

**UPDATE ON THE  
LAO PDR: NAM THEUN 2 (NT2)  
HYDROELECTRIC PROJECT**

**December 4, 2007**

## ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AFD (Group)	(Groupe) Agence Française de Développement
CA	Concession Agreement
COD	Commercial Operations Date
DSRP	Dam Safety Review Panel
EC	European Commission
FY	Fiscal year
GFIS	Government Financial Information System
GOL	Government of Lao PDR
IAG	International Advisory Group
IDA	International Development Association
IFI	International Financial Institutions
IMA	Independent Monitoring Agency
IMF	International Monetary Fund
MAF	Ministry of Agriculture and Forestry
MDTF	Multi-Donor Trust Fund
masl	meters above sea level
MOF	Ministry of Finance
MOL	Minimum Operating Level
NGO	Non-governmental Organization
NSEDP	National Socio Economic Development Plan
NT2	Nam Theun 2 Hydroelectric Project
NTSEP	Nam Theun 2 Social and Environment Project
NTPC	Nam Theun 2 Power Company Limited
NZAO	New Zealand Audit Office
PDR	(Lao) People's Democratic Republic
PEMSP	Public Expenditure Management Strengthening Program
PER-IFA	Public Expenditure Review and Integrated Fiduciary Assessment
PETS	Public Expenditure Tracking Survey
POE	Environmental and Social Panel of Experts
PRG	Partial Risk Guarantee
PRSO	Poverty Reduction Support Operation
RAP	Resettlement Action Plan
RMU	Resettlement Management Unit
ROW	Right of Way
SAO	State Audit Organization
SIDA	Swedish International Development Agency
UXO	Unexploded Ordnance
VFA	Village Forestry Association
WASH	Water Supply, Sanitation and Hygiene
WB	World Bank
WMPA	Watershed Management and Protection Authority

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## UPDATE ON THE LAO PDR: NAM THEUN 2 HYDROELECTRIC PROJECT

### I. INTRODUCTION

1. ***This semi-annual Update reports progress on the Lao People's Democratic Republic (PDR) Nam Theun 2 Hydroelectric project (NT2) since the last annual Update to the Board dated May 11, 2007.*** It will be recalled that the management of the World Bank (WB) and the management of the Asian Development Bank (ADB) have agreed to keep their respective Boards informed about implementation of the NT2 project<sup>1</sup> through joint reporting on an *annual* basis, supplemented by *semi-annual* updates.
2. ***The objective of NT2 is to generate revenues through environmentally and socially sustainable development of NT2's hydropower potential to finance poverty reduction and environmental management programs in Lao PDR.*** This objective is within reach, provided risks – particularly relating to social and environmental safeguards – continue to be effectively managed as the project enters a decisive stage in its implementation. The Update begins with a short description of recent economic developments and challenges, particularly with regard to public financial management, project revenue management, poverty reduction, capacity building and donor support. It then covers details of project implementation progress, the management of risks on construction and safeguards, and recent developments regarding stakeholder engagement and consultations. It concludes with comments on reporting, oversight and supervision arrangements, which are critical to monitoring implementation progress and managing risks.
3. ***The next annual Update is planned for circulation to the respective Boards of the WB and the ADB in May 2008.*** It will provide a more comprehensive review of progress and will also report on performance as well as the status of actions that need to be completed prior to reservoir impoundment, which is an important implementation milestone that is expected to be reached by June 2008.

### II. RECENT COUNTRY DEVELOPMENTS

4. ***Lao PDR's macroeconomic performance remains strong.*** Real GDP growth continues to be robust and is expected to remain above 7 percent in 2007. The natural resource sectors contributed significantly to 2006 economic growth, driven by large hydropower and mining investments. These two sectors alone accounted for about 2.8 percentage points in 2006 and are estimated to contribute about 2 percentage points in 2007. Manufacturing and other non-resource sectors continued to grow moderately, contributing around 5 percentage points of the year's growth. Monthly inflation levels have been at a historical low since April of this year, mostly staying below 4 percent. The average Consumer Price Index in the first nine months of 2007 was about 4.1 percent, with food prices at 8.3 percent and nonfood prices 1.2 percent. The latest International Monetary Fund (IMF) Article IV Consultation Report (November 2007) confirms

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<sup>1</sup> Approved by the Boards of WB and ADB on March 31 and April 4, 2005, respectively.

that the medium-term economic outlook will continue to be strong if current macro-economic policies are sustained. Challenges in the medium term include ensuring good management of increasing natural resource revenue and broadening the sources of growth beyond natural resources. Upward pressures to inflation also represent a risk to be managed in the medium-term.

5. ***As Government's public financial management reforms gather momentum, the country's revenue performance exceeds targets.*** Driven by natural resource and other revenues, along with efficiency gains in tax administration, the Government of Lao PDR (GOL) met and exceeded its revenue targets for the first time in recent years in Fiscal Year (FY) 2005/06, and is expected to repeat this performance in FY2006/07 (based on preliminary data estimates). As a result, the budget deficit has declined considerably, from above 4 percent in 2005 to an estimated 1.3 percent in FY2006/07.

6. ***Reforms in trade, business environment, financial sector and state-owned enterprises continue to make progress.*** The first Small and Medium Enterprise development strategy was approved in August 2007. The new Accounting Law was adopted by the National Assembly in June 2007 and the Presidential Decree on Accounting Law was issued in September 2007. Development of the financial sector strategy and drafting of several financial sector regulations is ongoing. The National Assembly is expected to approve the Presidential Law on Governing the Management of Foreign Exchange and Precious Metals in December 2007. Private participation in the financial sector has increased with recent acquisitions of shares in the Vientiane Commercial Bank by the ANZ Bank (60 percent) and IFC (10 percent), and the entry of a new local private bank.

7. ***PEMSP implementation is making progress as part of broader Public Financial Management (PFM) reforms, with the WB, ADB and other donors providing additional funding for its implementation.*** A sound public financial management framework has been put in place through the enactment of the new organic Budget Law and satisfactory implementation of the Public Expenditure Management Strengthening Program (PEMSP). The GOL has started the process of centralizing the customs, tax and treasury departments as mandated by the new law, and the Ministry of Finance (MOF) has been reorganized to handle its mandate of managing centralized departments. An upgrade of the Government Financial Information System (GFIS) is in progress to more effectively identify, track and monitor budget execution reports on time. This will, in turn, help the Government to manage funds in a more transparent and effective manner. ADB's Program for 2007-2009 includes technical assistance support to extend the GFIS implementation to 38 districts of Luang Prabang, Champassak and the Vientiane Municipality, and to formulate a strategy and pilot testing of the first-ever consolidated statement of the Government's financial position. To strengthen the process of budget formulation, ADB will seek to provide technical assistance estimated at US\$1.1million in 2008 to extend the work on Medium-Term Fiscal Framework / Medium-Term Expenditure Framework and in drafting the implementing decrees for the Budget Law. Meanwhile, the Chart of Accounts consistent with IMF Government Financial Statistics was approved this year and will be deployed for the FY2008/09 budget. The Government is also developing a new revenue sharing framework to improve vertical and horizontal equity in social sectors. The WB's Board approved an additional US\$3 million in financing for the Financial Management Capacity Building Project in June 2007. This will be complemented by a Multi-Donor Trust Fund (MDTF) supported by the Swedish International Development Agency (SIDA), European Commission (EC) and the Swiss Agency for Development and Cooperation, which is expected to become operational in early

2008. The additional assistance will help the GOL to continue to refine budget preparation, execution, reporting and auditing systems, and to strengthen the monitoring of state-owned commercial banks and improve financial management of selected state-owned enterprises. The next biannual joint Government-Donor Public Expenditure Review and Integrated Fiduciary Assessment (PER-IFA) and the Public Expenditure Tracking Survey (PETS) exercises will be conducted in 2008.

8. ***Consistent with the above reforms, implementation systems for NT2 Revenue Management Arrangements are taking shape.*** The above-mentioned reforms allow the GOL to establishment mechanisms to manage revenues with greater transparency and accountability, while ensuring that they are targeted to poverty-reduction and environmental protection programs. Progress is being made on identifying eligible expenditures; the process will be guided by an inter-ministerial committee and programs identified by April 2008. The revised Chart of Accounts implemented in FY2008/09 will provide information on baseline allocations for eligible programs. Priority actions are planned to be completed well ahead of the January 2010 deadline (when NT2 revenues would begin to flow). Going forward, continued sustained dialogue and technical support from WB/ADB may help reduce risks for NT2 revenue management if progress on activities is slower than expected.

9. ***The new Audit Law grants autonomy to the State Audit Organization (SAO), and the Peer Review process has commenced.*** The new Audit Law was promulgated in July 2007. This law provides for autonomy for the SAO, allowing it to report directly to the National Assembly, effective December 5, 2007. Furthermore, a team from the Audit Office in New Zealand (NZAO) visited Lao PDR in October 2007 to finalize the methodology for the audit peer review, and a Memorandum of Understanding is being drafted. NZAO is expected to field a mission in January 2008 to conduct the peer review. SAO has established a dedicated team, led by the Deputy Auditor General, to work with NZAO. The outcome of the report will form the basis of a comprehensive audit strengthening and capacity building plan. In parallel, ADB is planning to extend support to assist in efforts to draft the implementing decrees for the Audit Law.

10. ***Following the successful completion of the first Poverty Reduction Support Operation (PRSO) series of three annual tranches, the second series has been launched.*** Government has expressed its intention to continue with annual budget support operations for the current National Socio Economic Development Plan (NSEDP) through PRSO4-7, and preparations are ongoing for PRSO4, which is expected to be delivered in June 2008. Donor interest in co-financing the PRSO series has also expanded, with interest expressed by Japan (which co-financed PRSO-2), the EC and Australia.

11. ***The 10<sup>th</sup> meeting of the Donor Roundtable took place on November 8, 2007.*** The meeting provided Government and development partners with an opportunity to discuss progress and challenges as well as assess implementation of the sixth NSEDP, the Millennium Development Goals and the Action Plan on the Vientiane Declaration on Aid Effectiveness, a year after the ninth Roundtable Meeting.

12. ***The Vientiane Declaration's Action Plan on Aid Effectiveness, an agreed roadmap for increasing the effectiveness of development assistance, was endorsed in May 2007.*** The plan presents a variety of concrete actions that will strengthen Government ownership, better align

donor interventions behind Government priorities, strengthen country systems, increase the number of joint activities among and with development partners, and reinforce joint accountability for results. The Action Plan includes specific targets as well as accountabilities for reaching these targets, and will therefore also allow improved monitoring of performance over time.

13. ***Strengthening approaches to capacity development across key sectors is also a priority for the Government for improving Official Development Assistance performance.*** As capacity remains a critical bottleneck for improved results on the ground, the Vientiane Declaration's Action Plan places a special emphasis on improving capacity development approaches. Key actions underway include the development of sectoral Capacity Development Frameworks that will establish baselines, identify critical bottlenecks, and prioritize and coordinate capacity development interventions. In addition, the GOL is developing frameworks to guide overall civil service improvements that will help resolve a variety of systemic issues over time.

14. ***Capacity building is taking place on a daily basis as the project is developed.*** At any given time, Lao nationals have comprised more than 75 percent of project staff. They are employed in unskilled as well as skilled categories. Although the skilled category workers had technical qualifications, they were provided extensive additional training by the project. More than 6,000 Lao nationals have acquired considerable training and experience, constituting a large trained workforce available for other hydropower and infrastructure projects in the country. This is a significant contribution to building capacity in the country. Moreover, further actions aimed at strengthening capacity at the local level in other areas are being developed in an adaptive manner, and this will continue to require strong coordination from the Nam Theun 2 Power Company (NTPC), the GOL's Resettlement Management Unit (RMU) and other GOL agencies, to ensure knowledge is being shared, lessons are being learned and capacity is growing.

### III. NT2 IMPLEMENTATION

#### A. CONSTRUCTION

15. ***Construction of civil works is proceeding on schedule.*** The project labor force currently numbers 6,970 persons, of which 75 percent (5,197) are Lao nationals. Roughly halfway between financial close in June 2005 and the commercial operations date (COD) in December 2009, overall progress on civil and electromechanical works is at 71 percent, and cost overruns are likely to be small (less than 1 percent of project cost). All underground works are substantially completed, the Nakai dam and the Regulating dam have each reached crest level and ongoing activities are mostly related to installation of gates. The major geotechnical problem – karst cavities in the downstream tunnel – has been successfully overcome and work is in progress to finalize tunnel lining using special ground treatment techniques. From an engineering point of view, NT2 is now out of the “geological risk phase,” which often causes cost and schedule overruns in infrastructure projects; thus, uncertainties, and consequent risks, associated with the project have diminished. Any cost overruns and financing of unanticipated impacts arising from environmental and social programs will be closely monitored.

16. ***Financial disbursements under the project are moving well.*** The total debt amount drawn by NTPC to date (through end-October 2007) to support base project costs (US\$1.25

billion) is US\$579 million equivalent, of which US\$332 million has been drawn under the US Dollar Loan Facilities and US\$247 million equivalent has been drawn under the Thai Baht Loan Facilities. Debt financing of about US\$321 million equivalent remains committed but not yet drawn. Given that most of the critical cost overrun risks have not materialized, it is unlikely that Contingent Financing will be drawn. At financial close (June 2005), the International Development Association (IDA) committed to cover a US\$42 million commercial debt tranche (with door-to-door maturity of 16.5 years for Lao political risks) provided to NTPC by nine international dollar lenders. The IDA Partial Risk Guarantee (PRG) was designed to back any debt service default on the covered tranche resulting from a limited set of activities and actions that are under GOL's control. To this date, the total amount of drawdown under the commercial loan covered by the IDA PRG has been US\$32 million, disbursed in 18 drawdowns. This corresponds to 76 percent of the total amount of the PRG tranche (US\$42 million). As of October 29, 2007 the total disbursed amount, in 18 drawdowns, under the ADB's Private Sector direct loan to NTPC amounts to US\$36 million (or about 80 percent of the US\$45 million total). Total disbursement under ADB's PRG in favor of commercial lenders amounted to US\$32 million, whereas the ADB guaranteed amount is US\$42 million (75.0 percent). The ADB public sector loan of US\$20 million for financing GOL equity contribution has been fully drawn. The European Investment Bank loan to the GOL, to finance part of the latter's equity participation in NT2, has also been fully disbursed at US\$44.7 million (with calculated accrued interest totaling US\$55.0 million by 2010). The total amount of disbursement under the IDA Grant (NTSEP, US\$20 million), supporting part of GOL's equity is US\$14.3 million (72 percent). The commercial and operational relationship between the project company and the GOL has been and continues to be satisfactory.

17. ***Planning and coordination of reservoir impoundment activities (an important implementation milestone) are well advanced.*** Although severe rainfall caused construction on most of the earthworks to be stopped during the month of August 2007, major delays were averted. The excavation of the power headrace tunnel, pressure shaft and pressure tunnel has been completed and good progress has been made on building the power station. The downstream channel construction is on track, and earlier delays in the regulating dam construction have been addressed. The main excavation of the downstream tunnel has been completed. The intake structure has been completed and intake channel construction is nearly finished. Concreting has continued satisfactorily in the headrace tunnel, Nakai dam, power intake and the Regulating dam. The diversion tunnel closure is scheduled to occur in April 2008 and closure of the Nakai Dam spillway gates in mid-June 2008, which will initiate reservoir impoundment. Good progress has also been made on the 500kV and 115 kV transmission lines. Work at the Mekong Crossing is recommencing with the start of the dry season. The NTPC has prepared a draft Emergency Contingency Plan for reservoir impoundment, which will be finalized after discussions with the Dam Safety Review Panel (DSRP) during its proposed visit in February 2008.

18. ***Construction of project roads is also progressing well, and some of the earlier environmental concerns are being resolved.*** The construction of these roads (which span over 140 kilometers)<sup>2</sup> previously raised concerns of stability, erosion, excessive vegetation clearance

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<sup>2</sup> Project roads include: (i) national roads that will be transferred to GOL on COD (75 kilometers between Thakek and the powerhouse and on to Oudomsouk village; 39 kilometers on the Nakai Plateau); and (ii) 14 kilometers of access road to the dam site at Nakai; and (iii) 12 kilometers of resettlement roads near Oudomsouk.

and dust. These are being resolved. The Head Contractor has done extensive re-vegetation work by planting vetiver grass and 1,500 trees covering 28 hectares and NTPC has also planted an additional 10,000 trees along Road F (access road to the Nakai Dam from Ban Phonsa-Ard). These trees are just taking root and will need to be carefully cared for during the dry season. Some of the roads have undergone double bituminous surface treatment that has significantly reduced dust problems, but has led to speeding vehicles. During the 2007 rainy season, some roads experienced localized slope instabilities, which are now being repaired, and NTPC needs to closely monitor this aspect to ensure that vulnerable areas are identified and appropriate preventive/mitigative measures (including replanting) are taken. NTPC commissioned an external audit of the project roads during November 2007 so that these issues can be monitored and resolved. In addition, the GOL Engineer is also closely monitoring road construction and recommending remedial measures.

19. *Supervision and monitoring of construction impacts have improved.* The Head Contractor and NTPC have strengthened their environmental management program; however, continuity needs to be ensured and waste management and water quality at the camp site still needs more attention. The DSRP has reported positively on safety arrangements at the project site, with access of personnel to work areas regulated and monitored and potential hazards identified. The Head Contractor is also preparing a decommissioning plan to close construction sites that will be submerged on reservoir impoundment.

## **B. ENVIRONMENTAL AND SOCIAL ASPECTS**

20. *The environmental and social issues are described in relation to different parts of the project area – Plateau, Watershed, Downstream areas and Project Lands.* The paragraphs in this section describe the progress and challenges, categorized by project area, and highlight the key benchmarks that need to be met prior to reservoir impoundment. In summary: on the *Plateau*, the main areas of progress include: resolution on wood supply constraints, maintaining quality of new houses, improved health of villagers, resolution of Vietic resettlement, more coordinated approach to implementing livelihood programs, capacity building in the Village Forestry Association (VFA), and completion of salvage logging. At the same time, challenges remain in the development of livelihood activities and the pace of their implementation -- which involves engaging additional technical assistance on agriculture – and also in the matter of selective biomass clearance, based on recommendations outlined. In the *Watershed*, the main areas of progress include the halting of illegal mining and continued progress on wildlife monitoring and protection; however, the relationship between development and conservation needs closer attention and a clear strategy will need to be developed. In the *Downstream*, considerable progress has been registered in the infrastructure component, especially the Water, Sanitation and Hygiene (WASH) program, including safe water access and flood control, and incorporating lessons learned from livelihood activities in pilot villages; at the same time, the completion of the implementation plan is needed and scale-up of the livelihood programs needs acceleration to ensure livelihood opportunities are widened prior to impacts. In the *Project Lands*, progress has been made mainly in the public disclosure of the updated Resettlement Action Plans (RAPs) and payment of compensation; however, arrangements remain to be finalized regarding compensation payments for households experiencing losses greater than 10 percent and agreement still needs to be reached with GOL on compensation for households in the Right of Way (ROW). Prior to reservoir impoundment, it will be essential that: (i) resettlement

of all impacted households be completed together with related infrastructure; (ii) the fisheries plan, and all related sub-plans, be completed; and (iii) an Emergency Preparedness Plan be finalized and provided to the DSRP, the Environmental and Social Panel of Experts (POE) and the international financial institutions (IFIs).

## **Plateau**

21. ***Relocation of all households and provision of related infrastructure is expected to be completed by May 2008.*** As of October 2007, of the 1,216 households to be resettled, 781 have moved into their permanent sites. Delays in the Nakai resettlement program have been overcome and significant progress was made during the past dry season. Hard wood for houses has been secured, overcoming an earlier constraint that had delayed some of the construction. At present, about 385 houses have been fully completed, an additional 300 have frames and roofs, and all the remaining have been started. At this rate, all houses should be completed a month before the reservoir impoundment target date of June 2008. However, the schedule is tight and needs close monitoring.

22. ***Resettlers continue to receive food support during their transition to new livelihood activities.*** All resettlers are being provided rice and protein during the transition period. Such transitional support is being phased out as the resettlers are increasingly able to support themselves. The Government has decided that rice support will be continued for all resettlers until they are self-sufficient in rice (either by growing or having the resources to purchase themselves), but that protein support should be phased out after 37 weeks. At the same time, the Concession Agreement (CA) provides for transitional food support (e.g., rice and protein) for vulnerable resettlers, according to need, as determined on a monthly basis and monitored by external monitors. Vulnerability, determined through measures of income level and criteria such as families who are elderly or with young children or limited family labor, is tied to eligibility for continued protein support. There are indications that many resettlers have less interest in livelihood activities as long as they can receive project food support and employment. Thus, linking the withdrawal of food support to development of alternative livelihood opportunities, such as the readiness of the 0.66 hectare agricultural plots or 3 hectares of additional land for production, is an important incentive to encourage the resettlers to fully engage in their livelihood activities.

23. ***The POE has noted the high quality of the new houses, water supply, sanitation and roads – and the improvement in the villagers’ quality of life.*** More than 200 wells have been drilled and equipped, community buildings (e.g., school, village office, rice mills, etc.) erected, and electricity made available. Rice and protein distribution and training programs have continued as have bi-weekly health check-ups. The POE has particularly noted the improvements in resettlers’ health since villagers started moving to their permanent sites, with the incidence of malaria and parasite loads dropping significantly. A WB team carried out an assessment of the health program in August 2007 and noted the health improvements due to improved housing and water and sanitary conditions as well as provision of impregnated mosquito nets, regular health check-ups and access to the district hospital. The second Living Standard Measurement Survey was conducted in June 2007 and the data is expected to be available by the end of 2007.

24. ***The previously reported troubling resettlement issues with the Vietic families from Sop Hia have been resolved.*** The open issues regarding the final resettlement sites have been resolved, through a participatory process, with the 14 Vietic households from Sop Hia village as well as several other households from Ban Sop Hia and Ban Nam Nian. Their decisions have been endorsed by the POE, GOL, NTPC, IFIs and other monitoring entities. Entitlement packages are being designed and this will require close follow-up in the coming months.

25. ***A more coordinated and comprehensive management approach for implementing livelihood programs in the Plateau has been put in place and needs to be diligently followed to ensure livelihood targets are met.*** As noted in earlier reports, there have been delays in the transformation of a sound planning framework for development of sustainable livelihoods on the Plateau into an operational program. Such delays can pose serious risks to the achievement of project targets, and further developments will be watched closely by the monitoring entities. The appointment in April 2007 of two experienced Ministry of Agriculture and Forestry (MAF) specialists as Livelihood Manager and Deputy Manager has helped to overcome delays and allowed for a more coordinated and comprehensive approach involving the numerous stakeholders (District, RMU, NTPC, VFA, villagers, etc.). As of September 2007, 100 percent of the 0.66 hectare agricultural plots for households had been cleared and prepared at all villages, and training and assistance in home gardening is continuing.

26. ***The livelihood programs on the Plateau are focused on agriculture, livestock, reservoir fisheries and forestry.*** The resettlement zones have been divided into three different areas or “clusters” based on differing access to soil, forest, grazing and fishery resources: (i) for the *southern area*, characterized by poor soils, emphasis will be on livestock, forest management and utilization of the drawdown area; (ii) the *central area*, located at a strategic commercial point, will benefit from day-to-day consumption and sale of vegetables, mushrooms, fish and small animals -- and agricultural production will focus on an integrated farming system with fruit trees and annual cash crops together with rice in rotation with cover plants; and (iii) the *northern area*, with the best soils, will focus on conservation agriculture<sup>3</sup> and cash crops, fisheries and forest management. Regarding the northern cluster of villages, where human density is highest, the POE has continued to express concerns about the capacity of the area in terms of land and water resources to support livelihood activities on a sustainable basis to meet income targets. This concern is being addressed through consultations among the Watershed Management and Protection Authority (WMPA), the livelihood team and the RMU. They will present options to the GOL, NTPC and POE by end-December 2007. Finally, the definition of and decision regarding mitigation of unanticipated impacts on the two villages (Ban Thongkong and Naboh) just outside the Plateau, which have been using the southern tip of the resettlement area for non-timber forest product collection, also need to be agreed upon to reach resolution.

27. ***Operationalization of agriculture and livestock activities needs to be stepped up while addressing implementation risks.*** The agricultural programs are beginning to make headway. The 0.66 hectares of land allocated to each household have been cleared, and priority is being given to soil improvement and conservation (cover plants), followed by rice cultivation. This

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<sup>3</sup> Used in smallholder farming systems, conservation agriculture is an integrated approach enhancing the consistency and efficiency of inputs through tapping of biological and geochemical sources of crop nutrients *via* nutrient cycling processes.

may vary depending on the clusters. A cautious approach is being taken to irrigation for these areas, given the costs involved for deep-well pumping and surface distribution. This approach will be reviewed once the reservoir is in operation and a shallower water table is established. As reported by NTPC, village women are mostly occupied by rice harvesting while men are employed in construction work. Rice varieties are being tested and training is ongoing. Training in mushroom production is also taking place; other vegetable production includes cabbage, broccoli, eggplant and cucumber. As of September 2007, 1,450 banana trees had been planted in nine villages. Each tree is expected to produce two additional trees in the next season, which would mean propagation to cover all resettled villages in the next two years. As recommended by the POE, plans to maximize usage of the drawdown zone are being developed and NTPC has carried out a review of its approach to clearance of unexploded ordnance (UXO). In preparation for access to drawdown areas, trials need to be conducted to develop suitable forage and crop options including high value, short rotation horticultural crops, millets, sorghums and pulses such as mung bean. As for livestock, training of village veterinary volunteers is currently taking place. About 1,100 cattle are grazing on the 3 hectare plots and drawdown areas and the total buffalo population is now about 4,500 compared to the estimates of a sustainable (matching the carrying capacity of the area) population of 3,500. Buffalo numbers are already being reduced at the rate of about 1,000 head per year (through local slaughter for meat, trade for consumables and development of live animal trade in the region). The pace of reduction of livestock numbers is now considered adequate for the immediate future.

28. ***Going forward, continued technical assistance is needed to develop cropping systems and improve soil quality in all areas, and to address some of the implementation risks.*** There is agreement among the GOL, IFIs and NTPC that more technical assistance is needed to support the Livelihood Manager. This assistance would focus on: (i) conducting soil fertility research, and demonstration and extension work in support of the conservation agricultural practices; (ii) implementing livestock livelihood activities including trial and scale-up of a wider range of forage legumes suited to very sandy acid soils of low fertility; and (iii) continuing capacity building support to GOL agriculture extension staff at the district and village levels.

29. ***A Reservoir Fisheries Management Plan has been drafted, but is overdue and work to needs to be accelerated to finalize the Plan by early 2008.*** The draft plan presents options that need further consultation with resettled communities to finalize the specifics of the entitlements and benefits, the organizational structure for managing the reservoir fisheries and the need for additional fishing boats. Following this, it will be crucial to define the structure of the organization as well as its management, particularly how the operations of reservoir fisheries will function and how revenues from the operation will be allocated. The POE has recommended a Prime Ministerial Decree be published by December 2007 on the exclusive rights of resettlers to reservoir fisheries. Meanwhile, preparations for the procurement of household fishing boats is taking place and about 650 small boats are to be provided for household daily subsistence fishing in the reservoir.

30. ***The wildlife programs are progressing well and recent publicly disclosed documents provide additional information about the status of wildlife populations in the project area.*** Phase I of the elephant project, which has been completed, determined the size of the elephant population in the Plateau (estimated at 142 elephants). Phase II of the elephant project, which will focus on the development of crop protection methods and creation of artificial mineral licks,

is underway, along with education awareness activities for villages throughout the project area. The Wildlife Management and Monitoring Program is in place and is divided into two phases: (i) pre-impoundment species and habitat inventories, and development of a pre-impoundment wildlife management program; and (ii) implementing part of the management plan and training relevant GOL staff to implement the remainder. As part of Phase I, the baseline wildlife survey reports have been completed and the reports are now publicly available. According to the report's findings, no plants are endemic to the Plateau and there are no cases where inundation is expected to lead directly or automatically to the loss of a species. The report also found no record of White-Winged Ducks, but the Plateau is thought to have the largest Large-antlered Muntjac population known in the world. The Wildlife Management Plan is currently being reviewed by the IFIs.

31. ***The VFA is focusing on housing and community building construction.*** Over the last months, the VFA has been focusing on procuring wood for housing construction. It is also supplying school tables and chairs for primary and nursery schools as well as village offices. Training for villagers in wood carving and sculpture is scheduled to take place by the end of the year. Meanwhile the VFA has contracted the Forestry Inventory and Planning Center in the MAF to undertake the forest management survey and inventory of VFA permanent forest area. Going forward, a clear transition mechanism will need to be pursued for handover from the current Government leadership – which is helping to increase capacity of the association – to the villagers by end-2008.

32. ***Salvage Logging has been largely completed.*** By September 2007 more than 90 percent of the commercially available timber had been harvested and boundaries have been respected. In May 2007 a WB team carried out an implementation review and found that there had been no major impacts on local communities and no evidence of illegal logging in the Watershed area or the VFA forest, aside from rosewood. While rosewood theft has been an ongoing problem throughout the country, the Government has made commendable efforts to halt this practice in the project area, as highlighted by the POE. Salvage logging activities for the remainder of this year are anticipated to cover: (i) logging in a small section of Block A that was not covered last season because maps were not available; (ii) scouring previously logged blocks for additional commercial stems, particularly along the block boundaries; and (iii) removal of small material and tops-and-lops from logged areas.

33. ***Selective biomass clearance needs to be urgently carried out in specific areas to be permanently flooded that are below the Minimum Operating Level (MOL).*** During August 2007 (rainy season), a partial filling of the reservoir occurred, and the water level remained above 527 meters above sea level (masl) for about three weeks. This partial filling (as compared to 538 masl at full supply level) provided important clues on reservoir hydraulics and ecology. Degraded water quality was observed,<sup>4</sup> resulting in limited fish kills downstream of Ban Thalang. Such impacts are a possible indication of what might initially be expected with full reservoir filling (and longer periods of inundation) in the future. To address such possible impacts, the project design includes three of the four globally accepted options for water quality control in a reservoir (i.e., increased aeration, intake structure design, fill-and-flush during initial

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<sup>4</sup> In late August 2007, for a duration of 2 to 3 days, levels of dissolved oxygen went close to zero from Ban Thalang to the dam site at Nakai.

phase). A study by NTPC on Reservoir Management Optimization was commissioned and confirms that biomass clearance will help shorten the reservoir recovery period after first reservoir impoundment and offers social benefits (e.g., access to water, navigation channels, control of mosquitoes, etc.). Taking into account available information, including a quick assessment of biomass clearance options, carried out by the WB in July 2007, the last IFI mission recommended that NTPC clear as much biomass as possible in the areas below the MOL that will be permanently flooded. Prior to reservoir impoundment, areas below the MOL, especially those with the highest biomass concentration, should be the main focus for selective clearance. Based on these reports and the POE recommendation, NTPC is expected to work with the GOL to finalize the plan for selective clearance of biomass in parts of the permanently inundated areas by the end of December 2007, following the finalization of an agreed approach with IFIs later this year. A fill-and-flush plan for the 2008 wet season and 2008/09 dry season will also be further developed to take advantage of the fill-and-flush process<sup>5</sup> during the filling period in order to maximize its effectiveness as a biomass removal technique for water quality purposes.

## **Watershed**

34. ***The WMPA continues to make commendable progress and appropriate measures have been taken to resolve mining activities in the protected area.*** The POE has continued to express satisfaction with the work being undertaken by the WMPA particularly in terms of monitoring and enforcement. The previously reported small-scale gold mining within the protected area, which presented a serious threat to its integrity, has been successfully halted. In an August 2007 briefing, the POE stated that the Nakai-Nam Theun was the best protected area in the country, which it attributed to the work of the WMPA and its efforts to stop illegal logging (including rosewood) in the area as well as its good anti-poaching patrol procedures which, nevertheless, need further strengthening. An aspect that also needs closer attention is the relationship between the conservation of the protected area and the development of the villagers living there. The POE has recommended that the WMPA develop a clear strategy that articulates how it will manage the conservation of the area while at the same time helping to improve the living standards of its population. The POE and the independent monitoring agency (IMA) for the WMPA have also proposed an administrative re-organization of the WMPA, which is pending consideration.

## **Downstream Area**

35. ***The progress of implementing the Downstream Program poses considerable challenges, especially the livelihood activities, and needs significant acceleration.*** The Downstream Program consists of: (i) infrastructure provision; (ii) livelihood restoration; and (iii) fish catch monitoring. The *first component* includes a wide range of activities – water supply, sanitation and hygiene, flood gate rehabilitation, access restoration, river bank garden

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<sup>5</sup> Filling and initial release strategies – e.g., partial fill–partial flush and full flush techniques -- are usually implemented in small-to-medium size reservoirs as an option to dispose of rapidly decomposable materials. This technique helps eliminate leafy and herbaceous vegetation from the initial fill, flushing this organic load and its low dissolved oxygen levels downstream. By filling and then flushing the degraded water relatively quickly, once or twice in succession, the water in the reservoir has the opportunity to recover so that long-term releases would be of higher quality. In the case of NT2, the construction schedule allows for two wet season flushings prior to COD, which is beneficial.

replacement, river bank protection (if and when required), inventory for further irrigation pump rehabilitation, flood protection and UXO clearance. Good progress has been achieved in provision of water supply, sanitation and hygiene (WASH program). According to the present schedule, this infrastructure, which aims to improve living standards and offset impacts, is set to be in place by COD in all 91 villages covered. The *livelihood component*, where piloting of activities began in 20 villages a year ago, now needs to be scaled-up urgently to another 71 riparian villages before COD. The third component, *fish catch monitoring*, has been carried out in 49 villages and the collected data are being analyzed for the area located downstream of the Nakai dam (Khemkeut District). Analysis of other areas is pending as there were delays in collating the results. A mitigation program has been put in place to address longer-term impacts downstream of the Nakai dam; however, there is a need to address the shorter-term impacts on fisheries that may result from potentially poor quality of water (from decomposition of biomass in a newly-formed reservoir) being discharged into the Nam Theun River. The IFIs have recommended that NTPC develop a plan to provide emergency food support to those households that may be affected by this impact.

36. ***Livelihoods component – although lessons from the pilot villages are encouraging, the challenge of scale-up remains significant.*** Important lessons from the implementation of livelihood programs in the 20 pilot villages have emerged and these include: a strengthened participatory planning approach, functioning of Village Development Committees and Village Saving and Credit Funds, skills development in different types of livelihood activities like fishery, agriculture, livestock, handicrafts, etc., and improved targeting of vulnerable households. The savings and credit scheme, successful thus far in terms of collection rate, nevertheless entails risks of insufficient accountability and sustainability in the long term due to the large scaling-up planned during the next years. An option being considered is engaging an organization with international experience in micro-finance to support program implementation. While these important lessons will be incorporated in the scale-up plan to cover the remaining villages, it is urgent to finalize the implementation plan to ensure activities are prioritized, budgeted and discussed with villages accordingly. The revised plan is expected to be approved by the GOL and IFIs by early 2008; any further slippages would significantly increase the risk of not achieving timely implementation.

## **Project Lands**

37. ***There has been progress in the last few months on the wider disclosure of updated RAPs and the proper payment of compensation; however, some areas require continued attention.*** The updated RAPs are now accessible through the NTPC public website. While the RAPs have been available as part of the Social Development Plan since project preparation, the updated documents, reflecting final expected impacts as a result of detailed designs, had not been made available to the wider public until recently, due to some delays as well as concerns over sensitive information regarding villager assets. Progress has been made in the delivery of compensation payments for households experiencing impacts below 10 percent of their productive asset base. All 2,000 such households have been compensated except for four, which are being addressed. There are 80 related grievances, which are being reviewed. Agreement has been reached on the compensation and livelihood restoration approach for households losing land, and improved communication and consultations with the affected villagers are being undertaken. However, the payment of compensation needs to be accelerated, particularly for

those households within the ROW along Roads 12 and 8b, and for villagers losing more than 10 percent of their productive assets (i.e., severely affected). Regarding households in the ROW, formal agreement from the GOL is urgently needed on compensation, following which payment should be undertaken forthwith. Regarding the severely affected households, detailed interviews have been carried out with the villagers to review the status of compensation payment on a case-by-case basis. Of the approximately 400 severely affected households, 100 were found to experience losses lower than 10 percent due to a misclassification on earlier survey documents, which has now been clarified. Thus, an estimated 300 households are now considered as experiencing losses greater than 10 percent. Based on the interviews conducted by NTPC and the GOL, cash compensation is being considered as villagers have expressed their strong desire for this, *vis-à-vis* livelihood restoration. NTPC and the GOL are currently reviewing this option, estimating costs, and continuing ongoing consultations with villagers on this topic. In the meantime, *interim* compensation and livelihood restoration activities (e.g., rice cultivation, frog raising, mushroom cropping, etc.) continue.

## **Other**

38. ***The project continues to make steady progress in mainstreaming gender considerations in implementation.*** Efforts include: ensuring that effective consultation is achieved among women with respect to livelihood programming; establishing joint land titling as the norm for relocating households; collecting gender-disaggregated data and considering it in implementation and assessment of program effectiveness; and promoting further progress in establishing equitable gender representation in project staff and management positions.

## **Steps before Impoundment**

39. ***A number of important steps will need to be completed before reservoir impoundment can begin.*** On the Plateau, it will be essential for permanent resettlement houses and infrastructure to be completed and livelihood restoration programs should be well under way – this will include resolution of UXO clearance in the drawdown areas and undertaking additional biomass clearance that is agreed upon. Decisions on how reservoir fisheries will be organized – in terms of both planning and management – will also need to be made, and the Reservoir Fisheries Decree and Management Plan should be in place. Implementation arrangements for the Wildlife Management Plan should also be in place. In the Watershed, it is important for progress to continue to be made and for a vision and strategy on the conservation and development of the protected area and villager livelihood to be developed. In the Downstream areas, it will be vital for progress to continue in terms of scale-up of program activities, for which the finalization of the implementation plan is urgently needed. In the Project Lands, it will be essential to clarify and complete the payment of compensation to those households impacted over 10 percent, as well as to continue making progress on development of livelihood restoration programs.

40. ***Three key benchmarks have to be met for reservoir impoundment to proceed.*** *First*, resettlement of all impacted households must be completed together with related infrastructure. *Second*, the fisheries plan, and all related sub-plans, must also be completed. *Lastly*, an Emergency Preparedness Plan needs to be finalized and provided to the DSRP, POE and IFIs. In accordance with the CA, the approval for reservoir impoundment will be made by the Government's Resettlement Committee on the advice of the POE.

### C. CONSULTATIONS AND STAKEHOLDER PARTICIPATION

41. ***Consultations with local communities continue in all project areas.*** The participatory nature of the resettlement program is ongoing and village participation in the VFA has increased since the last Update. With respect to the downstream program, high village participation has been achieved through the Village Development Committees. However, it will be important to improve communication regarding design of the scale-up plans so that villagers understand when programs will begin to be developed and how the process will be carried out. In the Project Lands, continued consultations are needed, as decisions on payment for households experiencing losses greater than 10 percent of their productive asset base are being defined, as well as the ongoing work to resolve grievances that arise.

42. ***The Second Annual Stakeholder Forum held during June 2007 was attended by over 350 participants including international non-governmental organizations (NGOs) and media.*** The Second Forum, sponsored by the Government and NTPC, gave participants a first hand view of progress on construction, village resettlement and livelihood development activities. Participants included representatives of local and international NGOs, local and foreign media, diplomatic and local government officials, academics, financing institutions and international organizations. The three-day event featured a full day of presentations by Government agencies, NTPC and villagers, and allowed participants to ask questions and receive feedback. Days two and three were an opportunity for participants to visit the project site and resettlement villages. The Forum was well attended by members of the foreign press and the event was widely covered in the media. A Third Stakeholder Forum is scheduled to take place in June 2008.

43. ***The project continues to attract international attention, and media interest has peaked over the last six months.*** NT2 continues to be a project of high visibility in many circles. At the local level, university students, media and representatives from various development organizations and embassies have maintained interest in the project. At the international level, numerous students and academics are closely following different aspects of project development from countries like Denmark, Japan, Singapore and the United States. International NGOs also continue to follow the project closely. Both local and international stakeholders benefit from ongoing formal and informal briefings from IFI staff, and questions are responded to in a timely manner. Interest from international media in the project has significantly increased in the last six months and for the most part has been balanced.<sup>6</sup> The Lao Government and NTPC, with support from the WB, routinely facilitate visits to the project site. The IFIs continue to be proactive, sharing information with the public through a number of modalities (including responses to queries and news stories), and a WB NT2-dedicated website has been in place since the start of implementation (2005). The WB has strengthened its communications capacity on the ground, and ongoing efforts, as described above, are in place to ensure that the project is implemented in a transparent, open and participatory manner. The GOL, with support from the Groupe Agence Française de Développement (AFD Group), has hired a Technical Advisor to build capacity in the Department of Energy Promotion and Development in areas of stakeholder consultation and communication; the Advisor commenced activities in November 2007.

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<sup>6</sup> News media coverage in the past six months includes articles in Lao, Thai and United States newspapers, Newsweek Magazine, Al-Jazeera television, National Public Radio (USA), BBC World Television and Le Monde newspaper.

44. ***The first Lao-Thai High Level Forum on Sustainable Hydropower Development took place in Bangkok in September 2007.*** The Forum was convened by the Thai and Lao Energy Ministries and supported by the WB. It was a significant step forward in the partnership between Lao PDR and Thailand on hydropower, which goes back nearly three decades, as it was the first time such a diverse variety of stakeholders (nearly 150 participants from governments, private sector lenders/investors, civil society, etc.) gathered to discuss how to enhance the quality of investments in hydropower in Lao so that it is more environmentally and socially sustainable. Presentations and discussions included lessons emerging from the NT2 experience, as well as hydropower project financing and environmental and social arrangements. The Forum concluded with a “Joint Communiqué” signed by Lao and Thai counterparts, which lays out their commitment to work together to ensure the sustainability of future projects, including taking forward NT2 practices. A second Forum is planned for the second half of 2008.

#### **D. REPORTING, OVERSIGHT AND SUPERVISION**

45. ***Reporting and disclosure arrangements are working satisfactorily overall and delays in releasing key project documents to the wider public beyond the project area are being addressed.*** Disclosure of project documentation on the part of NTPC and the Government has been reasonably effective in disseminating information to internal stakeholders (villagers, IFIs, monitors, shareholders). In the case of villagers, detailed information is made available in an easy-to-understand manner (particularly visual materials) and in local language. However, there have been delays in dissemination of the updated RAPs to the wider public, which have been addressed. In this regard, the updated RAPs for the Project Lands are now available on NTPC’s website. Additional reports on wildlife have been made available and GOL’s Salvage Logging Plan is expected to be publicly available soon. Going forward, the IFIs strongly recommend that this approach of more comprehensive disclosure be continued and that additional analytical studies that can be of use and interest to a wider audience continue to be publicly disseminated once they are completed. The IFIs, GOL and NTPC continue to respond, upon receipt, to *ad hoc* requests from civil society organizations, media and numerous other stakeholders for additional information on implementation details as well as arrangements for visits to the site.

46. ***The expanded International Advisory Group (IAG) issued its first report in May 2007.*** The report noted improvements in project management and coordination, progress on resettlement, advancements in livelihood development in the Downstream areas and progress in PEMSP implementation, among others. The IAG recommendations pointed to the challenge of developing sustainable livelihood activities in all project areas and the members expressed concerns in several areas, including biomass clearance, road construction, shortage of wood supply for housing and the need to improve communication with villagers – all issues which are being or have been resolved. The next IAG visit is scheduled to take place in February 2008.

47. ***The 12<sup>th</sup> report of the POE, based on its August 2007 visit, has been released.*** The report reaffirms the POE’s support for the project and addresses areas where implementation risks are emerging. The report highlights some key areas of activity by NTPC and GOL – besides finalizing construction of resettlement housing and related infrastructure – where progress needs to be registered before reservoir impoundment can proceed. It discusses progress and strengths in the health programs, livelihood development in the Plateau, quality of resettler houses, progress in the Downstream area, and conservation and protection efforts in the

Watershed, among others. The report called for increased attention in various areas, including reaching agreement on reservoir fisheries, securing timber supply for houses and stopping mining in the protected area – issues that are being or have been resolved. The IFIs, together with the GOL and NTPC, are in close contact with the POE and continue to follow up on all these issues. Two visits of the POE are planned before reservoir impoundment: one in January 2008 and another in late April/early May 2008.

48. ***The Dam Safety Review Panel will review Project preparedness for reservoir impounding.*** The DSRP has already reviewed and commented on a draft of the Emergency Preparedness Plan. The Panel will receive the final draft before the end of December 2007. A site visit of the DSRP is scheduled for the week of February 18, 2008 for reviewing final arrangements before reservoir impoundment.

49. ***All Independent Monitoring Agencies are now in place.*** After significant delays (due to the complexity of the multi-layer, multi-entity monitoring arrangements and the need to rationalize the scope of the different IMAs to avoid overlap), the IMAs for the Nakai Resettlement, Project Lands, Downstream and Environment, are now all in place. The IMAs for the Project Lands and Downstream have undertaken their first mission, the IMA for Nakai Resettlement has carried out two visits and the IMA for Environment will carry out its first visit by the end of 2007. As outlined in the last Update, the substantial monitoring and supervision arrangements, including visits by the POE, IAG, the Lenders' Technical Advisor (LTA) and the IFIs, together with internal monitoring efforts, significantly compensated for the delays in IMA recruitment.

50. ***Donor operations related to NT2 are moving forward satisfactorily thanks to well coordinated and effective IFI supervision and co-financing arrangements.***<sup>7</sup> WB and ADB efforts continue to be in close alignment and well-coordinated with those of the AFD. Cooperation among the IFIs on joint supervision missions and regular visits of the field-based technical teams continues to work very well. Joint IFI reviews are fielded twice per year, with a management mission in March and a technical team mission in November. These are supplemented by regular visits of the field-based technical teams to follow up on issues as they arise, which this year have included focused visits by health, biomass, salvage logging, communication, agriculture, environment and biodiversity specialists, among others. Field presence will intensify in the next seven months, as the date of reservoir impoundment nears, to ensure key actions are properly addressed. The broader group of co-financiers remains in close contact through regular exchanges of information and periodic discussions.

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<sup>7</sup> In its February 2007 visit, the IAG noted the high standard of supervision efforts and the strong collaboration among the IFIs.

**UPDATE FROM ADB ON THE THEUN-HINBOUN HYDROPOWER PROJECT****Background**

1. A public-private partnership, the Theun-Hinboun Power Company (THPC) Limited, was formed in 1993 to plan, finance, construct, own, and operate the Theun-Hinboun Hydropower Project (the Project) downstream of Nam Theun 2. It started operations on schedule in March 1998. The Project is a trans-basin hydropower scheme diverting the Nam Theun by means of a dam consisting of a combination of radial gates, flap gate, and a weir. The flow is diverted through an underground tunnel to a 210-megawatt (MW) surface powerhouse and is discharged to the Nam Hai, a tributary of the Nam Hinboun. An 86-kilometer transmission line to the border at Thakhek allows the export of power to the Electricity Generating Authority of Thailand (EGAT).

2. The Asian Development Bank (ADB) approved a loan of US\$60 million from the Asian Development Fund (ADF) for the Lao People's Democratic Republic (Lao PDR) to implement the first joint-venture hydropower project with foreign investors. Electricité du Laos (EdL), the state-owned power utility, contributed 60 percent of the share capital, and two foreign investors, MDX Lao Public Company Limited and Nordic Hydropower AB, 20 percent each. Assisting the transition to a market economy by supporting such private sector participation, ADB acted as the lead coordination agency for Government's negotiations with the foreign investors and provided legal and financial advice in the form of a technical assistance grant. As a result of significant cost savings in main civil works, mechanical works, and electrical equipment, the Project was completed at a cost of US\$240 million, 11 percent below the appraisal estimate of US\$270 million.

3. THPC and EGAT signed a power purchase agreement (PPA) in 1996 for a guaranteed off take of 95 percent of THPC's power generation, which has ranged between 1,358 and 1,521 gigawatt-hours (GWh) per annum in the last five years; sales to EGAT were about 97 percent of declared availability. It is expected that the power plant will generate on average 275 GWh per annum less when Nam Theun 2 starts impounding its reservoir in June 2008. The PPA between THPC and EGAT is based on the take-or-pay principle, has a term of 25 years from the start of commercial operation, and contains an option for renegotiating the tariff after 10 years. The tariff in the first year of operation was US\$0.0484 per kilowatt-hour, and increased by a fixed rate of 1 percent per annum after 1999. The payment is determined half in US dollars and half in Baht at a fixed exchange rate of US\$1.00 = B25.35. THPC later refinanced its commercial loans aligning the currency profiles of the debt payments with those of the revenues.

4. The Project has achieved its intended purpose. It is currently one of the largest foreign exchange sources in the Lao PDR. THPC's sales revenues increased from US\$42 million in 1998 to a high of US\$57 million in 2005, and are expected to be maintained at about US\$55 million in the future. THPC's financial performance is very good. THPC has a healthy profit and maintains a comfortable debt-servicing capacity. The Project generated a net income of US\$88 million from 2003 to 2005. THPC's dividend payments in the same period amounted to US\$78 million, of which US\$47 million went to EdL. In addition THPC paid about US\$2.8 million in royalties to the Government in 2005. In 2004 THPC started paying taxes. The profit tax payment for 2004

was about US\$3.4 million and about US\$2.9 million for 2005. Revenue sharing arrangements among the shareholders of THPC is as per the joint venture agreement, i.e., 60 percent for EdL on behalf of the Government and the remaining 40 percent equally shared between the Thai and Nordic investors.

5. The feasibility study included an environmental impact assessment that was completed in May 1993, but due to the lack of baseline data on environmental and social impacts, the extent of these impacts was not properly understood; this resulted in some design weaknesses. The Project was funded and constructed before ADB had fully developed its policies on environmental and social issues, and the lack of baseline information was dealt with by postponing the study of impacts to the post-construction period. Physical relocation of persons was not anticipated, as the communities living in the project area mostly consisted of shifting cultivators. Therefore, the Project did not have a resettlement plan to systematically address income restoration and other social impacts. However, the Environmental Impact Assessment did propose several community programs in the project area. During implementation and initial operation, it became apparent that the environmental and social impacts were more extensive than anticipated and various parties, including international NGOs, raised their concerns, such as: (i) the number of villages affected by the Project increased from 21 to 57; (ii) loss of dry season riverbank gardens, which are an important source of food and income; (iii) loss of access to traditional fishing and fish breeding areas, which are an important protein source for villagers; (iv) erosion along sections of the Nam Hinboun, which caused loss of land and access to clean water supplies; and (v) loss of income by villagers due to delays by the company in taking action to solve the problems caused by the Project.

#### **Agreed Action Plan to Mitigate the Social and Environmental Impact**

6. To remedy the environmental and social problems, a 10-year mitigation and compensation program (MCP) was agreed upon in June 2000, and a new Environmental Management Division (EMD) was formed within THPC in 2001 to implement it. The MCP was comprehensive and ambitious, and tried to adopt best practices in terms of participation. The EMD addresses the issues raised in the MCP, which noted that approximately 3,000 families in 57 villages had been impacted by the Project. One of the first actions by EMD was the development of a management strategy in the form of a logical framework (Logframe) to implement activities to mitigate identified project impacts. A significant number of Logframe activities have been initiated and show relatively good progress. THPC reported quarterly on the implementation of the Logframe on the following activities. The Logframe has now been merged with the Expansion Project (see explanation below). The following activities were considered most critical for the Logframe:

- ***Community assessment and organization.*** Village development committees (VDCs) have been established and trained in 51 villages. Sample socioeconomic baseline surveys were carried out in 10 villages as per the targets in the log-frame, adopting a livelihood framework to monitor and assess the impact. To date all villages have been visited and VDCs and/or village working groups have been established to follow through with the assessment work. Further training, leadership support and support for women's involvement will be carried out under the Expansion Project.

- ***Social mitigation implementation.*** Savings and credit programmes have been established in 62 villages; 48 livestock groups have also been established as of mid-2007. A number of these programs are being modified and improved under the Expansion Project.
- ***Water supply.*** More than 100 dug and more than 45 tube wells were completed as well as four gravity fed systems and several water pumps for domestic use and gardens, and culverts by mid-2007. Several wells have become dry and there are issues of water quality in a number of areas that is now being addressed.
- ***Health and sanitation.*** Village health volunteers were trained, and basic medicine kits, mosquito nets, and revolving medicine funds were provided in all villages by mid-2007. Health Programs have been reviewed by a health expert as part of the Public Health Action Plan for the Expansion Project. A number of activities will increase in scope and intensity.
- ***Wild fishpond building.*** Six large wild fishponds with good fish yield following the wet season were built at Hinboun area. Additional efforts have been made to expand these activities in the Nam Kadding area.
- ***Savings and credit funds.*** These were operating in 62 villages by mid-2007. This program has provided funds for various agricultural and income-generation activities as well as forming part of a compensation program and supporting dry-season irrigation. The savings and credit schemes have been reviewed due to some indebtedness and programs will be revamped under the Expansion Project.
- ***Gardens.*** House gardens were established in 54 villages with participatory land use planning, terracing where appropriate, and planting of fruit trees and vegetables. Support for these programs will continue under the Expansion Project.
- ***Other activities.*** Other livelihood enhancement activities carried out in several villages include frog rearing, family fish ponds and training for livestock management. Some essential supplies have been provided to several schools. THPC runs a school and a health center adjacent to the power plants that are open to the public in the area.

### **Further Developments**

7. THPC finalized a Technical Feasibility Study for the Theun Hinboun Extension in mid-2007. The Company expects to sign the PPA with EGAT and a Concession Agreement with the Government at the end of 2007. Financial Close is expected by mid-2008. The Expansion Project consists in building a dam on the Nam Gnouang, a tributary of the Nam Theun upstream of the Theun Hinboun weir and power intake. The dam will create a reservoir of approximately 105 sq km that will regulate the river flows into the Theun Hinboun head pond and increase power output in the dry season. The extension project also includes increasing the installed capacity at the existing power house from 220 MW to 440 MW for export to Thailand, and a hydropower plant at the new dam of 60 MW for selling of electricity to EdL. The Extension Project is scheduled to be commissioned in 2012.

8. THPC has engaged an expatriate Environmental and Social Manager who is responsible for the execution of the Environmental and Social Plans of the new Extension Project, and has integrated the existing work of the existing EMD with the proposed Expansion Project mitigation plans as of mid-2007. A Draft Final Environmental Impacts Assessment and Environmental

Monitoring and management Plan and Resettlement Actions Plan were submitted to Water Resources and Environment Authority in August 2007. Consultations have been carried out on village, district, provincial and national levels. The final Public Information Meeting was held on November 29, 2007 in Vientiane. There is now a Social and Environmental Division (SED) established with five units: Administration, Resettlement, Social Development, Downstream and Environment. Full implementation mode for this division will be reached by mid-2008 ahead of construction. Residual impacts from the existing project will be incorporated into the livelihood restoration strategy by income targets for improving the standard of living in the downstream and through backward relocation if required.