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**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**NAM THEUN 2 HYDRO PROJECT**

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

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Thayer Scudder

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Lee M. Talbot

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T.C. Whitmore

**Ministry of Industry and Handicraft  
Vientiane, Lao PDR  
Final Report - January 24, 1999**



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PANEL OF EXPERTS**

**For the Nam Theun 2 Hydro Project  
Lao Peoples Democratic Republic**

**Vientiane, Lao PDR  
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## SUMMARY OF RECOMMENDATIONS

The POE recommends:

1. that the World Bank uses its good offices with both the Thai government and EGAT to hasten the conclusions of the power purchase agreement (Section 1).
2. that, as a condition of WB Appraisal, the first stage of protecting the catchment forests of the basin should encompass the NNT-NBCA and include the corridors to the Khammouane Limestone NBCA and Hin Nan No NBCA (Section 1).
3. that NT3 be reinvestigated and the catchment of NTH and NT3 including especially the Northern Extension, be protected as soon as possible by actions centred on Bolikhamxai Province (Section 1).
4. that GOL explore with UNDP the creation of a Trust or Trust funds for the environmental and socio-economic aspects of NT2 along the lines of the LAO PDR UXO and HIVAIDS Trust Funds already established in Lao PDR (Section 2).
5. that a very small percentage of revenue from the sale of NT2 electricity be incorporated within a Trust Fund for servicing the project area (Section 2).
6. that the Governor of Khammouane Province becomes Co-Chairman of the Board of Directors of the NT2 Watershed Management and Protection Authority (Section 2).
7. that an international Engineering Panel of Experts (Dam Safety Panel) should be appointed before World Bank appraisal of the NT2 Project (Section 2).
8. that the LIL cover as much as possible of the continuation and strengthening of the on going conservation and development effort in the project area that ends in February, 1999, and that additional bridging funding be found for the conservation components as a matter of urgency (Section 3).
9. that the World Bank appoint a full time Task Manager and resident staff for the NT2 Project (Section 3).
10. that efforts to obtain the necessary support and to identify and develop the needed social and environmental capacity be initiated without delay, and suggests that among other approaches, the project explore the possibilities of cooperation with UNDP for this purpose (Section 4).
11. that before WB appraisal anti-poaching activities be strengthened and given higher priority throughout the NT2 area, and in the villages near the border or elsewhere

where poaching is a problem the village militia should be augmented by district security forces. This, in turn, requires adequate funding to assure that the security forces do not rely on the villages for support, as well as to provide for incentives for the anti-poaching work (Section 5).

12. that border markets be established and trans-border trading be phased out within the NT2 area, since wildlife and forest products are the currency which the traders receive for their products (Section 5).
13. that the GOL support proposals such as joint border patrols, an international trans-border park, border markets, and World Heritage status, which may come from the Lao-Vietnamese Conservation Initiative (Section 5).
14. that GOL begin preparations as soon as possible for applying for World Heritage Status for the NNT-NBCA, as appropriate with assistance from the UN system. The POE notes that the IAG during their second mission recommended that GOL apply for World Heritage status for the NNT-NBCA by 30 June 1999 in time for consideration by the World Heritage Bureau, UNESCO in the year 2000 (Section 6).
15. that development plus conservation activities continue in the core NNT-NBCA area, aiming progressively to spread out from the pilot villages to cover the whole area (Section 7).
16. that the western boundary of the NNT NBCA (where it runs close to or through inhabited country) is demarcated and stabilised (Section 7).
17. that highway 8B where it runs through the corridor to the Khaummouane Limestone NBCA is policed to prevent hunting and settlement along its margins (Section 7).
18. that as a matter of urgency and before appraisal the revised ESMP report needs to have a prioritised and focussed work programme that includes a realistic budget and is on a scale comparable to other GOL priority activities (Section 7).
19. that the incorporation of district personnel in resettlement planning and implementation be accelerated to the extent possible, with the major qualification that more emphasis be placed on district planning "with" the villagers as opposed to planning "for" the villagers (Section 8.3).
20. that district personnel further incorporate villages within the decision-making process as to pilot village selection and the timing and nature of pilot village activities (Section 8.3).
21. that the primary reasons for determining the size of resettlement villages must be

the preference of the villagers themselves linked to the capacity of the resettlement sites to provide the necessary economic opportunities (Section 8.3).

22. that all design features for the regulating reservoir at the exit of the power station be checked by the forthcoming Panel of Engineering Experts (Section 8.4).
23. that a monitoring program of current fish migrations and fishing activities in the Xe Bang Fai be initiated by the 1999-2000 dry season at the latest (Section 8.4).

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## INTRODUCTION

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

This is the fourth report of the International Panel of Environmental and Social Experts (POE or the Panel)<sup>1</sup> for the Nam Theun 2 (NT2) Project in the Lao People's Democratic Republic. The Panel's previous reports covered its visits to Laos in January and February, 1997, July, 1997, and January, 1998.

The Panel's primary responsibility is to provide independent review of and guidance on the treatment of environmental and social issues associated with the NT2 Project<sup>2</sup>. The Panel's findings and recommendations are submitted directly to the Ministry of Industry and Handicraft of the Lao PDR, and thereafter are to be made available for distribution to the World Bank, 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 its area of responsibility includes the entire Nam Theun River basin from the border of Vietnam to the Mekong River, the Nakai-Nam Theun National Biodiversity Conservation Area (NNT-NBCA) which is a portion of the NT2 project catchment area, proposed extensions to the NNT-NBCA, inter-basin transfers from the Nam Theun to the Xe Bang Fai and Nam Hinboun rivers, 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 planning for the NT2 project meets relevant World Bank guidelines including those for environment, indigenous people, and resettlement with development.

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<sup>1</sup> The Members of the Panel of Experts are:

F Scudder, California Institute of Technology, USA  
L.M. Falbot, George Mason University, Virginia, USA  
F.C. Whitmore, Cambridge University, UK

<sup>2</sup> The Terms of Reference for the POE are under Annex I of the Panel's First Report, February, 1997.

## Summary of Panel Activities

The Panel members arrived in Vientiane on January 3, 1999. Three days were devoted to initial meetings and consultations in Vientiane including the Prime Minister's Office and the various line Ministries and other units of the Government of Laos (GOL) which are involved with the NT2 project. An additional day was spent on an inspection by helicopter of the Nam Ngum dam and reservoir, Nam Ngum 2 and Nam Ngum 3 dam sites and water catchment areas. Along with previous on-site visits by Panel members to other hydro-power sites in the Lao PDR, this visit has provided the Panel with an important perspective on its work with the NT2 Project. In the following eight days the Panel traveled through the area of its responsibility, primarily visiting portions of the area which it had not seen on previous visits. Among the visits were the following (see Annex I for detailed itinerary):

- An extensive overflight by helicopter to view the Theun Hinboun dam and reservoir, most of the Nakai Plateau from the NT2 dam site to the south-eastern edge, much of the NNT-NBCA including the dividing hills and areas of settlement, and the proposed Northern Extension to the NBCA. Stops were made at villages including Ban Makkeuang.

- Three days by foot in the forest area of the Central Mountains along the abandoned logging track above Ban Navang and in the surrounding forest and hill areas:

- Two days by foot and local boat down through the dividing hills to the Nakai Plateau;

- Two days on the Plateau visiting the demonstration farms, villages and resettlement areas, and consulting Nakai District officials;

- One day inspecting the regulating pond and channel which will convey the water from the project to the Xe Bang Fai, visiting a pilot community of the FOMACOP community forestry project, and meeting with the Provincial Vice Governor and other officials in Thakhek.

Two days were spent in Vientiane attending the National Public Consultation and Participation Workshop to discuss the final Resettlement Action Plan (RAP) for the NT2 project. The remainder of the visit was spent on consultations and review of reference information in Vientiane and in preparing this report and briefing officials.

In addition to following the progress of the project and noting changes in various parts of the project area, this fourth mission has enabled the Panel to examine parts of the area which it has not previously seen, especially the old growth dry evergreen lower montane forests at 900 to 1200 meters elevation in the NNT-NBCA.

## Organization of this Report



As with the third report, the Panel felt that this report would be most useful if it focused only on a limited number of issues. The Panel's first report (February 1997) should be consulted for a more comprehensive overview and description of the Nam Theun 2 Project and broader perspective on the environmental and social issues involved.

To facilitate comparison and monitoring of recommendations, the subjects covered by this report are presented in the same order as in the POE's previous report. The specific POE recommendations are set in bold type and numbered.

### **Acknowledgments - Appreciation**

The Panel met with GOL officials at Central, Provincial and District levels, and project staff, as well as with representatives of the World Bank, UNDP, NTEC, THPC, IUCN, non-governmental organizations (NGOs), relevant embassies, and villagers and other residents of the NNT-NBCA and other 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 the Minister of the Ministry of Industry and Handicraft, the Nam Theun 2 GOL Representative, and their staffs, especially Phalim Daravong and Bounsalong Southidara for overall organization and arrangements including the helicopter overflights.

We are particularly grateful for the organization and arrangements made by Stuart Chape and John Baker of IUCN and the local district and village officials who enabled the Panel to make the field visits to the forest and other areas within the NNT-NBCA, and to Jean-Christophe Delvallet and the staff of NTEC, especially Loy Chansavat and Peter Goldston, who organized the other parts of the Panel's field visits. Thanks to these fine arrangements it was possible for the Panel to see and accomplish so much in a short time under difficult field conditions.

For expert knowledge of the wildlife and for other assistance in the field we also wish to express thanks to Mr. William Robichaud and Michael Hedemark of WCS, William Duckworth of IUCN, Mr. Soukata Vichit of STENO, and Mr. Bounthong Xaysida of the Department of Forestry.

### **ABBREVIATIONS, ACRONYMS AND GLOSSARY**

ASEAN	Association of South East Asian Nations
CPAWM	Center for Protected Areas and Watershed Management of the Department of Forestry, Ministry of Forests and Agriculture
EGAT	Electricity Generating Authority of Thailand

ESMP	Environment and Social Management Plan for Nakai-Nam Theun Catchment and Corridor areas
FIMC	Foreign Investment Management Committee
FOMACOP	Forest Management and Conservation Project (WB, Finland, GOL, GEF)
GOL	Government of Lao P.D.R.
HPO	HydroPower Office
IAG	The World Bank's International Advisory Group for NT2
IUCN	The World Conservation Union
Lao P.D.R.	The Lao Peoples' Democratic Republic
LIL	Learning and Innovation Loan of the World Bank
Nam	River
NBCA	National Biodiversity Conservation Area (protected areas created by GOL Decree).
NGO	Non-governmental Organization
NNTCA	Nakai-Nam Theun Conservation Area (the NT2 catchment area plus extensions)
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.
NT2	Nam Theun 2 Hydro-electric Project
NT2-WMPA	Nam Theun 2 Watershed Management and Protection Authority
NT3	Proposed Nam Theun 3 Hydro-electric project on the Nam Gnouang
NTSEP	Nam Theun Social and Environmental Project (of the World Bank).
Panel, POE	The International Panel of Environmental and Social Experts
RAP	Resettlement Action Plan of 1997
STENO	Science, Technology & Environment Organization of GOL (which reports to the Prime Minister's office)
UNDP	United Nations Development Programme
WB	World Bank
WCS	The Wildlife Conservation Society

## 1. OVERVIEW

The Panel reiterates its strong support for the NT2 Project. The Panel also notes that it sets new high standards for resettlement and environmental issues and has the potential to be a model of global significance. The GOL has formally placed NT2 as its highest priority hydroelectricity development project<sup>3</sup>.

The general background to the Nam Theun 2 (NT2) project is described in our previous

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<sup>3</sup> Letter from H.E. Somsavath Lengsavath, Deputy Prime Minister and Minister of Foreign Affairs, to H.E. Sourin Phitsuwan, Minister of Foreign Affairs, Thailand, dated 10 December 1998

reports. Here we solely focus on developments since our third visit a year ago in January 1998.

During 1998 NTEC was restructured. Electricite de France (EDF) is now the major partner with a planned 30 percent of the total investment. Negotiations between GOL and NTEC have advanced. On 16 December 1998 Heads of Agreement were signed and based on them the Concession Agreement is due to be drafted by the end of this January.

Progress was made with EGAT in a series of discussions. EGAT has committed itself to purchase 3000MW of electricity from Lao by 2006. GOL at EGAT's request reviewed priorities and advanced NT2 (908MW) to clear first priority of six potential hydropower projects. The other five projects have yet to be ranked. Discussions continue on the price to be paid per KWh and on the date from which EGAT will give a firm undertaking to buy power. 2005 is the earliest possible date for construction to be completed. In response to an EGAT request the operation has been altered from base load delivery to an intermediate peaking basis.

Within Lao PDR progress has been made on management structures. A revised resettlement committee, clearly decentralised to Khammouane Province, has been created. A draft decree by the Prime Minister to establish the Nam Theun 2 Watershed Management and Protection Authority (NT2-WMPA), which would create a milieu for conservation and development in the conservation area, is currently under discussion in the Province and Districts.

Within the core conservation area, the NNT-NBCA, a start has been made in three villages to diversify agriculture, improve livelihoods, and conserve biodiversity, by an eight-month project executed by IUCN/CPAWM using World Bank Japanese grant funds. The POE understands that there is the possibility to use funds from the GOL NT2 office as a bridging fund until further finance can be identified. A capacity building project centred on Khammouane Province (LIL, with WB loan funds) is due to start in mid 1999. It will have some of its activities in the NNT NBCA and these will be considered to be part of the NT2 Project. These activities are in some aspects similar to the IUCN/CPAWM project but unfortunately, as presently formulated, not directly building on or providing continuation for the work already done.

Little work has been done on the EAMP since July 1997. In order to ensure completion before WB Appraisal a careful schedule of activities is required. Aside from integrating the necessary information from the revised RAP, ESMP, and other documents the EAMP should also reflect the experience gained on environmental and social issues from the Theun Hinboun project.

Most of these points are followed up later in this report. In addition, the **POE endorses the IAG second report recommendation that WB uses its good offices with both the Thai government and EGAT to hasten the conclusion of the power purchase agreement (Recommendation #1).**

The Nakai Nam Theun (NNT) NBCA is the largest area of largely untouched tropical forest in Lao PDR and has extremely high national, regional and global biodiversity value. It lies mainly in Khammouane Province. To its south also in the same province lies the Khammouane Limestone NBCA and it has been proposed that a corridor of protected forest join the limestone NBCA to the NNT-NBCA. In the same way it has been proposed to establish a short protected corridor to join the NNT-NBCA to the Hin Nam No NBCA which lies to the east. To the north west in Bolikhamxai Province good forest area of particularly high conservation value has been proposed as a Northern Extension to the NNT-NBCA.

The core NNT NBCA in Khammouane forms the catchment of the NT2 dam. The proposed Northern Extension forms the catchment for Theun Hinboun and the proposed NT3 dams.

This whole large area of forest occurring in two provinces has extraordinarily high conservation value and it also protects the headwater catchment areas of important rivers. The ultimate objective should be to conserve all these watershed forests and to thereby conserve the globally important biodiversity that they contain. It now appears to the POE that this ultimate objective probably can best be reached in two stages, the first involving the areas in Khammouane Province and the second involving that in Bolikhamxai. We reiterate our view that management must encompass the whole river basin from the Vietnam frontier to the Mekong. Dams have impacts on their catchments. For example, Theun Hinboun has affected migratory fish. The national strategy should be to develop a few river systems fully and leave the others untouched. **The POE recommends that as a condition of WB Appraisal the first stage of protecting the catchment forests of the basin should encompass the NNT-NBCA and include the corridors to the Khammouane Limestone NBCA and Hin Nan No NBCA (Recommendation #2).**

Theun Hinboun dam was closed in 1998. The Panel understands that its capacity would be increased if the Nam Theun 3 dam was built just above it on the Nam Gnouang. It is essential to both these dams that their catchment is protected. This catchment includes the proposed Northern Extension NBCA. **The POE therefore recommends reinvestigation of NT3 and the protection as soon as possible of the catchment of NTH and NT3 including especially the Northern Extension, by actions centred on Bolikhamxai Province (Recommendation #3).**

The NNT NBCA contains a large volume of commercial timber. Despite currently depressed prices timber, at 40 percent by value, remains the most important national export. Across the country timber resources are diminishing and pressure on the forests of the conservation area will become continuously more acute. The POE notes that as a member of ASEAN Lao PDR is committed to sustainable management of its forests and endorses the two recommendations of the IAG Second Report that 'a much more effective forest resource management and sustainable use regime be established in [Lao PDR]' and that in the mid term the nation must develop alternatives to forest resources and electricity as revenue earners.

## 2. INSTITUTIONAL FRAMEWORKS

The POE wishes to commend GOL for the progress made during 1998 in re-organizing the institutional framework for planning and implementing development and conservation activities within the overall NT2 project area. At the central government level, the five member Foreign Investment Management Committee chaired by the First Deputy-Prime Minister continues to have the GOL responsibility for drafting the Concession Agreement. Their link to the Steering Committee for the NT2 Project is through the NT2 Representative based in the Hydropower Office (HPO).

Figure 1 (Annex) represents the GOL implementation structure for the NT2 Project. Also serving as chair, the First Deputy-Prime Minister continues to play the essential role of chief project executive. Not shown on the diagram is an ad hoc arrangement whereby a small subcommittee of the Steering Committee involving the Minister of Cabinet of the Prime Minister, the Secretary of the FIMC/Minister for Foreign Investment and the Minister of Industry and Handicraft is available for further consultation. This ad hoc arrangement begins to approximate the type of over-arching steering committee that the POE has recommended for the NT2 project area in previous reports. As implementation proceeds, we suggest that GOL consider expanding it to include the Governor of Khammouane Province and other relevant members.

As Figure 1 shows, the Resettlement Committee has been re-organized with the Governor and Vice-Governor of Khammouane Province as chair and vice-chair so as to better reflect provincial, district and village planning and implementation responsibilities. Members from Bolikhamxai and Savannakhet Provinces are included.

Based on the world experience, the POE believes there is a need to plan now for a Trust or Trusts for disbursing funds for implementing the various environmental and socio-economic programs, including programs in the NNT-NBCA, the Resettlement Action Plan (RAP), and programs for project effected people elsewhere including those along the Xe Bang Fai and its tributaries between the regulating reservoir and the Mekong River. **The POE recommends that GOL explore with UNDP the creation of a Trust or Trust funds for the environmental and socio-economic aspects of NT2 along the lines of the LAO PDR UXO and HIVAIDIS Trust Funds already established in Lao PDR (Recommendation #4)**

The need for such a fund can be expected to continue indefinitely. For example, expenses for the maintenance and replacement of essential resettlement infrastructure must continue after the Ownership Company has transferred its responsibilities to GOL. Unexpected expenses, which exceed community capacities and line ministry budgets, must also be anticipated. In the NT2 case, where plans are under preparation for meeting funding needs during the initial years, the POE recommends that a very small percentage of revenue from the sale of NT2

**electricity be incorporated within the Trust Fund for servicing the project area thereafter (Recommendation #5).** In China such an arrangement is called a "Remaining Problems Fund." This approach has proved especially successful with such major Chinese projects as the Danjankou Dam built in the 1960s.

The POE has reviewed the latest version of the Draft Decree of the Prime Minister of Lao PDR on the establishment and activities of the Nam Theun 2 Watershed Management and Protection Authority (NT2-WMPA). Since the intended boundaries correspond to the NNT-NBCA, the POE suggests that the final decree at least refer to the possible future enlargement of the authority to include the corridor to the Khammouane Limestone NBCA and the southern corridor.

As currently drafted the 12 member Board of Directors of the Authority will be chaired by the Minister of Agriculture and Forestry. As it did in the amendment to its third report, **the POE recommends that the Governor of Khammouane Province co-chair the Board (Recommendation # 6).** We believe that this action is important for two reasons. First, it strengthens the linkage between the central and provincial levels of government. Second, it provides a better linkage to the office of the Executive Secretariat which the Draft Decree recommends be established in Khammouane Province. The POE believes that is an excellent recommendation since the Executive Secretariat will have the function of "summarizing, coordinating and carrying out the day-to-day activities of the Authority in accordance with the role of the authority." The POE believes that role will be enhanced if the Governor of the province is co-chair. The co-chairs would then have the joint responsibility for nominating the head of the Secretariat which the POE suggests should be a senior official from the Provincial Department of Agriculture and Forestry.

**The POE also recommends that an international Engineering Panel of Experts (Dam Safety Panel) should be appointed before World Bank Appraisal of the NT2 Project (Recommendation #7).** Terms of Reference should include the requirement for that Panel to work closely with the POE in assessing the adequacy of, for example, the design of structures for regulating flows from the power station to the Nam Phit and Xe Bang Fai Rivers.

### 3. AVAILABILITY AND CONTINUITY OF SUPPORT

In its previous reports the Panel has repeatedly registered its concern with the availability and adequacy of funding for the preparation and initiation of the project, and for the lack of continuity in that funding and consequent effort. As we have noted, because of delays and discontinuities in support there have been serious breaks in the continuity of funding both for the conservation and resettlement planning and implementation, and in other aspects of the project such as the support for the demonstration farms.

For example, after various delays which, among other things, resulted in loss of key personnel, IUCN CPAWM received WB Japanese grant funding for eight months for a conservation and development project to prepare for the World Bank NTSEP project. The Panel was very impressed with the accomplishments of this preparatory project and particularly with the enthusiasm and efforts of the villagers involved. However, the initial funding period is almost finished, and unless additional support is forthcoming the project will be dropped and it is likely that key personnel will again be lost, as will the trust and enthusiasm of the villagers. This point was also strongly emphasized by the IAG. The Panel has been informed that in principle some additional bridging funding will be made available to the IUCN by the Office of the Nam Theun 2 GOL Representative, and we warmly commend that action. However, it appears that additional funding will still be needed to assure that much of the momentum and accomplishments of the IUCN CPAWM project are not lost.

The IUCN project should lead into the WB NTSEP project but the Panel understands that the NTSEP will not start for some time. In the interim the World Bank is preparing a District Upland Development and Conservation Project (LIL) for a 30 month period, but the Panel understands that the LIL is not intended to be a continuation of the IUCN project as a whole and that it does not address key conservation needs of the NT2 area.

**Consequently, the POE recommends that the LIL cover as much as possible the continuation and strengthening of the on-going conservation and development effort in the project area that ends in February, 1999, and that additional bridging funding be found for the conservation component as a matter of urgency (Recommendation #8).**

We cannot overemphasize that continuity is crucially important to NT2. It is particularly crucial in a country such as Lao PDR with limited internal funding, facilities, staff and resources. Breaks in continuity of funding lead to losses of good, trained staff, and make it that much more difficult and inefficient to find and train replacements when the funding starts up again. Worse, breaks in continuity of funding of resettlement efforts undermine the trust and enthusiasm which can be built over time in the affected populations, and can lead to inefficiencies and failures in the resettlement process itself. Threats to the integrity of the biodiversity of the NNT-NBCA are increasing, and inadequate and uncertain support can lead to irretrievable losses. Discontinuities and delays in funding also can lead to serious impacts within the host government. The Government agencies or other units which commit staff, resources and political capital to a project find themselves and their position within the government undermined when funding is delayed, uncertain or fails.

The World Bank's role is central to the success of the NT2 project and success of the project is also important to the WB. The NT2 Project is regarded as a pilot project for the WB private sector involvement in dam building as well as the project's exemplary attention to conservation, improvement of livelihoods and sustainable development. The Bank must provide much of the continuity to the project. Accordingly, our 1998 report recommended that the Resident Mission be strengthened, and we are particularly pleased that the Bank has done so.

We also note that the Bank intends to send regular but rotating NT2 missions to Laos during the coming period. We appreciate the efforts the Bank has made to consolidate the activities associated with NT2 but we believe that the NT2 project has now reached a level of activity and complexity that it requires a full time Task Manager along with resident staff dedicated to the project to provide the level of continuity and oversight that is now required, and the Panel **recommends that the World Bank appoint a full time Task Manager and resident staff (Recommendation #9).**

#### 4. THE CRITICAL ISSUE OF CAPACITY

In our previous reports the POE has repeatedly and strongly emphasized that developing adequate management capacity will be a key to the ultimate success or failure of the NT2 project. Trained and effective personnel are required for the very wide array of tasks in the conservation, development and related aspects of this project. We have been impressed by the effective approach to capacity building for the GOL and for projects in Lao PDR developed by the UNDP. We note that the IIL and FOMOCOP also have capacity building as one of their objectives.

Training for the various levels and types of management which will be required by this project is a complex task and it will take time. Accordingly, the **POE recommends that efforts to obtain the necessary support and to identify and develop the needed social and environmental capacity be initiated without delay, and suggests that among other approaches, the project explore the possibilities of cooperation with UNDP for this purpose (Recommendation #10).**

#### 5. TRANS-BORDER ISSUES

The need for effective control of trans-border poaching, trading in wildlife and collection of other forest products has been brought to the Panel's attention repeatedly in its field work and other consultations. It appears to the Panel that the problem is getting worse, and that it represents a very significant threat to the integrity of the biodiversity even in the most remote parts of the NT2 area. It also represents a major economic loss to the Lao PDR because of the high value of the wildlife and other forest products taken out of the country. We have been informed by villagers and scientists that poachers' camps are found throughout the NNT-NBCA even at distances of more than 20 km from the border, that because of the poachers' activities in the past decade the elephants and most other larger wildlife are no longer found in this zone, and that some species such as golden turtles have been nearly exterminated. Further, even though villages have a few militia, they are often outnumbered and outgunned by the poachers so can neither protect their own resources nor go on anti-poaching patrols elsewhere. The Panel appreciates that since this is a trans-border issue it can raise delicate diplomatic considerations. However, the Panel, like the IAG, feels strongly that the issue is of such importance and urgency that effective action must be taken without delay. It appears to the Panel that three areas of action



are required

First, the POE recommends strengthening and giving higher priority before appraisal to anti-poaching activities throughout the NT2 area, and in the villages near the border or elsewhere where poaching is a problem the village militia should be augmented by district security forces. This, in turn, requires adequate funding to assure that the security forces do not rely on the villages for support, as well as to provide for incentives for the anti-poaching work (Recommendation #11).

Second, the POE recommends the establishment of border markets and phasing out of trans-border trading within the area, since wildlife and forest products are the currency which the traders receive for their products (Recommendation #12). At present the trans-border traders provide essential goods, so they can only be phased out when it becomes possible to provide the villagers' needs economically from the Lao side. However, this is feasible since the Panel observed Lao traders coming from Lak Sao as far east as the upper Nam Theun.

The third area of action involves joint trans-border cooperation. The Panel notes with satisfaction that meetings have been held since 1997 in connection with a joint Lao-Vietnamese Conservation Initiative. The POE recommends that the GOL provide strong support to proposals such as joint border patrols, an international trans-border park, and border markets, and World Heritage status, which may come from the initiative (Recommendation #13).

## 6. WORLD HERITAGE STATUS

The Panel has consistently urged that the GOL give positive consideration to World Heritage status for the NNT-NBCA. We are convinced that such status can bring significant advantages to the area and to Lao PDR, among them access to additional international funding and other types of support for conserving and managing the area and its biodiversity, attracting very favorable international attention, stimulation of tourism, and a degree of international attention which can help achieve trans-border cooperation in conservation.

The World Heritage Convention is one of the most successful international conservation agreements and many nations have taken advantage of the opportunities that World Heritage status under the Convention provides. It would be particularly desirable if the GOL and the government of Vietnam created a trans-border World Heritage Area. But if that does not prove practicable in the short term, establishment of such status for the NNT-NBCA would still bring great eco-tourism and other benefits to Lao PDR. Accordingly, the POE recommends that GOL begin preparations as soon as possible for applying for World Heritage Status for the NNT-NBCA, as appropriate with assistance from the UN system. The POE notes that the IAG during their second mission recommended that GOL apply for World Heritage status for the NNT-NBCA by 30 June 1999 in time for consideration by the World Heritage

Bureau at UNESCO in the year 2000 (Recommendation #14).

## 7. OTHER CONSERVATION ISSUES IN THE NNT-NBCA

We consider that the Nakai Nam Theun Conservation Area should be regarded as a single unit with the NNT NBCA at its core (cf Appendix 5 in the revised ESMP, May 1998). Activities should continue in the core area and then extend to the corridors and the northern extension. A start was made during 1998 based on three villages and is described elsewhere in this report.

Villagers are still trading wildlife for daily necessities with itinerant traders, many of whom walk in from across the border. In addition to the heavy trans-border poaching noted above (Section 5), it was reported to the POE that very heavy poaching continues with hunting by Hmong entering from the western side. A start on conservation patrolling has been made based on the three pilot villages, sometimes using district army staff. Arrests have been made. Further, the POE commends the authorities for the excellent progress made to date in collecting weapons used in hunting. It is extremely urgent to control poaching as the biodiversity, and hence the value of the NBCA, is being continuously eroded. As noted above, no elephant have been seen near the frontier for several years and they are believed to have moved down towards the plateau. Once dam construction work starts the elephant will need to be able to move up hill again, and if heavy poaching continues above, they may be confined to the area where they could come in increasing contact and competition with human settlement.

The POE walked up the spur logging road towards the frontier from above Ban Navang and were impressed by the quality of the forest which had signs of key animal species as well as a reasonable stocking of timber-size trees. We were concerned that pressure to expand logging is likely to increase, especially as the commercial-sized trees are logged out in the area to be inundated and new stocks of timber are sought for the existing timber processing facilities and trade.

In the light of its observations and discussions with many people the **POE recommends:**

**that development plus conservation activities continue in the core area, aiming progressively to spread out from the pilot villages to cover the whole area (Recommendation #15);**

**that the western boundary of the NNT NBCA (where it runs close to or through inhabited country) is demarcated and stabilised (Recommendation #16);**

**that highway 8B where it runs through the corridor to the Khammouane Limestone NBCA is policed to prevent hunting and settlement along its margins (Recommendation #17);**

and that as a matter of urgency and before appraisal the revised ESMP report needs to have a prioritised and focussed work programme that includes a realistic budget and is on a scale comparable to other GOL priority activities (Recommendation #18). In this recommendation we are echoing the TAG

## 8. DEVELOPMENT CONSIDERATIONS

### 8.1. Introduction

More detail concerning development and conservation activities in the NBCA, the Nakai Plateau, and the Xe Bang Fai basin is included within the POE's previous reports, and especially Section 3.2 of the third report.

### 8.2 NNT-NBCA

Since the POE's last visit development activities have begun in three pilot villages along three major tributaries within the NBCA. The POE was especially impressed by the efforts of district, IUCN and EcoLao personnel in Ban Mak Pheuang, by the response of the villagers to those efforts, and the response of development personnel to village initiatives. Especially important has been the request of village women for medical supplies and for family planning assistance. The training of three village medical auxiliaries in Nakai is an important initial step forward. Also important was the presence in the village of a district agricultural officer whose intention was to move development activities from EcoLao's experimental plots to villagers' fields. While discussion continues on the best access routes to the villages in NNT-NBCA the POE reiterates its strong opposition to further access from Lak Sao, and refers to its previous reports proposing such access from the Nakai Plateau.

Continuity (including close linkage between conservation and development activities) and expansion of such activities is absolutely essential. Since they are dependent on donor assistance, it is the responsibility of those donors to ensure a smooth and unbroken transition from one project to another. To date, as the POE has emphasized elsewhere in this report, such has not been the case.

### 8.3. The Nakai Plateau

The Resettlement Action Plan (RAP) continues to evolve as a world class document. While the POE was in the field it was reviewed first with District and then with Provincial officials. The final National Public Consultation and Participation Workshop on the RAP took place on 21-22 January in Vientiane.

A major change in regard to resettlement with development activities has been the

increasing incorporation of district personnel from five districts covering three provinces into their planning and implementation. The POE recommends that this effort be accelerated to the extent possible, with the major qualification that more emphasis be placed on district planning "with" the villagers as opposed to planning "for" the villagers (Recommendation #19).

Other important developments include increasing the resettlement period from five to eight years starting in 1999 and the September-October 1998 village notification and registration survey. The current RAP livelihood model is more diversified, with a better balance and more flexibility between the major components. The range of options appear feasible. The greatest risk continues to be associated with the forestry component whose contribution to household incomes has, however, been decreased.

The POE is pleased to note that the revised RAP contains considerably more detail than earlier versions on the forestry component. It was informed that district forest officials will be available to assist implementation and that the FOMACOP Project is pioneering community forestry elsewhere in Khammouane Province.

Especially important, in the POE's opinion, has been the decision to proceed with the selection of a pilot resettlement village. As emphasized in the December 1998 report of the IAG, the high expectations that villagers have for the NT2 Project require prompt initiation of key development activities. A pilot resettlement village is such an activity.

The POE visited one of the villages that district personnel have selected for probable incorporation within the pilot village. Though the district's intention was to commence pilot activities within the next few weeks by allowing villagers to prepare and plant fields in rice at the new village site during the 1999 rainy season, those villagers have already begun to clear new swiddens at their current sites. They also remain unaware of their possible pilot status.

While emphasizing the importance of initiating pilot activities as soon as possible, the POE recommends that district personnel further incorporate villages within the decision-making process as to pilot village selection and the timing and nature of pilot village activities (Recommendation #20). Of special concern to the POE was the apparent district emphasis on consolidating a number of small villages into units of at least 50 households -- that figure being related to the provision of primary schooling. Universal primary education is, of course, essential. However, the POE recommends that the primary reasons for determining the size of resettlement villages must be the preference of the villagers themselves linked to the capacity of the resettlement sites to provide the necessary economic opportunities (Recommendation #21).

Aggregating villagers into units not of their own choosing is a recipe for resettlement failure. Characterized by high mortality rates during the initial years, inadequate forest products in the vicinity, and current inability to undertake cooperative activities, Ban Thamuang in the

NBCA illustrates the costs resulting from consolidating villages for the primary purpose of providing administrative control and social services.

Since the POE's last visit the discontinuity in funding for the Theun Douane Farm has been corrected. At the time of the POE's recent visit, emphasis was correctly shifting from the experimental farm to transferring lessons learned to the three incorporated families and villagers elsewhere. On the other hand, the gardens of school children at the Nakai Neua nursery have been discontinued. That is apparently due to the lack of incentive for the relevant school teachers to become involved.

The Nakai Nuane nursery case points up what the POE sees as the major current weakness of the RAP. That is the absence of a program dealing with training specifics including categories of required trained personnel, numbers of trainees to be involved at village, district, provincial, and central levels, and details on training programs. The POE understands that NTEC consultants are currently working on these issues and we look forward to assessing the results of their efforts. We also understand that UNDP is interested in possible involvement in meeting the necessary training needs.

The POE welcomes the proposed rerouting of route 8B which should reduce environmental impacts, and the proposed redesign of the downstream work which should increase social benefits. The POE discussed its concern with NTEC about the possible option of taking water from the reservoir to the turbine shaft by a 50m wide canal cutting across the southern edge of the Nakai Plateau instead of through a tunnel as originally proposed.

#### **8.4 Xe Bang Fai**

The POE continues to believe that NT2 impacts on the natural resources and people of the Xe Bang Fai remain the least understood environmental and social aspect of the Project. This is especially the case with impact on fish populations and the many thousands of villagers dependent on those fish for protein and -- in years when their crops fail -- for cash. Should that impact prove negative, other sources of protein and other economic opportunities would be required. In that event, the NT2 Project would have the responsibility for ensuring that such activities as dry season paddy cultivation combined with aquatic resources be increased.

Concern has been expressed to the POE that the change from base load to peaking power, with the consequent pulsing of water through the turbines, will cause negative impacts downstream. NTEC has addressed this issue through an increase in the size of the regulating reservoir. If the design and operation are correct that should assure that the peaking operation results in no change in the constant flow rate of water downstream.

Provided water quality is maintained as intended by NTEC, the prevailing view is that increased water discharges into the Xe Bang Fai during both the rainy and dry seasons will result in more fish. Perhaps so; but virtually no research has been undertaken in the tropics on the

impact of interbasin transfers on the fish populations and fisher folk of the receiving river.

**The POE recommends that all design features be checked by the forthcoming Panel of Engineering Experts (Recommendation #22).** NTEC has assured us that they can and will avoid the pulsing, erosion and sedimentation problems associated with Theun Hinboun outflows into the Nam Hia and Nam Hinboun rivers. Nevertheless, there will be greatly increased flows during the dry season. Since the POE does not know of any basis to predict their effect, it must be recognized that such increased flows may interfere with migratory patterns of important species up the Xe Bang Fai from the Mekong.

Consequently, **the POE recommends that a monitoring program of current fish migrations and fishing activities in the Xe Bang Fai be initiated by the 1999-2000 dry season at the latest (Recommendation #23).** While we do not have the current expertise to advise on the exact nature of this program, one monitoring station should be on the Xe Bang Fai above the confluence of the Nam Phit so that pre- and post-project fish movements and fishing activities can be compared.

Emphasis should be on assessing both the nature of fish movements and the catch per unit effort (CPUE) on the part of village fishers. Such a program will also be of value to the Theun Hinboun Project since it will be applicable as a bench mark for post-project monitoring.

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

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

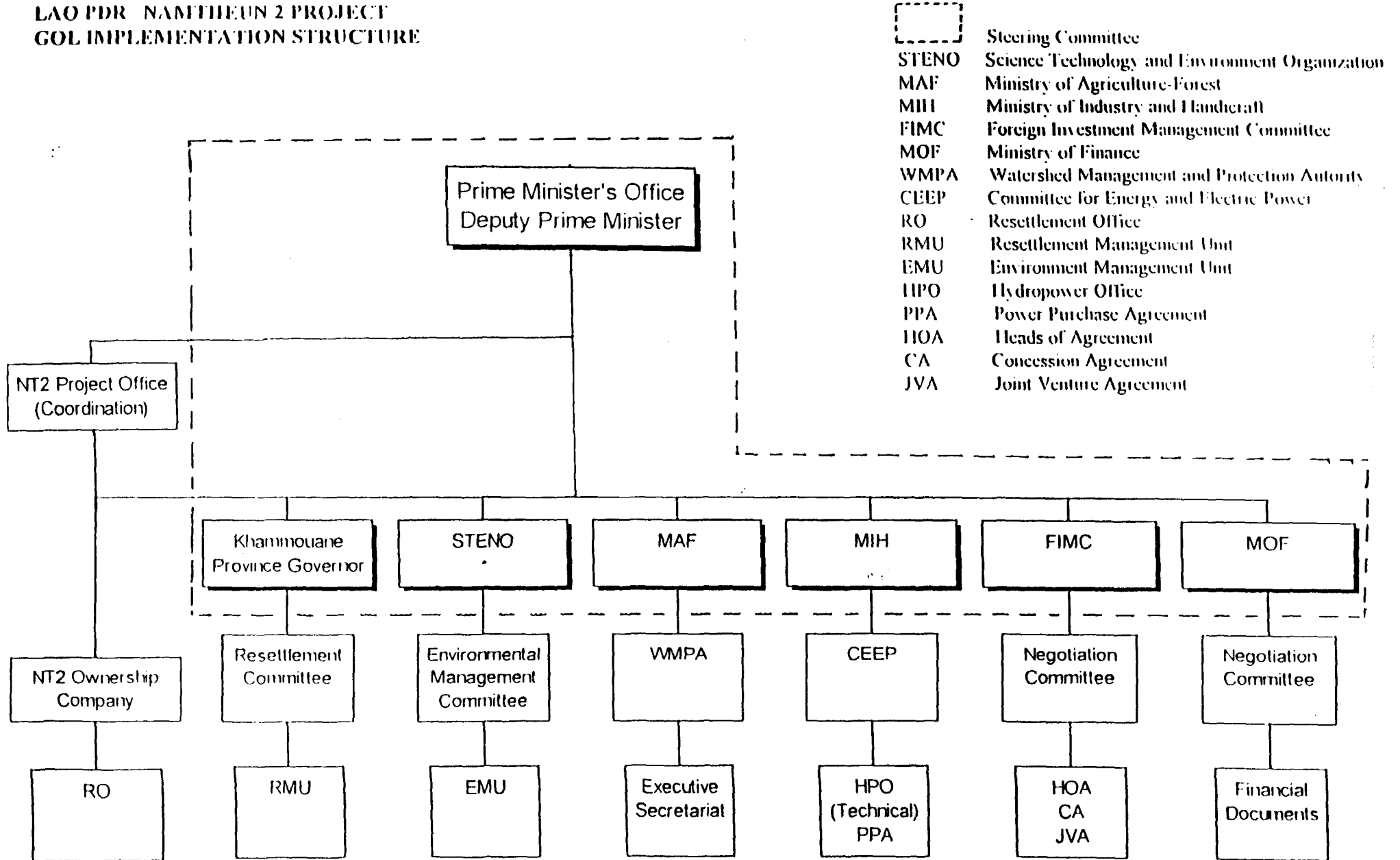
- Desk review of revised studies, plans or other documents as requested;
- Consultations with World Bank, Government officials, and NGOs in Washington;
- Return visit to Lao PDR by one or more of the Panel members if requested to do so by the GOL (e.g. with public consultations and/or appraisal missions);
- Next regular visit to of the Panel to Lao PDR at approximately the same time next year.

## **5. ANNEXES**

### **Annex 1**

#### **Figure 1: GOL Implementation Structure for NT2**

LAO PDR NAMTHEUN 2 PROJECT  
 GOL IMPLEMENTATION STRUCTURE



- Steering Committee
- STENO Science Technology and Environment Organization
- MAF Ministry of Agriculture-Forest
- MIH Ministry of Industry and Handicraft
- FIMC Foreign Investment Management Committee
- MOF Ministry of Finance
- WMPA Watershed Management and Protection Authority
- CEEP Committee for Energy and Electric Power
- RO Resettlement Office
- RMU Resettlement Management Unit
- EMU Environment Management Unit
- HPO Hydropower Office
- PPA Power Purchase Agreement
- HOA Heads of Agreement
- CA Concession Agreement
- JVA Joint Venture Agreement





**Annex 2**  
**Schedule and Itinerary of the Fourth Mission of the POE**



15 January 1999

**POE Visit  
3-24 January 1999  
Overall Schedule**

Day	Date	Time	Meet	Location	Activity	Purpose
Sunday	3 January	9.30 (TG 690)	<ul style="list-style-type: none"> <li>GOL NT2 office</li> <li>Airport welcome</li> </ul>	Vientiane	Arrival and transfer to Taipan Hotel	
Monday	4 January	8.30 9.30 10.30 13.30 15.00	<ul style="list-style-type: none"> <li>Min. Soulivong</li> <li>GOL NT2 Office</li> <li>Prof. Bountiem</li> <li>STENO</li> <li>MAF</li> </ul>	Vientiane	Briefings on various offices' activities	<ul style="list-style-type: none"> <li>GOL overview</li> <li>Briefing on various activities</li> <li>NBCA, WCI</li> </ul>
Tuesday	5 January	All day	Arrangements by GOL NT2 Office	Nam Ngum 2	Inspect Nam Ngum 2 (1 day trip by car)	Consider E & S status of another project which has sought WB PRG support
Wednesday	6 January	Morning  Afternoon	<ul style="list-style-type: none"> <li>THPC General Manager</li> <li>HPO Director</li> <li>THPC Chairman (flexible)</li> </ul>	Vientiane	Discussions	Theun Hinboun fish issue
Thursday	7 January	9.00 14.00	<ul style="list-style-type: none"> <li>IUCN</li> <li>NTEC</li> </ul>	Vientiane	<ul style="list-style-type: none"> <li>Discussions</li> </ul>	<ul style="list-style-type: none"> <li>NBCA, WCI, LIL</li> <li>Developer's progress and briefing</li> </ul>

[Changes only on 16, 19 &amp; 20 January]

Friday	8 January	7.00-9.00 9.30-11.00 11.00-13.00 13.00-15.30 15.30	Wattay Airport  NBCA  NTX	Vientiane	<ul style="list-style-type: none"> <li>• Fly to NBCA (via Theun Hinboun)</li> <li>• NBCA Overflight</li> <li>• Visit Ban Makfeuang</li> <li>• NTX Overflight</li> <li>• Visit Ban Phonkham</li> <li>• O/N Ban Phonkham</li> </ul>	<ul style="list-style-type: none"> <li>• View TH P/S and discharge</li> <li>• View NBCA impacts</li> <li>• IUCN village activity</li> <li>• View NTX</li> <li>• Observe NTX area</li> </ul>
Saturday	9 January	Morning 12.00-12.30 Afternoon	B. Phonkham Area  B. Navang Logging Road	NTX  NBCA	<ul style="list-style-type: none"> <li>• Visit B. Phonkham</li> <li>• Fly to B. Navang Logging Road</li> <li>• Forest Walk</li> <li>• O/N at B. Navang Logging Road</li> </ul>	<ul style="list-style-type: none"> <li>• Observe NTX area</li> <li>• Pristine forest observation</li> </ul>
Sunday	10 January		B. Navang Logging Road	NBCA	<ul style="list-style-type: none"> <li>• Forest Walk</li> <li>• O/N at B. Navang Logging Road</li> </ul>	<ul style="list-style-type: none"> <li>• Pristine forest observation</li> </ul>
Monday	11 January	7.00-17.00		NBCA	<ul style="list-style-type: none"> <li>• Walk to B. Navang</li> <li>• Meet B. Navang Villagers</li> <li>• O/N B. Navang</li> </ul>	<ul style="list-style-type: none"> <li>• Observe NBCA forest and village life</li> <li>• LIL</li> </ul>
Tuesday	12 January	7.00-10.00  10.00-12.00 12.00-16.00  16.00-17.00		NBCA	<ul style="list-style-type: none"> <li>• Walk to B. Thamuang</li> <li>• Visit B. Thamuang</li> <li>• Boat to B. Thalang</li> <li>• NTEC cars waiting at B. Thalang bridge</li> <li>• Drive to Nakai</li> <li>• O/N Nakai Guest House</li> </ul>	<ul style="list-style-type: none"> <li>• Observe NBCA forest and village life</li> <li>• IUCN village activity</li> <li>• (c/o NTEC)</li> <li>• (c/o NTEC)</li> <li>• (c/o NTEC)</li> </ul>
Wednesday	13 January	8.00-10.00 10.00  10.00-12.00 13.00-16.00 16.00-18.00	NNT NBCA HQ Nakai Guest House	Nakai Nakai	<ul style="list-style-type: none"> <li>• NBCA Briefing (IUCN)</li> <li>• Handover to NTEC</li> <li>• NTEC Field Briefing</li> <li>• Theun Douane Farm</li> <li>• Nakai District Briefing, Baci</li> <li>• O/N Nakai Guest House</li> </ul>	<ul style="list-style-type: none"> <li>• NBCA progress</li> <li>• NTEC progress</li> <li>• Farm progress</li> <li>• District overview</li> <li>• Dinner with District officials</li> </ul>

Thursday	14 January	Morning Afternoon		Nakai	<ul style="list-style-type: none"> <li>• Visit Soph En Resettlement Village</li> <li>• Maybe visit Nakai Tai</li> <li>• Discuss Resettlement Aspects</li> <li>• O/N Nakai Guest House</li> </ul>	<ul style="list-style-type: none"> <li>• Census/Registration/Notification</li> <li>• RAP</li> </ul>
Friday	15 January	Morning  15.00		Thakhek	<ul style="list-style-type: none"> <li>• Downstream P/S</li> <li>• Regulating Pond, Channel</li> <li>• Mahaxai</li> <li>• Review FOMACOP/WB project</li> <li>• Provincial Briefing</li> <li>• Return to Vientiane, with stop at bridge on Nam Hinboun</li> <li>• O/N Vientiane</li> </ul>	<ul style="list-style-type: none"> <li>• Peaking/ Fisheries</li> <li>• Community forest</li> <li>• Provincial Overview</li> </ul>
Saturday	16 January	All day	Free	Vientiane		<ul style="list-style-type: none"> <li>• Report writing</li> </ul>
Sunday	17 January			Vientiane	<ul style="list-style-type: none"> <li>• Rest Day</li> </ul>	
Monday	18 January	Morning  Afternoon	<ul style="list-style-type: none"> <li>• IUCN</li> <li>• NTEC</li> </ul>	Vientiane	<ul style="list-style-type: none"> <li>• Discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Wrap-up re Field Trip observations on NBCA, ESMP, LIL, WCI charter and budgets.</li> <li>• Wrap-up re POE RAP comments, ESMP including budget, EAMP</li> </ul>
Tuesday	19 January	9.00 13.30 15.00	<ul style="list-style-type: none"> <li>• GOL Team</li> <li>• Min. Soulivong</li> <li>• Linda Schneider (to be confirmed)</li> </ul>	Vientiane		<ul style="list-style-type: none"> <li>• Mission briefings</li> </ul>

Wednesday	20 January	All day	Free	Vientiane		<ul style="list-style-type: none"> <li>• Wrap-up re overall comments</li> <li>• Report writing</li> </ul>
Thursday	21 January	All day	PCPP Workshop	Vientiane		<ul style="list-style-type: none"> <li>• RAP PCPP interaction</li> <li>• Report writing</li> </ul>
Friday	22 January	All day	PCPP Workshop	Vientiane		<ul style="list-style-type: none"> <li>• RAP PCPP interaction</li> <li>• Ted Scudder speech</li> <li>• Report writing</li> </ul>
Saturday	23 January	All day	Free	Vientiane		<ul style="list-style-type: none"> <li>• Report writing</li> </ul>
Sunday	24 January	10.30 A.M.		Vientiane	Departure	

Notes: NTX = Northern Extension