

LAO PEOPLES DEMOCRATIC REPUBLIC

NAM THEUN 2 HYDRO PROJECT

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

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Vientiane, Lao PDR
January 22, 2001**

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

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SUMMARY OF RECOMMENDATIONS

These recommendations should be read in conjunction with the text

The PoE recommends:

Recommendations for the World Bank

12 that the World Bank should recognize that further delays in initiating the pre-appraisal studies can be expected to make implementation of the resettlement program more difficult (Section 6.3).

19. that because further delays will have an increasingly adverse effect on implementation

of the NT2 environmental and social components, the World Bank should decide NOW to initiate pre-appraisal (Section 8).

20. that, recognizing the extensive studies completed to date, and positive government initiatives in response to those studies, WB pre-appraisal and appraisal should be combined (Section 8).

Recommendations for GOL

1. that GOL give urgent priority in the NBCA to reestablishing, expanding and maintaining joint conservation patrols with villagers, village militia, and district army (with suitable per diem), and other relevant activities aimed at conserving the unique biodiversity of the area (Section 1.9).

2. that GOL seek appropriate international assistance for the Bolikhamxay authorities to develop an effective and ongoing program to assure conservation of the Northern Extension with its important biodiversity (Section 1.12).

3. that GOL assure that conservation activities, including education and extension, be an effective part of GOL policies and activities (Section 1.13).

5. that steps are taken after project approval to fell and utilise the small diameter pine trees in the area of the Nakai Plateau to be flooded (Section 5.5).

18. that irrigation-cum-fishery projects should be integrated into GOL planning for the NT2-project so as to take advantage of over 20,000 hectares of irrigable land in the middle and lower zones for raising living standards while compensating for any costs which are involved in project-induced flows (Section 6.4).

Recommendations for WMPA

4. that as a high priority, village-based anti-poaching patrols need to be revived and expanded (Section 5.1).

8. that steps to conserve saola be started as soon as practicable within the overall framework of the Operational Plan (Section 5.7).

9. that coordination be assured between WMPA (as soon as it is functional) and the various institutions involved in resettlement (Section 5.8).

10. that, to accelerate conservation and essential village development activities in the NBCA, that survey and construction of a two-wheel tractor access route into the Nam Theun, Nam Noy and Nam Pheo tributary basins be given highest priority as a necessary measure. There should be monitoring to assure that the tractor route is not used, expanded

or extended beyond its original intended use (Section 6.2).

11. that no further involuntary resettlements occur, that the current status of Vietic-speakers in the NBCA be surveyed, and that actions be taken to work with them to maintain their cultural integrity (Section 6.2).

Recommendations for NTEC

7. that if it does prove possible to develop the WMPA as rapidly as the operational plan specifies then NTEC should consider extra disbursements. Extra disbursements for monitoring (especially logging and poaching) should also be provided if the implementation of the Operational Plan is delayed (Section 5.6).

13. that because of risks associated with each component of the livelihood model, an implementation period of up to ten years should be considered essential (Section 6.3).

14. that implementation of the resettlement program should expand the number of livelihood options available to each household and village to the greatest extent possible (Section 6.3).

15. that as soon as project approval is received, construction of the weir in the pilot resettlement area should commence (Section 6.3).

17. that adequately funded fishery surveys should commence this year and continue until the NT2 project is operational. Thereafter they should continue once every two years for a 7-8 year period (Section 6.4).

Joint Recommendations

6. that the Operational Plan starts without delay as soon as the decision is made by WB to proceed to (Pre) Appraisal (Section 5.6).

16. that the extent and importance of river bank gardens to the households involved should be surveyed along the entire length of the XBF (Section 6.4).

INTRODUCTION

The Panel, Its Role, and Previous Missions

This is the fifth report of the International Environmental and Social Panel of Experts (PoE or the Panel)¹ 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, January, 1998, and January, 1999.

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 Project². 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 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, 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.

Summary of Panel Activities

Since the 4th visit in January 1999 PoE members have read and commented on a series of NT2 Project reports and documents, and have held a series of meetings with World Bank staff and the IAG in Washington D.C.

For this 5th Mission the Panel members arrived in Vientiane on January 7 and departed January 23rd, 2001. Three days were devoted to initial meetings and consultations in Vientiane including the Office of the Prime Minister, the Minister of Industry and Handicraft, the Minister of Agriculture and Forestry, and the various line Ministries and other units of the Government of Laos (GOL) which are involved with the NT2 project. In the following seven days (January 10 through 16) the Panel surveyed the area of its responsibility. Among the visits were the following (see Annex 1 for the GOL schedule):

- Lak Sao; the nearby new wood processing plant; highway 8 up to the Vietnam border; and meetings with Bolikhamxay Provincial and District Authorities;

¹ The Members of the Panel of Experts are:
T.Scudder, California Institute of Technology, USA
L.M.Talbot, George Mason University, Virginia, USA
T.C.Whitmore, Cambridge University, UK

² The Terms of Reference for the PoE are under Annex 1 of the First Report of the Panel, February, 1997.

- Initial portions of the Ban Navang road; visits to proposed sites of the quarry and work camp for the NT2 dam; visits to the Thousand Islands and Nam Malou areas to see illegal logging sites recorded by the May, 2000 WB mission. Night at Ban Thalang village.

- Nakai Neua nursery; Nakai town for meetings with Provincial and District officials including the Governor of Khammouane Province, Nakai District Governor, officials and staff involved with LIL, resettlement and NBCA.

- South-eastern portions of the Nakai Plateau, including areas adjacent to the escarpment to examine the community forestry areas where illegal logging was recorded by the May, 2000 WB mission; visit to Theun Douane demonstration farm; visit to proposed pilot village, Ban Sailom, and to proposed resettlement sites.

- Drive through logged and intact pine forest on the plateau including both authorized and illegal logging areas; to Ban Ka Oy on the Nam Noy; hike up the village access path along the Nam Noy into the dividing hills, including the 5 km. newly-constructed access track; boat down Nam Noy and up Nam Theun to major rapids where Nam Theun drops through the dividing hills; camp on river side.

- Hike up the canyon through the dividing hills and around the rapids; then by dugout to Ban Makfeuang; examine agricultural systems, including those started by the IUCN-managed projects; meetings with villagers; night in village.

- Survey by helicopter including upper reaches of Nam Noy and Nam Theun, access route via lower Nam Noy, south-eastern portions of the Nakai Plateau and adjacent hills, transect north across the NBCA toward Lak Sao then up route 8 toward border, and return to Vientiane.

- The remainder of the visit was spent on meetings in Vientiane, including the Prime Minister and Minister of Handicraft and Industry, consultations and review of reference information in Vientiane and in preparing this report and briefing officials.

The objectives of this visit were to examine developments which have taken place since the Panel's last visit, and to visit areas which we had not previously seen. The primary foci of the visit were issues which have arisen as a result of (1) the resumption of activity on NT2 following the slowdown due to the Asian economic crisis; (2) the agreement reached by GOL, NTEC and EGAT; and (3) the anticipation of a WB decision on pre-appraisal and appraisal.

Organization of this Report

As with the fourth report, the Panel felt that this report would be most useful if it focused only on a limited number of issues. The specific POE recommendations are set in bold type and numbered. This is the first PoE report to address the actions taken in response to the previous recommendations of the Panel, and these are reviewed in Section 2 below. The report then

considers GOL actions since the previous mission of the Panel, followed by considerations of capacity, conservation and development. In view of the relevance of the criteria and guidelines published on November 16th by the World Commission on Dams (WCD), Section 7 and Annex 2 focus on this subject, while Section 8 focuses on the World Bank.

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, NTEC, IUCN, non-governmental organizations (NGOs), 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 His Excellency the Prime Minister, the Minister of the Ministry of Industry and Handicraft, the Minister of Agriculture and Forestry, the Nam Theun 2 GOL Representative, and their staffs, especially Phalim Daravong and Bounsalong Southidara for overall organization and arrangements including the helicopter overflight.

We are particularly grateful for the organization and arrangements made by the GOL NT2 National Project Director, Dr. Maydom Chanthanasinh who accompanied us throughout the field trip, to Nakai District Governor Xiengsy Sengthongdy who joined the PoE during the last four days in the field, to NTEC 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, Peter Goldston and the staff of NTEC, especially Loy Chansavat, who organized the other parts of the field visits for the Panel. 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.

ABBREVIATIONS, ACRONYMS AND GLOSSARY

Ban	Village
CPAWM	Center for Protected Areas and Watershed Management of the Department of Forestry, Ministry of Agriculture and Forests
DAFO	District Agriculture and Forestry Office
DFRC	Division of Forest Resource Conservation of the Department of Forestry (formerly CPAWM)
DSPE	Dam Safety Panel of Experts for NT2
EAMP	Environmental Assessment and Management Plan
EDF	Electricite du France
EGAT	Electricity Generating Authority of Thailand
EGCO	Electricity Generating Public Company Limited
ESM-OP	NT2 Environmental and Social Management Operational Plan
ESMP	Environment and Social Management Plan for Nakai-Nam Theun Catchment and

	Corridor areas
GOL	Government of Lao P.D.R.
GPS	Global Positioning System
IAG	The International Advisory Group for NT2 of the World Bank
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
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
NTEC	Nam Theun 2 Electricity Consortium
NT2-WMPA	Nam Theun 2 Watershed Management and Protection Authority
NTSEP	Nam Theun Social and Environmental Project (of the World Bank)
Panel, PoE	The International Environmental and Social Panel of Experts for the NT2
Phou	Mountain
PHRD	World Bank Population and Human Resources Development IDA Grant
RAP	Resettlement Action Plan of 1998
STEA	Science, Technology & Environment Agency of GOL (which reports to the Office of the Prime Minister)
UNDP	United Nations Development Program
WB	World Bank
WCD	World Commission on Dams
WCS	The Wildlife Conservation Society
WMPA	Watershed Management and Conservation Authority
XBF	Xe Bang Fai

1. OVERVIEW

1.1 The PoE Views on NT2

As in previous reports, the Panel reiterates its strong support for the NT2 Project³. The Project sets new high standards for resettlement and environmental issues and the PoE is convinced that if it is executed as planned with World Bank involvement NT2 will be a model of global significance. This conclusion is strongly supported by the impressive degree to which the NT2 is in compliance with the guidelines and criteria established by the World Commission on Dams, whose final report was published in November, 2000 (see Section 7 below and Annex 2 for application of the WCD criteria and guidelines to the NT2).

Further, the PoE remains convinced that if the NT2 Project is not carried out as planned with WB involvement, the effect will be to increase rather than decrease rural poverty, and to seriously degrade or lose entirely the globally recognized biodiversity values of the NBCA. GOL action undertaken with WB encouragement and support has established legal basis for protection of the NBCA, deflected logging and inappropriate development away from the watershed in years past and halted illegal logging. If the WB was to withdraw and the NT2 was not to be constructed by NTEC, we believe that GOL would have the greatest difficulty maintaining the present encouraging situation.

At the same time, if the project is carried out with WB involvement, the PoE realizes that success will not be easy and is not assured. Success depends on executing the world-class plans that exist and maintaining that level of execution for the life of the project. That, in turn, depends on capacity which is in critically short supply in Laos, as it is in other small developing countries, and on political will which is sustained throughout the project. This consideration is the foundation on which the approach of the PoE is based, and it underlies this and all previous PoE reports.

1.2 NT2 and NTEC: The Past 2 Years

The defining event of the past two years has been the gradual economic improvement since the 1997 Asian economic downturn. This downturn severely affected the economies of Laos as well as its neighbors and one result was the inability of EGAT to proceed with the agreements on NT2. During this period most NT2 activities were suspended and because of that the PoE did not visit Laos during 2000. In May, 2000, following protracted negotiations, GOL, NTEC and EGAT finally reached agreement on tariffs and associated arrangements and work on NT2 restarted.

Since 1999 NTEC again has been restructured. The major partner, Electricite' de France (EDF) now holds 35 percent of the total investment. EGCO, a subsidiary of EGAT, has joined NTEC with a 25% share. Italian-Thai Development holds 15% and GOL holds 25%, with an

³ The description and background information on the NT2 Project are covered in previous PoE reports and will not be reiterated here.

option to increase its share up to a maximum of 40% after 15 years from the date commercial operation begins. Full ownership of the project will be transferred to GOL at no cost at the end of the 25 year concession period. During 2000 negotiations between GOL, NTEC and EGAT successfully reached agreement on the tariff and associated matters. It is anticipated that the Power Purchase Agreement, Concession Agreement and Shareholders Agreement will be signed within the first quarter of this year.

The agreement with EGAT calls for commercial operation to start in 2006. NTEC is to provide an installed capacity allowing for a 920 MW Intermediate-Peaking delivery of power at the Lao-Thai border. This is a change from the original plan to provide for Base Load constant power supply, and would have the effect of discharging a high volume of water during the peak load periods and lower volume at other times. To avoid sending large pulses of water downstream of the power plant with potentially adverse environmental and social impacts, NTEC has altered the original plans and will create a large regulating pond. Water from the generators will be discharged into the pond, which will hold the water to equalize the pulses and then release it in a relatively steady flow downstream. Details of the downstream discharge and its relevance to irrigation and fisheries are presented in Section 6 below.

In addition to the power provided to EGAT, the NT2 will have two 40MW generators to provide electricity for sale to Electricite' du Laos for domestic uses, with special emphasis on irrigation.

1.3 Dam Safety Panel of Experts

GOL has appointed a Dam Safety Panel of Experts⁴ (DSPE) which held its first meeting in Vientiane in February, 2000, followed by meetings in Europe in June and August, 2000.

1.4 EAMP

The final Environmental Assessment and Management Plan (EAMP) is to be submitted by NTEC to GOL in January, 2001. The Science, Technology and Environment Agency (STEA) is to circulate it to ministries, collect comments and send it to the office of the Prime Minister for final approval. The EAMP is intended to identify the environmental impacts of the project and describe how they can be avoided, managed or mitigated. Earlier drafts have been widely circulated and the semi-final draft was the subject of a public workshop in Vientiane in November, 2000.

1.5 Operational Plan

Between 1995 and 1998 IUCN prepared an Environmental and Social Management Plan

⁴ The Panel is composed of Dr. Paul A. Back (UK) and Dr. Arthur H. Stukeley (U.S.).

(ESMP) for the NT2 watershed area. This document provided a valuable and detailed strategic framework, and to make the strategy operational GOL and PoE requested an operational plan which would present a prioritised and focussed work program including a realistic budget on a scale comparable to other GOL priority activities. The World Bank provided a PHRD grant for this purpose to GOL. The plan was developed through a process which included public review and discussion both in Vientiane and with stakeholders in the NT2 area. The result is the NT2 Environmental and Social Management Operational Plan (ESM-OP) of May, 2000 (Lao PDR/MAF 2000).

1.6 Public Consultations

GOL and NTEC have continued their intensive program of public consultations in connection with the planning and development of NT2. These include numerous meetings with people in the affected villages on the Nakai Plateau and in the NBCA, meetings in nearby towns and meetings and workshops in Vientiane. The total number of consultations to date is over 240. From its own attendance at consultations in Vientiane, Lak Sao, and in the project area, combined with its own consultations with many of the villagers and others involved, the PoE feels that this program has succeeded in both providing information and receiving advice, views and assistance, most particularly in the NT2 Project area, and it has helped assure that the stakeholders have a meaningful role throughout the project development.

1.7 NT2 Boundaries, Status and Institutional Arrangements

GOL has taken action to formalize the status and boundaries of the NT2 area. The new boundaries formally include the corridors linking the original NNT-NBCA with the adjacent protected areas. These corridors provide what are believed to be essential passageways for wildlife moving between the protected areas and significantly augment the globally important biodiversity values of the NT2 Project. In addition, GOL has taken actions to establish institutional structures for the management of the NT2. These GOL actions are discussed in Sections 3.1 and 3.2 below.

1.8 Collection of Guns

The district governments in Nakai, Gnommalath and Khamkeut Districts have continued with the collection of guns used for hunting from the NT2 area and surroundings. The difference between now and the first visits of the PoE is dramatic in terms of less guns and more birds and small mammals. During the PoE's early visits virtually every male villager above the age of 10 or 12 had a hunting weapon, usually a village-made muzzle-loading gun. On this visit the only guns observed were in the hands of village police or soldiers, although cross bows and sling shots were evident. While far from common, birds were seen or heard occasionally by the PoE on this visit, in sharp contrast to previous visits.

1.9 Conservation and Development in the NBCA

Protection of the watershed values, conservation of biodiversity, and equitable development for the human population remain central objectives and major challenges for management of the NNT-NBCA. An initial start had been made to diversify agriculture, improve livelihoods and conserve biodiversity by NT2 projects managed by the IUCN (IUCN, 1999b). These had produced significant results including both livelihood improvement work within project villages and development of cooperative patrols to conserve biodiversity heavily threatened by poaching and collection of NTFP, primarily by people from across the border.

However, much of the momentum and continuity of these important activities were lost when the World Bank funding ran out and the project was terminated in July, 1999. A further World Bank-funded IUCN-managed project was conducted from May to November, 2000, but because of funding constraints this project was limited to the area of Ban Makfeuung and nearby villages and the biodiversity conservation component was limited to wildlife survey rather than active protection. The WB LIL project, District Upland Development and Conservation Project, appears to the PoE also to be narrowly focussed, not directly building on, or providing continuation for, the work already done, and it has yet to become operational in the field, at least in a positive fashion⁵. Therefore the pattern of starts and stops in WB-funded project activities in the NBCA is continuing. Consequently, **that GOL give urgent priority in the NBCA to reestablishing, expanding and maintaining joint conservation patrols with villagers, village militia, and district army (with suitable per diem), and other relevant activities aimed at conserving the unique biodiversity of the area (Recommendation no.1).**

The PoE and IAG have strongly emphasized that continuity is crucially important to NT2. Interruptions to funding have led 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 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 development and conservation processes themselves. Threats to the integrity of the biodiversity of the NNT-NBCA are increasing, and inadequate and uncertain support can lead to irretrievable losses.

1.10 World Commission on Dams

In November, 2000, the World Commission on Dams issued its final report which included globally-applicable criteria and guidelines. In meeting both World Bank and World Commission on Dams criteria and guidelines (see Section 7 below), the NT2 Resettlement Action Plan will provide a world-class model if successfully implemented. What is currently impeding implementation is the ongoing failure on the part of the World Bank to reach a decision as to whether or not to support the NT2 project.

⁵ The December 2000 Aide Memoire noted that “it has been observed that several officers were engaged...in wildlife trading/hunting.”

1.11 Illegal Logging

Early in 2000 unconfirmed reports were received by the PoE and the World Bank that logging was being carried out in areas of the NT2 which were supposed to be protected. Consequently in May, 2000, a WB mission visited Laos and surveyed the state of logging. The mission was accompanied by representatives of the PoE and IAG, and in the field it was accompanied by representatives of the GOL, the Khammouane and Bolikhamxay Provinces and the districts involved, IUCN and NTEC.

The mission followed a rigorous, standardized methodology in surveys by helicopter and vehicle to assure that the procedures and results were accurate, consistent and as complete as possible. Satellite images and maps were used to identify potential recent logging activities, and the mission members used handheld GPS receivers to determine exact locations. Whenever evidence of recent logging was found the location was precisely located, it was recorded with a standardized description, photographed, and when necessary examined on the ground. The records were then transferred back to a Geographic Information System to compare with the boundaries of the protected areas. The mission surveyed the borders of the NNT-NBCA (other than the Vietnam border), the Nam Theun corridor (between the NBCA and the Khammouane Limestone NBCA), the borders and areas surrounding the area to be inundated, and a significant part of the NBCA, corridor and resettlement zones outside of the planned reservoir.

The mission results indicated that there was no logging in the upper NBCA or the lower areas of the Nam Theun corridor, but that there were substantial logging activities in at least four areas outside the sanctioned logging areas, including some of the areas scheduled to be community forestry areas for the resettlement activities, plus a number of less substantial but still significant infractions of the agreements between the GOL and WB. The present PoE mission received an indication of the magnitude of the infractions. The PoE was informed that the illegal logging in the Community Forestry Area by Gnommalath District, in the Corridor around the Nam Malou area (by the Nakai District) and in the Thousand Island area totalled 32,034 cubic m. When the PoE visited another site identified by the May WB mission, near Ban Ka Oy, the loggers stated that they had cut over 3,000 cubic m. there.

On May 9 Mr. McDowell (IAG) and Dr. Talbot (PoE) wrote to the Prime Minister summarizing the findings and presenting recommendations for immediate GOL action. On May 19 the Office of the Prime Minister replied to McDowell and Talbot accepting all the recommendations and issuing Government Notice No. 0885/CPMO to put the recommendations into effect. The main actions included ceasing logging in the areas involved, ordering that boundaries be clearly delimited and corridor and resettlement areas be given full legal protection, establishing a local body to monitor wood exploitation, and approval of a joint annual monitoring by GOL, NTEC, and WB with participation by PoE and IAG. An Aide Memoire was signed by the WB and GOL providing additional details and agreements, and a technical report was published presenting the full findings (World Bank, 2000).

1.12 The Northern Extension

The Northern Extension area is not a part of NT2, in part at least because it is in a different catchment and it lies in Bolikhamxay Province. However, the PoE and IAG have continually stressed the key biodiversity conservation importance of this area and emphasized the need for its protection. On December 8, 2000 the area was accorded legal protection as a Provincial Protected Area. The PoE commends the Bolikhamxay authorities for their action, and **that GOL seek appropriate international assistance for the Bolikhamxay authorities to develop an effective and ongoing program to assure conservation of the Northern Extension with its important biodiversity (Recommendation no. 2).**

1.13 Conservation and GOL

From 1994 to 1999 the GOL agency responsible for conservation was the Centre for Protected Areas and Watershed Management (CPAWM), a Technical Unit within the Department of Forestry. This was the body responsible for wildlife, protected areas, wetlands, watershed management, and conservation education and extension. As such it had responsibility for the Lao PDR system of NBCAs. In mid 1999, however, CPAWM was abolished and partially replaced by a Division of Forest Resource Conservation (DFRC). We understand that the total number of staff was reduced from 55 in 1998 to about 14, responsibilities for wetlands and watersheds were transferred elsewhere and conservation education and extension were dropped altogether. At the same time, there have been increasing reports that GOL (and especially Department of Forestry) was increasing emphasis on exploitation and development and significantly decreasing biodiversity conservation. This is understandable in a developing nation with urgent economic needs, especially during a period of severe economic downturn. However, this is of concern to PoE because when NT2 becomes operational its success in conservation is dependent on the policies and programs of the GOL. PoE notes that international experience has shown increasingly clearly that sustainable development is only possible where it is accompanied by adequate attention to environmental considerations, that a high percentage of the Lao people rely directly on biodiversity resources for an important part of their livelihood, and that the nation's unique biodiversity offers a globally important resource of economic potential. Consequently, **the PoE recommends that GOL assure that conservation activities, including education and extension, be an effective part of GOL policies and activities (Recommendation No. 3).**

2. ACTION ON PREVIOUS POE RECOMMENDATIONS

In its Fourth Report in January, 1999, the PoE made a series of recommendations. The PoE notes with appreciation that action has been taken on most of these. The recommendations are presented below, with the action taken shown in bold print.

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. **A tariff agreement has been reached between the GOL, NTEC and EGAT.**

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. **GOL has issued a Decree dated 29 December, 2000 which includes the corridors within the protected area.**
3. that NT3 be reinvestigated and the catchment of Theun Himboun and NT3 dams, including especially the Northern Extension, be protected as soon as possible by actions centred on Bolikhamxay Province. **On 8 December, 2000 GOL has established legal protection for the Northern Extension as a Provincial Protection Area.**
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 . **This has been explored with UNDP but no action has been forthcoming yet.**
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. **No decision reached yet.**
6. that the Governor of Khammouane Province becomes Co-Chairman of the Board of Directors of the NT2 Watershed Management and Protection Authority. **The PoE understands that the GOL decision to establish the Watershed Management and Protection Authority specifies that the Governor of Khammouane Province is the Vice Chairman of the Authority, and Permanent Standing Member (i.e. Managing Director).**
7. that an international Engineering Panel of Experts (Dam Safety Panel) should be appointed before World Bank appraisal of the NT2 Project. **The Dam Safety Panel has been appointed and is operational. It held its first meeting in Vientiane in February, 2000.**
8. that the WB LIL project 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. **The on-going efforts, managed by IUCN, were extended to July, 1999, and were followed up with a further, but fund-restricted, IUCN-managed project from May 15 to November 15, 2000. While the LIL is intended to strengthen some of the development and conservation efforts initiated by the previous IUCN-managed projects, the POE notes with disappointment that the LIL is not a satisfactory response to the development and conservation needs referred to in this recommendation, that most of the LIL funding is to be devoted to**

consultants, and that no real field work has been undertaken yet (see Section 1 above and 6.2 below).

9. that the World Bank appoint a full time Task Manager and resident staff for the NT2 Project. **This has not been done yet, although the Bank has appointed an additional resident staff member who has partial responsibility for some aspects of NT2. It is planned that when (and if) the Bank makes a positive decision on NT2 a full time staff member will be posted in Vientiane and office facilities are available for that person.**
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. **Discussions with UNDP were undertaken but no additional support has been identified yet.**
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. **This does not appear to have been done, and is still needed urgently.**
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. **While there is agreement on the urgent need to phase out trans-border trading, GOL prefers accomplishing this by improving trading access into Laos rather than by establishing border markets.**
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. **Except for considerations of border markets (see previous recommendation) and World Heritage Status (see next recommendation) this has not been done and is needed urgently.**
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. **GOL has agreed to a phased approach to seeking World Heritage Status for the area.**
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. **The**

IUCN-managed activities (under a PHRD grant from the World Bank) continued through July, 1999, and from May 15 to November 15, 2000 (under a further PHRD grant) but they have gradually been reduced to Ban Makfeuung and nearby villages. The also less inclusive LIL has yet to become effective.

16. that the western boundary of the NNT NBCA (where it runs close to or through inhabited country) is demarcated and stabilised. **This has been done with GOL Decree of 29 December, 2000.**
17. that highway 8B where it runs through the corridor to the Khammouane Limestone NBCA is policed to prevent hunting and settlement along its margins. **We have no solid information on this.**
18. that as a matter of urgency and before appraisal the revised ESMP report needs to have a prioritised and focussed work program that includes a realistic budget and is on a scale comparable to other GOL priority activities. **This has been done in the form of the Operational Plan for the Environmental and Social Management of the NT2 Watershed and NBCA (Lao PDR/MAF 2000).**
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. **This process is underway.**
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. **This is being done.**
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. **This principle has been accepted.**
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. **This has been agreed and the Panel of Engineering Experts has been appointed and is operational.**
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. **Because of the regional economic downturn all such activities were delayed, but the base line monitoring program is to be initiated in the 2001 dry season with the intent of continuing until the start of commercial operation of the NT2.**

3. KEY GOL ACTIONS SINCE THE 4TH POE MISSION

3.1 The Watershed Management and Protection Authority

The Watershed Management and Protection Authority (WMPA) has now been decided on by GoL and a Prime Ministerial Decree has been signed. The Minister of Agriculture will be chairman and the Governor of Khammouane Province will be the vice chairman and Permanent Standing Member.

3.2 Legal Action to Establish Boundaries and Status of the NT2 Area

A Prime Ministerial Decree of 29 December, 2000, described the boundaries of the NT2 area. The core is Nakai Nam Theun National Biodiversity Conservation Area (NNT NBCA). Also included are Nam Theun corridor running west to the Phou Hin Poun NBCA (viz the Khammouane limestone) and the southern corridor across highway 12 to the Hin Namno NBCA.

3.3 Northern Extension

The provincial government of Bolikhamxay has created a Provincial Protection Area, under powers recently granted by central government, which covers the important forests along the Vietnamese frontier north from the edge of the WMPA at highway 8. These forests are important for wildlife especially saola. It is important that the new Protection Area is adequately managed (see Recommendation No. 3 above).

3.4 Logging ban

The World Bank logging survey mission of May 2000 (World Bank 2000) conducted by representatives of the WB, this POE (Talbot), the International Advisory Group (McDowell) and GOL officials, discovered illegal logging at several places on the Nakai plateau. McDowell and Talbot wrote to the Prime Minister on 10 May detailing the main infractions. On 19 May they were sent a reply by the PM's office and on the same day that office issued a notice (0885/CPMO) instructing to 'cease wood exploitation' in the specified places, notably the part of the plateau near the escarpment designated as community forest for resettled villagers, above the future waterline, and in the proposed corridor to the Khammouane limestone. This logging issue is further discussed in Section 1.11 above.

The Prime Minister's Order 10 of 4 October 2000 banned all logging within the area of the Watershed Authority. Now, in 2001, only already-felled timber can be removed from the area.

3.5 Access Track

Nakai District in 2000 instigated the creation of a narrow track into the NBCA. In response to WB concern, in late 2000 GOL suspended its construction. The track runs north east

for about 5km. from the north bank of the Nam Noy at Ban Ka Oy as far as a bare sandstone slab. This track is 3-5m wide (most of it is the width of a bulldozer blade) and it appears that no trees have been felled for its construction. It upgrades part of one of the main foot paths to villages of

the upper Nam Noy within the NBCA. The track has gentle gradients but crosses several gullies. By the time the PoE walked its length on 14 Jan 2001 these gullies had all washed out.

4. THE CRITICAL ISSUE OF CAPACITY

Where countries with a relatively small population become involved in development activities following the construction of such large-scale infrastructure as major dams, lack of implementation capacity is a world-wide constraint that GOL also recognizes. In the introduction to government's 20 September 2000 report on *Macro-economic Policy and Reform Framework*, the second of three development pillars or stages is "structural transformation and capacity building," while the third is "the creation and building up of the prerequisites for a people-centred participatory development."

In the NT2 project area the PoE believes that successful capacity building can only occur if it involves the village sector in a major way -- hence linking the second pillar closely to the third. Though weakened by lack of continuity, efforts by IUCN to develop capacity in "Guardian Villages" within the NBCA illustrate the potential of linking trained villagers with other personnel in undertaking conservation activities. On the Nakai plateau participatory planning of resettlement areas has been combined with training workshops and classes at the Farm and the Nursery.

If conservation and development activities are to succeed, all such capacity building must be accelerated and continued over an extended time period that may require ten or more years of continuity and effort. This is especially the case in regard to stabilizing the livelihood systems of NBCA and Nakai Plateau resettlement villages.

The community forest component in the RAP will necessitate increasing the skills of district forestry staff (DAFO), creating a community forestry association, and training villagers in all aspects of sustainable forest management. Similar training applies to the other components of the RAP as well as to the conservation and development of the very ambitious WMPA (see also Section 1.1).

5. CONSERVATION CONSIDERATIONS

5.1 Threats to Biodiversity

Recent surveys have clearly shown that at present the most serious threat by far to the biodiversity, especially the animals, is commercial hunting by poachers from across the

international frontier (IUCN 1999b, Robichaud and Stuart 1999). Cross border traders enter NNT NBCA and commonly stay for several weeks setting snares and hunting. Access from Vietnam has recently become easier with the building of a highway which reaches the international frontier opposite the headwaters of the Nam Noy. Lines of several hundred snares have been found. At any one time there are 'probably more foreign wildlife poachers in the area ...than there are Lao citizens' (IUCN 1999b). The main area of concern is a broad belt along the frontier c.20 km. deep. Large scale poaching began in the mid 1980s and has depleted animal numbers that had persisted through centuries of low density Lao occupation. The chief of a village in the upper Nam Pheo has predicted three phases 'first they quickly wiped out...elephant, any rhinos that may have remained, 'golden turtle', rattan and mai dam (Aquilaria)...they have moved to a second phase ...pangolins, primates, otters, tigers, other turtles and snakes, plus...low grade mai dam...when these are gone they will move on to timber' (quoted in IUCN 1999b). Villagers are fearful to venture far into the forest because of these armed poachers. The project executed by IUCN with PHRD funds from May 1998 to July 1999 started anti-poaching patrols at a few key villages near the frontier. These comprised villagers, local police and local militia and provide a model of what can be accomplished with local capacity.

The POE recommends that as a high priority, village-based anti-poaching patrols need to be revived and expanded (Recommendation No. 4).

5.2 Elephants

The available information on elephant is summarised in IUCN (2000, pp 10-12 and map 2). There are believed to be 100-150 elephant in the areas of the Nakai plateau and NNT NBCA. Because of poaching elephant are no longer present near the international frontier. Some currently inhabit the area near the dividing hills that bound the plateau to its northeast, the thousand islands area of the plateau, and the corridor to the Khammouane Limestone NBCA. They move away from areas of active logging. One (major?) route of elephant movements between the NBCA and the corridor is across the Nam Theun near Ban Thalang. Four important saltlicks at the western end of the plateau visited by elephant will be inundated by the reservoir, but villagers report that there are many more salt licks. From what is known the elephant herds in the NT2 area seem to have shown a capacity to move location in the past few years. This augurs well for their capacity to adapt to the configuration of the forests which will result from creation of the reservoir. DFRC began a further survey of elephant in the Nam Theun corridor and thousand islands area while the PoE was in Laos.

5.3 World Heritage Status

GOL has now made the decision to apply for World Heritage status for the NNT-NBCA, but wishes to get the Authority established first. The PoE warmly welcomes this decision.

5.4 Agriculture within the NNT-NBCA

The first steps have been taken to confine village agriculture in the NNT-NBCA within

its present boundaries by increasing production through the development of irrigated rice fields, vegetable gardens, and diversified and more intensive dryland agriculture. These are described in Section 6 below. From the conservation perspective it is important not to fell more primary forest for agriculture. Primary forest, however, gives a higher rice yield than bush fallow land and the PoE notes with concern that Ban Makfeuung felled several ha in 1998 to get larger crops in compensation for two successive failed harvests in 1996 and 1997 (IUCN 1999). We also observe that the patches of secondary forest of different ages and primary forest surrounding villages has high biodiversity with some plants and animals specialised to such mosaics.

5.5 The Future of Logging

As described in Section 3.4, logging was banned in the NT2 area by PM Order 10 of 4 October 2000. No more felling is allowed. Currently, during the 2001 dry season, trees felled before the ban are being removed. There are still some standing large trees in parts of the area to be flooded which should be felled.

Lakxao

At, Chan Lin Lumber(Lao)Co Ltd have recently rebuilt and enlarged their factory. This Taiwanese company started in 1992 and initially exported logs to its mill in Vietnam. However, they moved to Lakxao because Laos now bans log export. Chan Lin can peel pine logs as small as 15 cm diameter (to produce veneer for export to Europe and Australia) and produces thin strips (also for export) which are ultimately glued into laminated blocks which are used for furniture. These machines can use small-dimension wood. Chan Lin therefore has the capacity to utilise small-sized trees and branches from the forests of the inundation zone which would otherwise be unused.

The POE recommends that steps are taken after project approval to fell and utilise the small diameter pine trees in the area of the Nakai Plateau to be flooded (Recommendation No. 5).

Chan Lin's other raw material comes from Xieng Khouang Province north of Lakxao. The company told the PoE it has built a 280 km.. access road to stands of 'cypress' (which in this case seems to be Keteleeria not Fokienia), a high value timber sold as sawn wood.

Timber export is still a major foreign exchange earner though now said to be in third place after garments and tourism. Chan Lin, BPKP and the other saw and veneer mills at Lakxao and around Thakhet may exert strong political pressure to be allowed to log inside conservation areas when their existing log sources are exhausted and before plantation grown timber becomes ready to harvest.

5.6 The Operational Plan

In May 2000 an Operational Plan for the Environmental and Social Management Plan (ESMP) of NNT NBCA (IUCN 1998) was published (Lao PDR/MAF 2000). This operational plan was agreed to after discussions with the various stakeholders. It includes three different

levels of proposed activities, the middle one of which was agreed to, and appears in the report as Table 9,p.35 as a Ministry of Agriculture and Forestry recommendation.

The agreed operational plan is the blueprint for the WMPA. It works mainly with Lao nationals with some international technical assistance which will focus on training. It works through and builds on existing District and Provincial organisations and staff. It specifies a pre-operational Preparatory Plan of 1.5 years , followed by a first 5 year Operational Plan. The budgets are 1.43 and 7.75 million US dollars respectively, totalling 9.18 over the whole 6.5 years. The operational plan excludes any description of work and budget needed for the plateau/reservoir/resettlement areas of the NT2.

The POE recommends that the Operational Plan starts without delay as soon as the decision is made by WB to proceed to (Pre) Appraisal (Recommendation No. 6).

NTEC have agreed to pay \$US 1 million annually for 30 years, which is index-linked to 50% of U.S. inflation, for conservation and development in the NBCA, so there is a deficit over the first 6.5 years for which NTEC has promised funding of 6.5 million. The PoE agrees to the need for rapid build-up of the WMPA and endorses the Operational Plan. There will be heavier expenditure in the early part of the 30 year period. There is also likely to be a need for limited funding for monitoring of poaching and logging in the period before the WMPA becomes operational.

The PoE recommends that if it does prove possible to develop the WMPA as rapidly as the operational plan specifies then NTEC should consider extra disbursements. Extra disbursements for monitoring (especially logging and poaching) should also be provided if the implementation of the Operational Plan is delayed (Recommendation no. 7).

5.7 Saola Conservation

There is no mention in the Operational Plan of any special measures to conserve the saola (*Pseudoryx nghetinhensis*), a new genus of bovid discovered in 1992. This is now known to occur throughout the NNT NBCA and a special conservation plan for it has been written (IUCN 1999a). The saola is the most dramatic discovery of a new mammal anywhere in the world in recent decades. The potential role of NT2 in protecting the saola has been considered by the PoE and others to be an important conservation argument in support of the project. Saola could become a “flagship” species for the WMPA and NTEC to symbolise the importance of the area and project and the commitment of GOL to biodiversity conservation and rural development.

The POE recommend that steps to conserve saola be started as soon as practicable within the overall framework of the Operational Plan (Recommendation No. 8).

5.8 The Reservoir

The NT2 area as delimited in the Jan 2001 decree includes the whole Nakai plateau. The

PoE understands that within Khammouane Province, the plateau now lies entirely in Nakai District as a small strip along the scarp that was formerly in Gnommalath has been transferred.

The complex interactions of conservation with the multifarious resettlement activities (fisheries, village resettlement, community forestry) have still to be resolved.

The POE recommends that coordination be assured between WMPA (as soon as it is functional) and the various institutions involved in resettlement (Recommendation no. 9).

5.9 Dam Construction and Operation

NTEC have reduced minimum reservoir level by an extra 2.5 meters, so it will now be 525.5 m., not 528 m., perhaps every second year. The full reservoir area of 450 sq.km.. will now drop to 82 sq. km., i.e., by approximately 80%. The drawdown zone, likely to be a mixture of patches of sand, dead trees, and opportunistic grasses, will reach as much as 368 sq. km..

The Dam Safety Panel of Experts notes that the installed power generating capacity is planned to be 1048MW rising later to 1088MW (DSPE, 2000a, p.20). Will that increase have environmental implications?

The DSPE note that the “rate of rise of water in the downstream channel does not exceed 0.2m./minute...in the case of a dry start. The speed of rise appears rather high and may represent a possible danger to children and animals.” (DSPE, 2000a, p.17).

Finally, DSPE (2000b, p.10) report that a core hole was drilled at a 30m. high scarp 1 km.. below the dam site; 12m. of fine grain sandstone was found “that might hold potential for development as a local source of material to be crushed for aggregate...tests are underway to check alkalai reactivity” viz its suitability for concrete.

The POE note that this cliff is within the Nam Theun Corridor and that no mineral extraction should take place there if there is any reasonable alternative.

6. DEVELOPMENT CONSIDERATIONS

6.1 Introduction

Following the PoE’s Terms of Reference which extend from the Vietnam border to the Mekong River, development issues considered in this section deal in sequence with the NNT-NBCA, the Nakai Plateau and the Xe Bang Fai Basin.

6.2 NNT-NBCA

Introduction

For development that is environmentally, economically, institutionally and culturally sustainable, the PoE endorses the top IUCN priorities for the NBCA. These are a stable institutional framework, a coordinated program addressing the various conservation, development, and management issues and a commitment to continuity of support for an extended time period. In good part because of delayed project approval by the World Bank, progress to date toward meeting these priorities has been unsatisfactory.

Though an institutional framework in the form of the WMPA has been approved, funds for its implementation on the ground will only become available once the NT2 project is approved. As for development activities initiated under IUCN contract with government support for the 5000+ villagers living in the five major tributary valleys above the dividing hills, funding delays have broken their continuity and forward progress, while the absence of funding makes the necessary commitment to continuity impossible.

Under grant funding from the World Bank, and with the help of several subcontractors, IUCN carried out a number of village-based activities within the conservation area during the May 1998 - July 1999 period that built on environmental and social strategy planning initiated during 1997. For experimenting with a pilot improved livelihood model, site specific activities were carried out in the Ban Makfeuung area along the upper Nam Theun. Facilitated by participatory land-use planning, villagers were introduced for the first time to wet rice paddy cultivation. Efforts were also made to intensify and diversify the villagers' upland cropping system. Health and education issues were also dealt with.

Complemented by similar activities in Ban Maka (upper Nam Noy), Ban Pung (immediately downstream from Ban Makfeuung), and Ban Thameuang (Nam Sot), a guardian village program was also initiated that involved such conservation activities as conservation monitoring and joint patrolling. Six other guardian village sites were identified.

Continuity was then broken. After a gap of nine months, IUCN received a six month (as opposed to the 12 month one requested) grant from the World Bank through the Ministry of Industry and Handicraft for further activities in the Ban Makfeuung area from May to November 2000. No funds were received for the broader conservation activities involving frontier villages. Objectives of the Makfeuung program again focused on further improving agricultural production. Access routes through the dividing hills and wildlife movements were also assessed. Construction of a substantial three room school, where two local teachers cover the first three grades, had been on the villagers' priority list and was very well received. Attendance was excellent, for example, when the PoE visited the school during its January 2001 visit.

Though District agricultural, educational and medical personnel have made occasional follow-up visits through 2000, at the time of the PoE's 2001 visit the World Bank-financed LIL/District Upland Development and Conservation Project had yet to establish field staff in the project area so that project activities once again are being adversely affected by a lack of continuity. This is especially noticeable in regard to the wet rice paddy program where villagers

emphasized their need for resident technical assistance for improving yields on newly made paddy fields, for extending their area, and for developing the small area available for irrigated dry season paddy rice. Failure to achieve the goals of this and other programs for intensifying production will give the villagers little alternative to further encroaching on primary forest, since population increase and land use planning has already reduced the desired fallow rotation period of 8 to 10 years down to 4 to 5 years.

As noted earlier, a major constraint affecting development activities throughout the eastern portion of the NBCA is the difficulty of access through the dividing hills. High priority need be given to surveying the best route and prompt construction of a track that is only wide enough to accommodate two-wheeled tractors and ox carts. Because of the global experience with such tracks opening up protected areas to exploitation and degradation, it is imperative that its function be restricted to the conservation needs of the NBCA and the development needs of its resident villages.

Villagers currently utilize three routes. The shortest and most direct to Nakai town crosses the Nam Theun at Ban Pung. A foot trail then proceeds to the top of Phou Lem and then down its southeast ridge to the plateau and on to Nakai town. The second route proceeds down the Nam Theun through the dividing hills where a series of rapids make boat travel, as opposed to foot travel close to the river, dangerous. The third route crosses the low divide between the Nam Theun and the Nam Noy and then proceeds down the Nam Noy to Ban Ka Oy close to which it is joined by a trail which is a shorter route to Makfeueng that should also be surveyed.

Though all three routes should be surveyed, the future reservoir when full, and the width of the drawdown area, will impede access by the first route to Nakai town. While the second route also requires a connecting ferry service to cross the full reservoir, the channel of the Nam Theun will allow boat traffic to cut through the drawdown area. The advantage of the third route, the bottom 3 kilometers of which constitute the Ban Ka Oy-Nam Noy track referred to elsewhere in this report, is that it reaches the reservoir at a point where its narrow width can easily be traversed by village boats. Its disadvantage is that it is the least direct of the three routes to Nakai town.

The PoE recommends that, to accelerate conservation and essential village development activities in the NBCA, that survey and construction of a two-wheel tractor access route into the Nam Theun, Nam Noy and Nam Pheo tributary basins be given highest priority as a necessary measure. There should be monitoring to assure that the tractor route is not used, expanded or extended beyond its original intended use (Recommendation no. 10).

On previous visits to the NBCA, the PoE has visited villages in both the Nam Sot and Nam Theun basins where small Vietic communities have been resettled. It has come to the PoE's attention that such involuntary resettlement has continued in recent years in the case of Malang being integrated into the Nam Sot village of Thameuang. Such removals not only threaten the type of cultural diversity to which GOL is committed, but destroy in the process the invaluable indigenous knowledge of NBCA resources that Vietic-speakers have acquired.

The PoE recommends that no further involuntary resettlements occur, that the current status of Vietic speakers in the NBCA be surveyed, and that actions be taken to work with them to maintain their cultural integrity (Recommendation no. 11).

6.3 The Nakai Plateau Introduction

The PoE wishes to commend NTEC and the government on the progress realized at both the nursery and the farm since our January 1999 visit. At the nursery the PoE found a three days training class for 28 female and male villagers in session, including four people selected from the pilot village. For their next three month class, villagers will be selected by the Lao Womens' Union and the Youth. At the farm, further development has improved the effectiveness of training activities dealing with diversified systems of mixed (crop and livestock) farming. The three pilot families have improved their farms and livelihoods. Although they are now selling fresh produce, part of their income continues to come from employment on the project farm which indicates that improving livelihoods will require an extended time period that may exceed ten years.

Of three pilot resettlement villages suggested by NTEC, Ban Sailom was selected because of easy access from Nakai District headquarters. With 28 households and 164 people, Ban Sailom was also selected because of its poverty relative to other villages. During the PoE's visit, the villagers stated on several occasions their desire to move as soon as possible. Movement by the end of February is also necessary if fields are to be cleared in time for rainy season cultivation. Movement soon is also essential if Sailom's important learning experience and demonstration function as a pilot village is to occur since a year's further delay will reduce to less than a year the time before the resettlement process in other villages must begin.

The PoE also visited the resettlement site selected with the Ban Sailom villagers. The site of the first topographical mapping for the resettlement program, it is also relatively close to the only host village on the Plateau, which is a consolidated village resettled some years ago by BPKP. Expected host-Sailom tensions can to be alleviated by a shared development program involving irrigated agriculture since the resettlement site is also adjacent to the largest area available within plateau resettlement areas for dry season paddy. With a construction of a 7.5 meter weir, water will be sufficient for approximately 50 irrigated hectares which, as a 0.2 ha per household component of a diversified livelihood system, is sufficient for several villages.

During a full day discussion with District and Provincial officials, including the new Governor of Khammouane Province, a wide range of development issues was discussed as it was during the next four days during which the PoE was accompanied by the District Governor. While the July 1998 livelihood options detailed in NTEC's Resettlement Action Plan are an example of resettlement planning at its best, it is important to emphasize that risk is associated with successfully implementing each component. This statement applies not just to the community forest component discussed below, but also to the reservoir fishery, to the crop

agriculture component (because of the relative infertility of the soil), and to the livestock management component (because of risks associated with the intensification program and the extent to which pasture colonizes the draw down area). For these reasons, it is essential that the various options be combined to the extent possible within a diversified production system for each household and each village. New options should also be considered. As recommended by the EAMP, one is to stockpile firewood from the large quantity of logs left behind during logging operations. This could be sold to the project for use by the labor force and camp followers, providing additional income to the resettlers and reducing pressure on forests surrounding the various labor camps.

Community Forestry

One important component of the livelihood of the resettled villagers, especially in the first few years, is planned to come from the sale of timber from a community forest, to be established along the hills of the Phou Ak escarpment and the adjacent part of the plateau. The villagers have no experience of forestry and the only precedent for community forest management in Laos is the recently prematurely terminated FOMACOP project. Training and management will be provided by DAFO

The plateau forests are mainly pine with some patches of evergreen broadleaf. The hills along the escarpment also bear evergreen broadleaf forest, said to contain much kayung (*Dalbergia cochinchinensis*), a rosewood of high value whose exploitation requires a special license. In January 2001 the PoE inspected parts of the plateau forest designated for community use. It was observed to have been in part logged, especially for pine. Many logs and branches lay on the ground. Pine logs degrade quickly (bluestain and shothole borer) and some of these logs now have little or no commercial value.

It can be envisaged that in the first few years of the NT2 project an income could be made from selling old logs for fuelwood or as charcoal. There will presumably be a big market at the construction camps. Timber sawn from the less degraded logs (as used in the new NTEC Nakai guesthouse) would be suitable for these construction camps. If a license could be obtained a one-off harvest of slow-growing *Dalbergia* could occur. A forest inventory of the community forests is to be made during 2001. Once that is complete, suitably qualified foresters have been seconded from DAFO, and a management plan written, income can be generated from felling remaining large-girth pine and hardwoods, and perhaps also from sale of thinnings of dense stands of young pine.

The PoE recommends:

that the World Bank should recognize that further delays in initiating the pre-appraisal studies can be expected to make implementation of the resettlement program more difficult (Recommendation no. 12).

that because of risks associated with each component of the livelihood model, an

implementation period of up to ten years should be considered essential (Recommendation no. 13).

that implementation of the resettlement program should expand the number of livelihood options available to each household and village to the greatest extent possible (Recommendation no. 14).

that as soon as project approval is received, construction of the weir in the pilot resettlement area should commence (Recommendation no. 15).

6.4 Xe Bang Fai Basin

Introduction

The PoE is of the opinion that one of the NT2 project's most serious impacts on livelihood can be expected in the densely populated (over 50,000 people) Xe Bang Fai basin where greatly increased river flows from the powerhouse can be expected to alter fish behavior, fishing technology, and access to river bank gardens. While project-induced flows will almost double the annual flow at Mahaxai, the greatest impact can be expected during the dry season with water levels at Maxahai increasing by 3.4 to 4 meters.

As stated in the EAMP (2001), the importance of aquatic products to the diet and household incomes of the populations along the XBF can not be overestimated, with fish being the most important item in the diet after rice. In the upper XBF, villagers cultivate 51 hectares of river bank gardens, while the EAMP refers to 500 houses with such gardens in the middle Xe Bang Fai. According to IUCN (1997), the significance of such gardens in the floodplains probably is underestimated in official statistics. Their extent and importance in village diets and as a source of income should be carefully surveyed.

Six of NTEC's 15 NT2 Project zones deal with the Xe Bang Fai basin. Four of these are in the upper basin, with one each for the middle and lower basins. Upper basin zones deal with (1) the powerhouse to the regulating reservoir weir (omitted from further discussion in this section); (2) the 27 km. channel down the Nam Prit to the Xe Bang Fai; (3) the Nam Khatang from the regulating weir to the Xe Bang Fai; and (4) the Xe Bang Fai within Mahaxai District.

Aside from setting aside some funds to compensate for project-induced increased flows within the upper and middle Xe Bang Fai basin, no project-related interventions, as opposed to other government activities, have been planned for the more densely populated lower Xe Bang Fai zone.

Upper Basin Zones

The PoE believes that implementation of NTEC plans for the upper basin have the potential to improve living standards. To reduce the magnitude of impacts, NTEC selected the

less densely settled route down the Nam Phit rather than the less expensive but heavily settled route down the Nam Khatang. To minimize impacts of the channel through the Gnommalath plain, 7 km. will be concreted and raised above the surface. This will allow offtake of water sufficient to double crop the entire 2400 ha Gnommalath irrigation project as opposed to a current dry season cultivated hectareage of only 335 ha (Vientiane Times, January 12-15, 2001). Eleven bridges will also be built across the length of the channel.

As for the Nam Khatang zone, NTEC plans to release a constant flow of 15 cubic meters per second down the river which will greatly increase dry season flows for providing irrigation, fisheries, and domestic water to the 20 riverine villages. The Mahaxai District zone is the most susceptible to natural XBF flooding. So as to eliminate the risk of over-bank flooding, outflow restrictions from the powerhouse will occur when flows at Mahaxai approach 1,970 cubic meters per second and the turbines and outflows will be stopped when the natural flow reaches 2,270 cubic meters per second.

Fisheries

While the authors of the EAMP, and the conventional wisdom within Lao PDR, believe that more water in the Xe Bang Fai will increase fish landings, provided fishing technology is appropriately altered, the belief among fish biologists consulted by the PoE is that project-induced flows can be expected to reduce productivity. The primary reason for these divergent views is the lack of research on the environmental impacts of interbasin transfers in the tropics. In previous reports, the PoE has emphasized the need for several year-long pre-project benchmark CPUE (catch per unit effort) surveys of the biology and socio-economics of the current fisheries. NTEC and GOL's Department of Livestock and Fishery agree that such surveys are important and should commence this year. They should include at least two villages above the Nam Phit - XBF confluence so that comparative 'before and after project' surveys can be completed. At least four villages below the confluence should also be involved, including one in the XBF delta. Such surveys should continue for 7-8 years following project completion. To emphasize the urgency with which the PoE believes that such surveys should commence, the PoE has identified the fish biologist most experienced in this subject and area (Terry Warren) to design and oversee their implementation and arranged for him to meet with NTEC within a fortnight.

Irrigation

Low natural dry season flows in the middle and lower Xe Bang Fai basin are a major constraint for developing dry season irrigation. This constraint will be eliminated by increased project-induced dry season flows. At the same time, project-induced, slightly reduced, wet season flows in the Mekong can be expected to shorten the period of flooding in the XBF delta which is another project-related benefit.

Within Laos, one of the highest government priorities is irrigation development. Within the Xe Bang Fai basin the two major constraints for irrigation are water during the dry season

and lack of electricity. Implementation of the NT2 project will remove both constraints. Using NT2 project electricity, the World Bank, according to the EAMP, is considering irrigation development in Gnommalath and Maxahai Districts during the 2001-2006 period.

Further downstream, the WB-funded Southern Provinces Electrification (SPRE) infrastructure development project has important implications for developing the irrigation potential in the XBF portions of both Khammouane and Savannakhet Provinces that is in excess of 20,000 hectares. Of that potential only about 1000 hectares has been developed to date in Khammouane. As for the 2000 ha developed on the Savannakhet side of the XFB, currently the pump at the Route 13 Bridge is not operating because of low dry season flows. Should the irrigation potential in the middle and lower basin zones be developed with the rice-cum-fish culture system developed by GOL's Fishery Division, that could counter adverse project impacts on the current fishery.

The PoE recommends:

that the extent and importance of river bank gardens to the households involved should be surveyed along the entire length of the XBF (Recommendation no. 16).

that adequately funded fishery surveys should commence this year and continue until the NT2 project is operational. Thereafter they should continue once every two years for a 7-8 year period (Recommendation no. 17).

that irrigation-cum-fishery projects should be integrated into GOL planning for the NT2-project so as to take advantage of over 20,000 hectares of irrigable land in the middle and lower zones for raising living standards while compensating for any costs are involved in project-induced flows (Recommendation no. 18).

7. NT2 IN RELATIONSHIP TO WCD CRITERIA AND GUIDELINES

This section is a brief introduction to the accompanying matrix prepared by Bert Oud⁶ that applies World Commission on Dams criteria and guidelines to the NT2 Project. Both this introduction and the matrix should be read together as a single document.

In applying the WCD criteria, guidelines and recommendations to NT2 or any dam project it is important to keep in mind three considerations. First, the Commissioners did not consider their report to be a blue print to be inflexibly followed. Second, the Commissioners considered large dams to be a legitimate development option under appropriate conditions. This

⁶ Currently an advisor to NTEC, Bert Oud served as a consultant to the World Commission on Dams for approximately 20 months. He was also an author of one of the papers commissioned for the April 1997 meeting at IUCN's Gland, Switzerland headquarters that led to the creation of the World Commission on Dams.

point is especially important granted the tendency of some NGOs and professional associations, for reasons serving their own interests, to erroneously portray the Commission's Final Report as anti-dam. Third, the Commissioners emphasized the importance of adapting their findings to national and river basin considerations. Hence, in the case of Laos, the country's rich water resources (constituting approximately 35% of those within the Mekong River Basin) are especially relevant as a conservation and development resource and as a means for obtaining foreign exchange for development purposes.

In spite of the fact that planning for the NT2 project has been underway for approximately 8 years -- including five years of planning before the WCD was inaugurated -- in the PoE's opinion, the NT2 project meets WCD criteria and guidelines better than any other large dam on the drawing boards anywhere in the world.

In the April 1997 meeting in Gland, Switzerland at which participants unanimously approved creating a World Commission on Dams, discussion paid particular attention to social and environmental concerns as did the WCD Final Report.

In the case of NT2, resettlement plans for the approximately 900 Nakai Plateau families not only fully meet WCD criteria for improving lifestyles but provide, in the opinion of the POE, a globally relevant model. As for the over 240 consultations that have involved project affected people in the NBCA, the Nakai Plateau, and the Xe Bang Fai upper and middle basin, they are exceptional in their intent and thoroughness. Especially relevant were separate meetings in Nakai Plateau village settings with groups of men and women who graphically depicted their conceptions of what the nature of resettled villages should be. In suggesting that they have been duped by government propaganda, critics of the consultation process do a disservice to the resettling villagers' comprehension of the planning process. They also seriously underestimate the existing poverty in the area and the desire of villagers to improve their livelihood.

The PoE is of the opinion that one of the most serious project impacts on livelihood will occur in the Xe Bang Fai basin where greatly increased river flows from the generating station can be expected to alter fish behavior, fishing technology, and access to river bank gardens. To deal with such impacts NT2 project and complementary GOL planning could meet WCD guidelines by going beyond compensation, as described in Section 6.

While adverse social impacts can be countered by good planning and plan implementation, dam construction inevitably causes some irreversible environmental impacts as emphasized by the WCD report. In dealing with such impacts the NT2 project meets WCD guidelines by complementing mitigation with environmental enhancement. Especially significant here is the formation of the Watershed Management and Protection Authority and the December 2000 extension of the Nakai Nam Theun NBCA's boundaries to include the NBCA with its globally unique biodiversity with corridors which provide links to other protected areas, but also the reservoir and the resettlement areas and corridors providing links with other protected areas.

Complementing the selective nature of the above comments, the matrix that is appended

as Annex 2 systematically views the NT2 Project against each of the five key stages in WCD's development process: Needs Assessment; Options Assessment; Project Preparation; Project Implementation; and Project Operation. It then looks specifically at projects in the pipeline. The extent to which the NT2 Project is in compliance is impressive, hence increasing the possibility of NT2 becoming a model for dam-related development in the 21st century, if plans are implemented as proposed.

8. NT2 AND THE WORLD BANK

The PoE is aware of no other World Bank-assisted hydropower project where a member country has been asked to meet such a large, indeed escalating, number of requirements over such an extended period of time. Should the Bank decide to withdraw from the project, the PoE believes that its credibility with both members countries and the private sector will be compromised.

The PoE recommends:

That because further delays will have an increasingly adverse effect on implementation of the NT2 environmental and social components, the World Bank should decide NOW to initiate pre-appraisal (Recommendation no. 19).

that, recognizing the extensive studies completed to date, and positive government initiatives in response to those studies, pre-appraisal and appraisal should be combined (Recommendation no. 20).

9. 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 and/or presentations with World Bank, Government officials, and NGOs in Washington and San Francisco.
- 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);
- Participation by one Panel member in the annual joint Lao/NTEC/World Bank monitoring as noted in the GOL Notice No. 0885/CPMO of 19 May, 2000, and the May, 2000 Aide Memoire of the World Bank Logging Survey Mission.
- Next regular visit of the Panel to Lao PDR at approximately the same time next year.

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- SEATEC. 2001. The Environmental Assessment and Management Plan
- WCD. 2000. Dams and Development: A New Framework for Decision-Making
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ANNEX 1.

Schedule of the 5th POE Visit.

03 January 2001

Tentative Schedule for SE POE on Mission V (January 2001)

Sunday, 7 January

9:30 POE Members arrive VTE, Check in Taipan Hotel.

Monday, 8 January

8:30 MIH (H.E. Minister Soulivong Daravong).

10:00 LNCE (H.E. Minister Prof. Dr. Bountiem Phissamay).

11:00 Committee for Investment and Cooperation
(Vice Minister Khempheng Pholsena).

13:30 NT2 + NTSEP office
(Dr. Maydom Chanthanasinh, Mr. Bounsalong Southidara).

15:30 NTEC.

Tuesday, 9 January

8:30 STEA (Acting Chairman Mr. Sakhone).

9:30 WB Liaison Office.

11:00 Ministry of Agriculture and Forestry
(H.E. Minister Dr. Siene Saphangthong).

13:30 Livestock and Fishery Dept., Mr. Singkham Phonvixay, Director.

15:00 EDL Director and Board member of THPC (Mr. Viraphonh Viravong).

16:00 IUCN.

Wednesday, 10 January

7:00 Departure Vientiane to Nakai via Lak Sao.

- 12:00** Lunch at Lak Sao.
- Visit wood processing plant at Lak Sao.
 - Drive up route no. 8 to Vietnam border.
- 16:00** Meeting with Provincial and District Authorities.
- Dinner hosted by Khamkeut District.
 - Overnight at Lak Sao.

Thursday, 11 January

- 7:30** Departure to Nakai on road 8B with stop-over.
- Access road to Navang up until it is not driveable.
 - Proposed quarry site at Phou Phako.
 - Work camp site on road 8B (TBD).
 - Lunch at Ban Nam Nien (log check point).
 - Drive through “Thousand Islands” with stop to see illegal logging on the islands as recorded by WB mission in May 2000.
- 14:00** Arrive at Ban Thalang
- Deviate from road 8B to Nam Malou area.
 - Visit Nam Malou area and boundary between community forest and corridor.
 - Drive to rejoin road 8B at Ban Nong Bouakham.
 - Visit Nakai Neua nursery.
- 18:00** Arrive Nakai District town.
- Overnight at NTEC guest house.

Friday, 12 January *(One day meeting in Nakai District)*

- 8:30** Meeting with Provincial and District officials (RC, RMU, DRWG) respectively led by Provincial Governor, Nakai District Governor, RMU Manager and NT2 GOL Project Director.
- Issues to be presented and discussed are:
- Capacity building : provincial, district.
 - Training RAP activities for RMU, DRWG.
 - Pre-resettlement activities of pilot village.

- Issue of access to NBCA, planning awareness activities for population in NBCA, short term activities, food relief related to conservation activities in order to stop poaching and illegal logging.
- LIL activities report.
- Questions and answers.

Invited Participants: IUCN, LIL, proposed Watershed Management Authority.

18:00 Dinner hosted by Nakhai District.

Saturday, 13 January

7:30 Drive to south-eastern escarpment (the area of community forest where illegal logging occurred and was recorded by WB mission in May 2000).

- Visit to Theun Douane farm.
- Lunch at Theun Douane farm.

13:30-15:00 Visit proposed pilot village resettlement sites.

15:00-17:00 Visit Sailom Village proposed to be pilot village.

Meeting with local administration, village LWU and elders. Chief of village to report on pre-relocation activities:

- Strengthening village administration.
- Village RC organisation and RAP training.
- LWU village training on Participatory Planning.
- LWU village visited Theun Douane farm for learning grown vegetable cooking.
- Planning resettlement activities:
 - Public consultation on selection of village site
 - House alignment
 - Livelihood choices
 - Medical check-up before the displacement
 - Farming technique training at Theun Douane
 - Buffalo issues and livestock planning.

Sunday, 14 January

7:30 Drive to Nikhom 3

- 8:30 Boating to Nam Noy river where it enters the plateau.
- Visit suspended track up to Ka Oy (Nam Noy).
 - Visit illegal logging as recorded by World Bank in May 2000 in Nam Noy area.
 - Camping at the confluence of Nam Noy and Nam Theun.

Monday, 15 January

- 7:30 Boating to Ban Makfeuung (BMF):
- Ban Pung
 - Thaphaiban
 - Ban Makmi
 - Ban Makfeuung

Overnight at Ban Makfeuung.

Tuesday, 16 January

- 7:00 Lao Westcoast helicopter to take off from VT to BMF with stop over at Laksao for refuelling.
- 9:00 Land at BMF to pick up the party (3 POE + 2 Lao Officials, Dr. Maydom and Provincial Vice Governor or District Governor) and to fly to Ban Maka (Lao - Vietnamese border, Lao post border is far away from the border, expect to land at Vietnamese police post border but still waiting for official approval).
- 10:00 Fly back to BMF to drop one official and the flight continues to NT upstream and turn to North and over Annamite Mountains range from South to North and to turn East to West at Nam Xot upstream to Ban Thongmuang, follow the track from Thongmuang to Lak Sao and fly back to Vientiane.
- 12:00 Arrive Vientiane.

Wednesday, 17 January

Report writing

Thursday, 18 January

Report writing

- 14:00 Draft report discussion

Friday, 19 January

Report writing

15:00 Final draft report discussion.

19:00 Dinner hosted by MIH.

Saturday, 20 January

14:00 Finalisation report.

Sunday, 21 January

Finalisation report.

Monday, 22 January

8:30 Handover Report.

9:30 POE Members departure.

ANNEX 2.

NT2 Compliance with World Commission on Dam Criteria and Guidelines

WORLD COMMISSION ON DAMS

A review of the WCD guidelines and the Nam Theun2 Compliance
By Engelbertus Oud, Lahmeyer International, Germany
Project Manager, Owner's Engineer Nam Theun 2

KEY STAGES IN DAM DEVELOPMENT

Key Stages	1	Needs Assessment	System Level
	2	Options Assessment	System Level
	3	Project Preparation	Project Level
	4	Project Implementation	Project Level
	5	Project Operation	Project Level

CORE VALUES FOR DEVELOPMENT

Core Values	1	Equity
	2	Efficiency
	3	Participatory decision-making
	4	Sustainability
	5	Accountability

STRATEGIC PRIORITIES AND POLICY PRINCIPLES

Definition
Comment to Policy

Strategic Priority	1	Gaining Public Acceptance
	2	Comprehensive Options Assessment
	3	Addressing Existing Dams
	4	Sustaining Rivers and Livelihoods
	5	Recognising Entitlements and Sharing Benefits
	6	Ensuring Compliance
	7	Sharing Rivers for Peace, Development, and Security

STRATEGIC PRIORITIES AND GUIDELINES

No.
Guideline

Strategic Priority	1	Gaining Public Acceptance	1	Stakeholder Analysis
			2	Negotiated Decision-Making Processes
			3	Free, Prior and Informed Consent
	2	Comprehensive Options Assessment	4	Strategic Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues
			5	Project-Level Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues
			6	Multi-Criteria Analysis
			7	Life Cycle Assessment

- 8 Greenhouse Gas Emissions
- 9 Distributional Analysis of Projects
- 10 Valuation of Social and Environmental Impacts
- 11 Improving Economic Risk Assessment
- 3 Addressing Existing Dams
- 12 Ensuring Operating Rules Reflect Social and Environmental Concerns
- 13 Improving Reservoir Operations
- 4 Sustaining Rivers and Livelihoods
- 14 Baseline Ecosystem Surveys
- 15 Environmental Flow Assessment
- 16 Maintaining Productive Fisheries
- 5 Recognising Entitlements and Sharing Benefits
- 17 Baseline Social Conditions
- 18 Impoverishment Risk Analysis
- 19 Implementation of the Mitigation, Resettlement and Development Action Plan
- 20 Project Benefit-Sharing Mechanisms
- 6 Ensuring Compliance
- 21 Compliance Plans
- 22 Independent Review Panels for Social and Environmental Matters
- 23 Performance Bonds
- 24 Trust Funds
- 25 Integrity Pacts
- 7 Sharing Rivers for Peace, Development, and Security
- 26 Procedures for Shared Rivers

WCD CRITERIA CHECKLIST WITH EXPLANATORY COMMENTS

Guidelines Compliance Remarks

Structure of Check List Table		Strategic Priority		Check Points		Remarks	
System/Project Level	#	Strategic Priority	#	Check Points	Compliance	Remarks	Remarks
Structure of Comments (activated if cursor on respective cell)							
Strategic Priority Check	Stage	Comments Definition	Comment to Policy Explanation	Guideline(s)	Compliance	Remarks	Remarks
1	Needs Assessment: Validating the Needs for Water and Energy Services			1	Compliance	Remarks	Remarks
System Level	1	Gaining Public Acceptance	(a) Consultation Plan	1	Compliance	Stakeholder analysis done, not all selected SH involved in defining needs	Stakeholder analysis done, not all selected SH involved in defining needs
		(b) Verification of Water and Energy Needs	(c) Integration of Development Objectives		Compliance	Compliance	HDSS study for local power needs, EGAT for Thai needs
	2	Comprehensive Options Assessment	(d) Harmonization of Public and Government Development Objectives		Compliance	Compliance	NT2SA and Macro-Economic Study
	3	Addressing Existing Dams	(a) Legal, Policy and Institutional Framework Barriers Removed		Compliance	Compliance	Public consulted in workshops
	4	Sustaining Rivers and Livelihoods	(a) Outstanding Impacts Existing Projects Addressed		Compliance	Compliance	But new laws on water and energy, STEA was founded
		(a) Ecosystem Needs Addressed at Strategic Level		14, 15	Compliance	Compliance	Outstanding impacts NL+THB being addressed
2	Options Assessment: Selecting Alternatives - Identifying the Preferred Development Plan			1, 2	Compliance	Remarks	Remarks
System Level	1	Gaining Public Acceptance	(a) Stakeholders Participated in Options Evaluation	1, 2	Compliance	Compliance	NT2SA: Options to and of NT2 for power export
		(b) Dispute Resolution Mechanism for Negotiated Processes	(c) Free, Prior and Informed Consent of Affected Population	2	Compliance	Compliance	NT2SA: No major disputes during public workshops
	2	Comprehensive Options Assessment	(a) Strategic Impact Assessment and Life Cycle Analysis	3	Compliance	Compliance	Affected population involved since beginning
		(b) Multi-Criteria Analysis of Full Range of Options	(c) Comprehensive Screening of Options	4, 7, 8, 14, 17	Compliance	Compliance	NT2SA: Life-Cycle Analysis for main options only
				6	Compliance	Compliance	NT2SA: Options included solar, wind, DSM

<p>Project Level</p> <p>2A</p>	<p>(d) Distributional and Risk Analysis, and Impact Analysis Approval of Project Level</p> <p>(e) Studies</p> <p>(f) Full Explanation for Rejection of Any Options</p> <p>3 Addressing Existing Dams</p> <p>4 Sustaining Rivers and Livelihoods</p> <p>5 Recognising Entitlements and Sharing Benefits</p> <p>6 Ensuring Compliance</p> <p>7 Sharing Rivers for Peace, Development, and Security</p>	<p>9, 10, 11</p>	<p>Compliance Not relevant</p> <p>Compliance</p> <p>Compl w exception(s)</p> <p>No compliance</p> <p>Overlap with 2.2(b)</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p>	<p>In Macro-Economic Study MCA confirmed previously selected project alternative</p> <p>NT2SA</p> <p>Outstanding impacts NL+THB being addressed</p> <p>Potentially possible, but should await WCD-like planning study</p> <p>MCA would automatically do that</p> <p>PAPs were intensively consulted, see RAP for conclusions</p> <p>Independent PoE appointed, training local personnel funded</p> <p>Request for letter of no objection sent to affected States</p>
<p>Options Assessment - Investigative Studies</p>	<p>1 Gaining Public Acceptance</p> <p>(a) Stakeholders Participated in Baseline, Impact and Investigative Studies</p> <p>(b) Studies Were Open and Independent</p> <p>2 Comprehensive Options Assessment</p> <p>(a) Investigations Were Sufficiently Comprehensive</p> <p>(b) Conservation, DSM and Improving Existing Facilities Considered</p> <p>(c) Multi-Criteria Approach for Analysis of Within Project Alternatives</p> <p>3 Addressing Existing Dams</p> <p>(a) Synergy of Conjunctive Operation with Existing Projects Evaluated</p> <p>(b) Sustaining Rivers and Livelihoods</p> <p>(a) Agreement Reached on Environmental Flow Requirements</p> <p>(b) Impacts on Fish Minimized, Fishery Maximized</p>	<p>1, 2, 14, 17</p> <p>5</p> <p>5</p> <p>6</p> <p>15</p> <p>16</p>	<p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Started</p> <p>Compliance</p> <p>Compl w exception(s)</p>	<p>Participation in all studies affecting their livelihood</p> <p>Independent review of PoEs, practically all studies freely available</p> <p>NT2SA: 20 project alternatives, 22 alternative projects</p> <p>Incorporated in Thai demand forecast, Extension NN1</p> <p>NT2SA: full multi-criteria analysis with stakeholder input</p> <p>Future possible co-operation with THB</p> <p>Environmental release agreed with Govt and PoE, and included in CA Fishladder not meaningful. Lake fishery will be stimulated.</p>
	<p>5 Recognising Entitlements and Sharing</p>			

	<p>Benefits</p> <p>6 Ensuring Compliance</p> <p>7 Sharing Rivers for Peace, Development, and Security</p>	<p>(a) Agreement Reached with Affected People on Social Matters Benefit-Sharing Agreement Reached with Affected People</p> <p>(b) Institutional Capacity to Monitor and Enforce Compliance</p> <p>(a) Independent Review Panel Assessed Impact and Mitigation Measures</p> <p>(b) Riparian States Affected Notified and Objections Addressed</p>	<p>19</p> <p>20</p> <p>22</p> <p>26</p>	<p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p>	<p>Agreement on assents and current livelihood of all PAPs (blue book). NTEC guarantees that people are better-off with NT2</p> <p>DSP and PoEs assist, training of local personnel is on-going PoE for environmental and social matters are in place, since 1997</p> <p>Request for letter of no objection sent to affected States</p>
<p>Project Level</p> <p>3</p>	<p>Project Preparation - Verifying Commitments are in Place before Tender of Construction Contract</p>				
	<p>1 Gaining Public Acceptance</p> <p>2 Comprehensive Options Assessment</p> <p>3 Addressing Existing Dams</p> <p>4 Sustaining Rivers and Livelihoods</p> <p>5 Recognising Entitlements and Sharing Benefits</p> <p>6 Ensuring Compliance</p> <p>7 Sharing Rivers for Peace, Development, and Security</p>	<p>(a) Stakeholders Participated in Design and Negotiated Outcomes</p> <p>(b) Affected People Gave Free, Prior and Informed Consent</p> <p>(a) Stakeholders Participated in Defining Project Layout and Operation</p> <p>(a) Cumulative Impact and Conjunctive Operation Considered</p> <p>(a) Acceptable Rules for Reservoir Filling, Commissioning and Operation</p> <p>(b) Emergency Drawdown and Changing Operating Rules Possible</p> <p>(c) Environmental Management Plan Agreed with Stakeholders</p> <p>(d) Credible Social Mitigation and Development Plan</p> <p>(a) Social Plans Agreed and Signed by Affected Parties</p> <p>(b) Benefit Sharing Mechanisms Agreed and Signed by Parties Concerned</p> <p>(a) Independent Panels Reviewed and Endorsed Mitigation Plans</p> <p>(b) Provisional Sums for Mitigation Included in Tender Documents</p> <p>(c) Compliance Plan Available, with Mechanisms for Dispute Resolution</p> <p>(d) Funds Allocated for Monitoring Project Performance, Safety and Impacts</p> <p>(e) Transparent Process for Shortlisting and Selection of Contractors</p> <p>(f) Performance Bonds, Trust Funds and Integrity Pacts in Place</p> <p>(g) License for Project Includes Financing of Decommissioning</p> <p>(a) Resolution to Outstanding Issues with Neighbouring Countries</p>	<p>1, 2</p> <p>3</p> <p>12</p> <p>19</p> <p>20</p> <p>22</p> <p>21</p> <p>23, 24, 25</p> <p>26</p>	<p>Compliance</p> <p>Compliance</p> <p>Started</p> <p>Intended</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Compliance</p> <p>Started</p> <p>No compliance</p> <p>Compliance</p>	<p>Influenced irrigation outlets, crossings over canal, local power supply, etc</p> <p>All communities known to become affected have agreed to the project.</p> <p>See also 3.1.(a). PAPs can request changes in operation through RMU</p> <p>Future possible co-operation with THB</p> <p>Under investigation</p> <p>Bottom outlet provided</p> <p>Stakeholders agreed to updated EAMP, but some work still needed</p> <p>See RAP. Agreements also fixed in CA. RMU is in place</p> <p>Stakeholders, including PAPs, and PoE agree. Modalities are part of CA</p> <p>As defined in the RAP, which was endorsed by stakeholders and PoEs</p> <p>PoE for environmental and social matters are in place, since 1997</p> <p>Total allocation for mitigation equivalent to 9% of project cost</p> <p>See RAP and EAMP. RMU will play central role in dispute resolution</p> <p>Funds needed are foreseen in project budget</p> <p>PQ evaluation criteria and PQ result are public documents</p> <p>NTEC considers use env. and social performance bonds</p> <p>No decommissioning in 25 year concession period. Lifetime much longer</p> <p>Request for letter of no objection sent to affected States</p>
<p>Project Level</p> <p>4</p>	<p>Project Implementation: Confirming Compliance before Commissioning</p>				

1	Gaining Public Acceptance (a) Stakeholders Participated in Monitoring Mitigation Measures (b) Consultation Mechanisms Agreed with Stakeholders (c) Contingency Plans for Emergency Drawdown with Stakeholders Comprehensive Options Assessment (a) Stakeholders Agree to Design Changes and Are Aware of Impacts Addressing Existing Dams (a) Institutional Co-operation Mechanism Are in Place Sustaining Rivers and Livelihoods (a) Required Environmental Mitigation Measures Were Implemented Recognising Entitlements and Sharing (a) Mitigation, Resettlement and Development Action Plans Implemented Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	1, 2	Not relevant Compliance Intended Intended Intended Intended Compliance Compliance Intended Intended Compliance	But results of baseline surveys will be discussed with SH Mechanism are defined in RAP and CA Not relevant for NT2 project, but Govt working on it Performance bond will lead to compliance Performance bond will lead to compliance PoEs are in place, and influence and endorse mitigation measures Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party																								
					2	Comprehensive Options Assessment (a) Stakeholders Agree to Design Changes and Are Aware of Impacts Addressing Existing Dams (a) Institutional Co-operation Mechanism Are in Place Sustaining Rivers and Livelihoods (a) Required Environmental Mitigation Measures Were Implemented Recognising Entitlements and Sharing (a) Mitigation, Resettlement and Development Action Plans Implemented Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	19	Performance bond will lead to compliance Performance bond will lead to compliance PoEs are in place, and influence and endorse mitigation measures Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party																				
									3	Addressing Existing Dams (a) Institutional Co-operation Mechanism Are in Place Sustaining Rivers and Livelihoods (a) Required Environmental Mitigation Measures Were Implemented Recognising Entitlements and Sharing (a) Mitigation, Resettlement and Development Action Plans Implemented Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	22	PoEs are in place, and influence and endorse mitigation measures Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party																
													4	Sustaining Rivers and Livelihoods (a) Required Environmental Mitigation Measures Were Implemented Recognising Entitlements and Sharing (a) Mitigation, Resettlement and Development Action Plans Implemented Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	21	Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party												
																	5	Required Environmental Mitigation Measures Were Implemented Recognising Entitlements and Sharing (a) Mitigation, Resettlement and Development Action Plans Implemented Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	26	Is programmed Is programmed Monitoring results will be freely available to any party								
																					6	Ensuring Compliance (a) Independent Panel Reviewed and Endorsed Mitigation Measures (b) Implementation License Conditions for Operation and Monitoring (c) Intensive Monitoring Program for Impoundment and Commissioning (d) Developer Complied with Pre-Commissioning Commitments Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	Compliance	PoEs are in place, and influence and endorse mitigation measures Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party				
																									7	Sharing Rivers for Peace, Development, and Security (a) Mechanisms Initiated for Sharing Monitoring Information	Compliance Intended	Concession Agreement and PPA almost completed Is programmed Is programmed Monitoring results will be freely available to any party
5	Project Operation: Adapting to Changing Contexts 1 Gaining Public Acceptance (a) Stakeholders Identified to Periodically Consider Operational Changes 2 Comprehensive Options Assessment (a) Stakeholder Forum in Place for Periodic Evaluation of Operation Modernization and Operation Alternatives Are Part of Periodic Reviews (c) Influence of Climate Change on Benefits and Dam Safety Considered (d) Feasibility Study needed for Physical Change. Incl. Decommissioning 3 Addressing Existing Dams	1 13	Compliance Intended Intended Compl w exception(s) not relevant	See also 3.1.(a). PAPs can request changes in operation through RMU Is programmed Is programmed There will be adaptive management , but not only for changing climate																								
					4	Sustaining Rivers and Livelihoods (a) Environmental Flow Requirements Satisfied, Impacts Are	Intended	Is programmed, more important are diversions into Xe Ban Fai																				
									5	Environmental Flow Requirements Satisfied, Impacts Are	Intended	Is programmed, more important are diversions into Xe Ban Fai																
													6	Environmental Flow Requirements Satisfied, Impacts Are	Intended	Is programmed, more important are diversions into Xe Ban Fai												

	<p>5 Monitored Entitlements and Sharing Benefits</p> <p>6 (a) Benefit Sharing Mechanisms Modified, with Stakeholder Approval</p> <p>7 (a) Adverse Impacts and Reparation Issues Referred to Recourse Body</p> <p>(b) Annual Reports about Project Monitoring and Prepared for Improvement</p> <p>(c) Need for Remaining Performance Bonds or Trust Funds Reviewed</p> <p>(d) Dam Safety and Inspection Programmes Are Implemented</p> <p>(a) Sharing Rivers for Peace, Development, and Security Mechanisms Exist to Share Monitoring Information</p>	<p>20</p> <p>19</p> <p>23</p> <p>26</p>	<p>Compl w exception(s)</p> <p>Intended</p> <p>Intended</p> <p>Intended</p> <p>Intended</p> <p>Compliance</p>	<p>Compensation for unexpected losses promised by NTEC</p> <p>Is programmed</p> <p>Is programmed</p> <p>Is programmed</p> <p>Monitoring results will be freely available to any party</p>
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PROJECTS IN THE PIPELINE

The essence of the process is that stakeholder groups should have an opportunity to define the scope of the review and to propose changes in keeping with the Commission's recommendations. The extent of any additional study or changes in project configuration would depend on the stage of planning, design, or construction and be determined from a synthesis of the stakeholder consultations and, where appropriate, an inter-ministerial review.

General	General actions to guide the review for all projects would include:	Compliance	Compliance	SH groups on local, regional, national, and international level exist Had options to choose from, model farms, shown Nam Ngum 1
Projects at Feasibility Level	<ul style="list-style-type: none"> (a) undertake stakeholder analysis (b) support vulnerable and disadvantaged groups affected by the project (c) undertake distribution analysis to assess who shares costs and benefits (d) use mitigation and resettlement to promote development of affected people (e) avoid, if necessary through design changes, severe and irreversible ecosystem impacts (f) provide environmental flow needs, mitigate or compensate unavoidable ecosystem impacts (g) design and implement recourse and compliance mechanisms 	Compliance	Compliance	Done so in the RAP. Confirmed by Macro-Economic Study Policy: people and environment should be better off Water releases will be aerated, ramp rates controlled Environmental flow needs agreed, mitigation measures approved Defined in RAP. RMU plays central role,
Design Level	<ul style="list-style-type: none"> (a) stakeholders confirm set of options investigated was appropriate, or add new ones (b) bias in the selection of alternatives removed (c) demonstrated public acceptance for proposed option (d) assumptions underlying the economic, financial and risk analysis are justified and tested (e) mechanisms for benefit sharing are identified (f) an environmental flow requirement is determined and agreed upon 	Compliance	Compliance	NT2SA: stakeholders participated in selecting which options to analyze NT2SA: options included solar, wind, DSM NT2SA: third stakeholder workshop selected most attractive alternative Macro Economic Study stated that those risks are acceptable Done so in the RAP. Confirmed by Macro-Economic Study A mandatory environmental flow of 2 m3/s was found to be sufficient
Under Construction	<ul style="list-style-type: none"> (a) stakeholders consulted on decisions related to layout, operation, mitigation, development (b) the necessary agreements with affected people have been negotiated and agreed upon (c) environmental flow requirements are determined and considered in project design (d) compliance plan is prepared and recourse mechanisms identified (e) compliance mechanisms are provided for in the tender documents (f) benefit sharing contracts have been negotiated with project affected people (g) process for stakeholder involvement during operation established 	Compliance	Compliance	Over 240 workshops on local, regional and (inter)national level PAPs - assets and livelihood are known and are basis for compensation Measures to avoid release of poor quality water in place Is programmed, performance bonds expected as guarantee Is programmed Is programmed Is programmed Is programmed
	record of compliance analyzed, contingency plan for remaining mitigation measures prepared	Intended	Intended	Is programmed

<p>(b) existing commitments for resettlement and benefit sharing converted into formal contracts</p> <p>(c) adequate social, environmental and technical monitoring plan is financed by the developer</p> <p>(d) operating rules and commissioning agreed with stakeholders</p> <p>(e) comprehensive project review for 2 or 3 years after commissioning, then every 5 to 10 years</p>	<p>Not relevant Intended</p> <p>No compliance Intended</p>	<p>Is programmed</p> <p>During 25-Year License operation determined by EGAT and OC</p> <p>Is programmed</p>
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