and that negotiations will begin at an early date on the management arrangements for the out-take operations. It will not reflect well on the company, the GOL or indeed the World Bank and ADB, if these early opportunities to use the project's turbined waters are not taken up.

The NTPC is pressing ahead with planning for out-takes from the Downstream Channel to the existing irrigation area on the Gnommalat plain to the West of the Channel. This is a gravity-fed system and should permit significantly increased dry season crop cultivation. It is to be hoped that there will be adequate consultation with the District and Provincial irrigation people on the precise number and siting of these out-takes. Similarly, a diversion channel permitting release of turbined waters into the Nam Kathang is planned by the Company. This would enable the eastern Gnommalat plain, where there is substantial potential for dry season production of both rice and higher value cash crops, to benefit from the greater all-season flow.

#### POE Views:

Regrettably enough, at this point there seem to be no agreed offers to help finance this latter very valuable gravity-fed irrigation opportunity; indeed, major donors appear to be pulling back. The NTPC resolutely declines to do so---they have at least been consistent in this regard, as has the POE in believing that the Company would acquire considerable kudos for a relatively negligible outlay on a sub-project which some still see as a mitigation measure. Alternative sources are the World Bank, the ADB---which has invested in irrigation management---and the Agence Francais du Developpement, which has acquired a deserved reputation as one of the external agencies which handles with skill the always sensitive task of promoting integrated rural development. To implement the eastern Gnommalat exercise the NTPC's downstream consultant might work with the AFD and/or the ADB and the District Irrigation Department to put together quickly a project proposal for an irrigation/rural development project there which might appeal to the AFD or the ADB. The opportunity to make use of the turbined waters in this way must be taken up.

The lenders have agreed to expenditure of \$14 million on countering flooding impacts in the downstream Xe Bang Fai, including developing livelihood options. As noted above, the tentative proposals for flood management and irrigation works seem realistic though the POE would wish to see them in their final form. One of the most potentially damaging impacts of the greatly increased flow in the Nam Phit and the Xe Bang Fai is the backwater effect in the tributaries with flooded fields undermining food security. The intention is to use gated polders and/or dykes to safeguard the fields. The NTPC consultant argues for low technology measures like closing dykes with filled sandbags rather than expensive gates "which break down". While it would be possible to interpret this stance as simply an attempt to cut costs the POE is inclined, on the basis of experience on other projects, to share the view that low and intermediate technologies

coupled with improved community maintenance and management practices are a surer way to achieve sustainability in irrigation and flood control than more spectacular works.

On the lower XBF recent data shows that floods are frequent and arbitrary---indeed they are considerably more frequent than NTPC had been saying earlier. This being so, a multi-zone Early Warning System (EWS) for floods is required. The most urgent need is upstream. An effective flood warning communication system to the plateau villages which will be affected if this year's wet season rivals the last is not in place as yet. The contractor needs to expedite plans to put one in place---and extend it in due course to the XBF.

Of course it is not enough by way of mitigation simply to upgrade flood management and irrigation systems. Livelihood development programs are being devised and to some extent rewritten. The downstream consultant reports that a survey conducted in 2005 shows big changes in household income since the Social Development Plan was drawn up on 2001. One of the bases for the change is statistical: the SDP did not record remittances as income---but in the lower XBF in particular, with many household members working at least part-time in Thailand, remittances are a large factor in incomes.

This, plus an earlier tendency to over-estimate the contribution of agriculture and fishing to incomes, has necessitated some rethinking of livelihood programs. A greater emphasis on home gardens---driven in part by nutrition imperatives--and demonstration farms, provision of better veterinary and vaccination services to livestock owners ( who currently lose perhaps 50% of their stock to disease and inadequate fodder) and promotion of the cultivation of higher value cash crops rather than rice are some of the changes contemplated. The cash crop program must be preceded by a hard-nosed marketing survey to try to ensure that crop farmers are producing harvests for which there are proven markets. The proximity of northern Thailand to the XBF promises better selling prospects for the lowland farmers than for those seeking diversification in the mountain valleys.

Rethinking of fisheries proposals is also going on. The calculation is that over-fishing of the XBF and its tributaries is now rife. The POE saw two years ago nets stretching across the entire width of the XBF and this is common (if illegal). Twenty-eight villages are to be included in the initial testing program. More emphasis will be placed on aquaculture, of which there is very little at the moment---more often what is seen as aquaculture amounts in practice to entrapping of wild fish. Pond culture is a new technology. A small pilot project involving the introduction of male tilapia and their release into the rice fields at the outset of the wet season is being set up in the hope that others will follow a successful lead. Care has to be taken in the transferral and feeding of commercial species. The most productive systems are those which use both wet and dry season cycles.

The fisheries sector has been controversial from the beginning of the NT2 project. The NTPC has moved on from the simplistic "more water means more fish" approach to

more scientific monitoring and planning. But the prospects for fishing in the XBF and its tributaries in the medium term, dependent as they are on many variables, remain a matter for speculation rather than firm expectations. This is a sector which should be monitored closely from this point on.

The new ideas on livelihood development in the XBF zone now being advocated involve more than a top down approach. The key element in the system is to be Village Development Committees, with associated “focus groups” covering sectors such as fishing, agriculture, livestock, flood management, handicrafts etc. Disposition of livelihood funds will be handled by the VDCs. Farmers, fishers, women agricultural workers etc. will be represented directly on these Committees. Initial experiences are apparently encouraging.

The POE awaits with interest the imminent production of the NTPC downstream consultant’s report on flood management, irrigation and livelihood development in the XBF.

**The POE recommends that:**

- 59. A river basin-wide approach be adopted for taking up from the outset the opportunities for using the turbined waters emerging from the NT2 powerhouse for dry season irrigation in the downstream areas of the Xe Bang Fai. It should be coordinated on a national basis and from a high level.
- **60. *Early consultations be held between the Company and the District authorities on the precise siting and number of out-takes from the Water Channel for irrigation of the Western Gnommalat plain.***
- **61. *Similarly, the prime opportunity for a ready made gravity feed irrigation project in the Eastern Gnommalat plain be developed further, preferably by a design team including both the NTPC downstream consultant and the District Irrigation Department, and funding discussed with the ADB and/or the AFD.***
- 62. An Early Warning System for flooding be set up for the dam and the reservoir basin villages for the coming rainy season, to be extended subsequently by the NTPC to the downstream XBF zone.

## **7. REPORTING AND MONITORING**

### **7.1 Reporting**

Reporting regularly on a complex multisectoral project like NT2 and---partly through such reports---monitoring developments is particularly important in the first two

or three years of implementation. Events are happening fast, construction is modifying whole landscapes, roads are being carved through forests, those unforeseen but predictable events to which we refer elsewhere in this report are suddenly upon us. The content and veracity of the reporting is one of the few means by which occasional visitors like the POE can hope to perform their monitoring role effectively when not on site.

We have to record that the POE has not been well served in this respect in the first nine months of implementation. All parties have fallen short. While the Company has been the most meticulous of the reporting agencies, even its voluminous tomes---now being made available through a special website---tend to be rather bland in tone and substance. It is not always possible to determine from them what exactly has been done in response to an emerging problem on say, the environment front.

The World Bank and ADB and the various GOL agencies producing material of considerable interest to the POE appear to have no mechanisms which automatically trigger a “copy to POE” response when a paper of relevance to our work is produced. Thus we have still not seen papers on impacts below the dam and on the cumulative impacts of the project which emerged months ago. Nor did we see papers on the salvage logging road which might have alerted us early on to what we regard as a flawed process. This is disconcerting and must be remedied. The Concession Agreement spells out many instances of reports which are to be copied to the POE but a foolproof system is called for which ensures that those working documents which are prepared in response to crisis situations are made available to us---and the IAG---as a matter of course. We have requested that an individual be designated in each agency to take on the responsibility for seeking out and sending us both regular and occasional reports of relevance to our role.

## **7.2 Monitoring**

The problem has been exacerbated because of the appalling lack of progress in this vital first year in setting up the external and internal monitoring systems called for in the CA. Debate has gone back and forth for months on the precise form the external monitoring units should take---should there be one or three external agencies, for example, and should individuals be hired or firms?---but the end-result is that there has been no on-the-ground monitoring except that undertaken by the implementing agencies themselves. This is not an acceptable situation.

The POE believes on the basis of worldwide experience that it is preferable to hire locally-based firms to undertake external monitoring functions since they are on the spot all the time, speak Lao and can draw on wider resources than an individual. We accept the argument for three units though this will prove expensive. What is important is that the World Bank and GOL agencies concerned now move fast to put in place a system which works. We were relieved to hear on our last day in Vientiane that agreement has been reached on a basis for STEA to perform its important internal environmental monitoring functions.

The POE recognizes that managers in both the GOL and the development banks

have been under pressure this past year to deliver a host of solutions to urgent problems. Our point is that setting up effective monitoring mechanisms early on would have helped inter alia to reduce the oversight burden on them.

**The POE recommends that:**

- **63. The GOL and the World Bank give urgent priority to the establishment and support of both the internal and external monitoring systems called for in the Concession Agreement.**
  
- **64. *Regardless of what other surveys are subsequently agreed upon, the 1998 NTEC random sample survey of 320 NT2 dam affected households on the Nakai Plateau be used, with any appropriate modifications, as the baseline survey for livelihood monitoring and that households in that survey be re-interviewed twice annually until resettlement has been satisfactorily completed as stipulated in the CA and the SDP.***
  
- **65. *The NTPC devises more responsive and transparent systems for righting environmental impact problems as they arise.***
  
- **66. *The Environment Office of NTPC have an experienced, senior environmental officer, supported by adequate staff, resident on the Nakai Plateau. The officer must have experience working with construction activities and must be solution-oriented, so that he/she is able to identify potential problems and work out timely solutions with the Head Contractor or his officers.***

Cautionary Tales

We record below two cautionary tales about what happens when monitoring systems are either not in place or are not doing their job.

Dam Site Access Road:

It had been accepted for some time that a new road was required to the dam site from roads accessing the quarry, for example. This was a sensitive exercise because the road would go through a designated wildlife corridor, for which special conditions apply. A specification for the new road was set out and reportedly approved by the GOL. Approval was then sought by the contractor, apparently at very short notice, to clear vegetation from the road bed and either side of the proposed route. The Company contends that their people adhered to the letter of the specifications. MAF states that the work went ahead before approvals from the GOL side on vegetation-clearing were forthcoming. The operation is underway.

The POE is disturbed at the consequences. A 100 metre swathe has been cut through pristine forest over much of the route. The large logs have been mostly removed but much of the smaller timber and brush has been bulldozed to the forest edge and set alight, a dangerous practice in the middle of the dry season since the fires will often eat into the forest itself (the Concession Agreement requires that such burning be done “in an environmentally acceptable manner”). An extremely wide roadway is being constructed--it is possibly the widest road in Laos, being greater in width than the nearby heavily used Route 8 between Laos and Vietnam, for example. Yet this is a road with effectively a three year life span since there will be no need for more than a light traffic road after construction is completed. The cost to the Company must be considerably more than a more appropriately designed road.

#### POE Views

The POE has three points to make:

- (1) The specifications themselves have been exceeded in two respects. The width of the road was specified as 7 metres; in reality the “formation width” approaches 12-14 metres in places. And whereas 100 metres of vegetation clearance was required in only a few places to undertake cut-and-fill operations this seems to have been taken as licence to begin clearing to 100 metres or so over a good proportion of the route.
- (2) The design specifications are inappropriate for a short-term road going through steep country in a forested wildlife corridor in a developing country. Though there could be up to 300 trucks a day using the road at peak, to set a maximum gradient of 8% and a minimum horizontal curve of 60 metres is an example of gross over-design in the circumstances. The trucks being used elsewhere on the project are handling much greater gradients, tighter curves and narrower roads than this with ease.
- (3) Over-design with damaging consequences to the environment like this should have been picked up early on by the NTPC---and by whichever GOL agency has responsibility for signing off on the road specifications.

To its credit, the NTPC acknowledges frankly that a mistake was made. We have requested that to the extent the mistake can be rectified at this point they try to do so.

**The POE recommends that in relation to the dam road the NTPC:**

- **67. Review the gradient and curve specifications so as to reduce the impact on the corridor**
- **68. *Reduce the road width over the remainder of its length to the specified 7 meters***

- 69. Clear vegetation only to the extent that revised gradient and width specifications absolutely require
- 70. Replant those areas (with native trees) which have been excessively cleared.

#### Waste Disposal:

Given the dearth of external monitoring mechanisms in place the POE had to be selective about which aspects of the project it concentrated on. We took a conscious decision not to attempt on this mission to monitor all construction sites, for example, for environmental impacts. Nevertheless we were able to visit most sites. There remain some problems about how to dispose of toxic waste from the two major sites---it is simply being collected in one spot until a solution is devised---and we were led on occasion to question how seriously some company construction managers were taking warnings from their own environmental monitors on such issues as the ineffectiveness of sedimentation control measures from the Access Adit and powerhouse sites and the negative impacts of construction activities on the ambient water quality of the Nam Kathang.

We will look more closely at sites and at the response systems when we visit again in August 2006.

#### Reporting and Monitoring - Summary

In summary, the project is at risk of not receiving timely warnings of potentially damaging developments when it is not being adequately monitored. As both the gold mining episode and the dam site road mistake illustrate vividly, the costs of such undetected happenings mount quickly---to say nothing of the impacts on the environment and people. This is an area calling for swift action by all involved in both internal and external monitoring operations.

### **8. POSTSCRIPT**

In the final days of its mission the Panel briefed GOL, NTPC, and the IFIs on the findings and recommendations that are detailed above in this report. The Panel was gratified to hear positive responses to many of its key recommendations from GOL, WMPA, the IFIs and NTPC. NTPC produced a revised management plan to incorporate some of the key points, and the POE was asked to return in about six months to review progress on the recommendations.

### **9. CONTINUING ACTIVITIES OF THE PANEL**

The Panel anticipates or is available for the following activities in the coming year:

- Return visit to Lao P.D.R for a two week mission in August, 2006, as requested by GOL and NTPC.
- Desk review of revised studies, plans or other documents as requested;
- Consultations and/or presentations with World Bank, Government officials, NGOs, and others;
- Next dry-season three week visit of the Panel to Lao P.D.R. in January 2007.

## ANNEX 1

### **ANNEX 1: ABBREVIATIONS, ACRONYMS AND GLOSSARY USED IN POE REPORTS**

ADB	Asian Development Bank
AFD	French International Development Agency
Ban	Village
BPKP	Bolisat Phathana Khet Phudoi (Mountainous Region Development Company
CBD	Convention on Biological Diversity
COD	Commercial Operations Date
Company	Nam Theun 2 Power Company Limited
DAFO	District Agriculture and Forestry Office
DRWG	District Resettlement Working Group
DUDCP	District Upland Development and Conservation Project of the World Bank
EAMP	Environmental Assessment and Management Plan
EMDP	Ethnic Minority Development Plan
EU	European Union
GIS	Geographic Information System
GOL	Government of Lao P.D.R.
IAG	The International Advisory Group for NT2 of the World Bank
IFIs	International Financial Institutions
IUCN	The World Conservation Union
Lao P.D.R.	The Lao People's Democratic Republic
LIL	Learning and Innovation Loan
IMA	Independent Monitoring Agency
LNCE	Lao National Committee on Energy
MAF	Ministry of Agriculture and Forestry
Nam	River

NBCA	National Biodiversity Conservation Area (protected areas created by GOL Decree)
NGO	Non-governmental Organization
NNT-NBCA	Nakai-Nam Theun National Biodiversity Conservation Area (a portion of the NT2 Project, most of which is in the water catchment area of the project reservoir) which was created in 1993
NPA	National Protected Area, the name now being used for the NNT-NBCA
NT2	Nam Theun 2 Hydro-electric Project
NTFP	Non Timber Forest Products
NTPC	Nam Theun 2 Power Company
Panel, POE	The International Environmental and Social Panel of Experts for the NT2
PICAD	Participatory Integrated Conservation and Development
PIZ	Peripheral Impact Zones
RAP	Resettlement Action Plan
RC	Resettlement Committee
RMU	Resettlement Management Unit
RO	Resettlement Office of the NTPC
SDP	Social Development Plan
SEMFOP-1	Social and Environmental Framework and 1 <sup>st</sup> Operational Plan for the Watershed Management and Protection Authority
TA	Technical Assistance (position)
TOR	Terms of Reference
UNDP	United Nations Development Programme
UXO	Unexploded Ordnance
VDC	Village Development Committee
VG1	Village Group 1
VG2	Village Group 2
WB	World Bank
WMPA	Watershed Management and Conservation Authority
XBF	Xe Bang Fai

**Clarification**

The Government estimates that the number of workers engaged from the sources outside the Plateau for the salvage logging operation is around 100 to 150.