

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

July 21, 2009

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In Memoriam

Dick de Zeeuw, Convener of the International Advisory Group (IAG) for the Nam Theun 2 Hydroelectric Project (NT2), suffered a heart attack while returning from the Nakai Plateau, part of the NT2 Project area, in early December 2008. He was subsequently moved to a hospital in Bangkok, Thailand where he passed away on February 18, 2009. In his remembrance, merit and memorial ceremonies were held in both Bangkok and Vientiane.

Professor de Zeeuw began his association with Lao PDR in the mid-1990s when he was invited to lead the panel of independent international experts that constituted the IAG. He has championed the interests of both Lao PDR and NT2 and, foremost, of the Lao people. He truly believed that NT2 will pave the way for Lao PDR to sustainably manage its water resources and better the lives of the poor in the country. Professor de Zeeuw was a distinguished, committed and dedicated professional, who leaves behind a legacy of contributions to public service within the Netherlands, Europe and worldwide.

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
BOL	Bank of Lao PDR
CA	Concession Agreement
COD	Commercial Operations Date
EdL	Electricité du Laos
EGAT	Electricity Generating Authority of Thailand
EMD	Environmental Management Division
FY	Fiscal Year
GDP	Gross Domestic Product
GOL	Government of Lao PDR
GWh	Gigawatt hour
IAG	International Advisory Group
IFIs	International Financial Institutions participating in NT2
IMA	Independent Monitoring Agency
LTA	Lenders' Technical Advisor
MOF	Ministry of Finance
MCP	Mitigation and Compensation Program
MW	Megawatt
NT2	Nam Theun 2 Hydroelectric Project
NTPC	Nam Theun 2 Power Company Limited
NTSEP	Nam Theun 2 Social and Environment Project
PDR	(Lao) People's Democratic Republic
PER	Public Expenditure Review
PETS	Public Expenditure Tracking Survey
POE	Environmental and Social Panel of Experts
PPA	Power Purchase Agreement
RMA	Revenue Management Arrangements
SED	Social and Environmental Division
THPC	Theun-Hinboun Power Company
THXP	Theun Hinboun Expansion Project
VDC	Village Development Committees
VFA	Village Forestry Association
WB	World Bank
WMPA	Watershed Management and Protection Authority

UPDATE ON THE LAO PDR: NAM THEUN 2 HYDROELECTRIC PROJECT

I. SCOPE OF THIS UPDATE

1. *This Update¹ reports developments since the last annual Update to the Board (dated July 21, 2008) on the Nam Theun 2 Hydroelectric Project (NT2 or the Project).* It is based on the findings of a joint NT2 supervision mission mounted by the international financial institutions (IFIs) in February 2009, follow-up missions on watershed protection and revenue management, and other developments on the macro-economy and project construction between April and July 2009. The report has been timed to cover these activities. It focuses on the issues that warrant heightened attention as NT2 begins its transition to the commercial operations phase. A more detailed and comprehensive assessment of progress towards Project objectives² and performance in regard to legal obligations will follow in the next Update report planned for circulation to the respective Boards of the World Bank (WB) and the Asian Development Bank (ADB) before the Commercial Operating Date (COD) occurs, which is currently scheduled for December 2009.

2. *This Update reviews current progress and implementation concerns.* The current challenges should be viewed in the context of the fast-approaching COD and the transition beyond the construction phase. The Update begins with a snapshot of country economic management. The next section describes the status of the hydroelectric facilities, including the related construction activities, which are coming to a close, and the testing and commissioning activities now underway. It then provides details of Project finances before turning to the environmental and social challenges. These relate to achievement of livelihood targets for those resettled in the Plateau, sustainable management and protection of the Watershed, implementation of measures to safeguard water quality, and management of downstream impacts. The Update then touches on the need to maintain momentum on stakeholder engagement and ensure Project sustainability, while also underscoring the importance of having in place the arrangements needed to ensure that NT2 revenues will be applied effectively and transparently to priority activities in support of poverty reduction and environmental management. The Update concludes with a brief description of other oversight and supervision activities – including a visit by the Panel of Environmental and Social Experts (POE), undertaken in March/April 2009, and a comprehensive review of NT2/NTSEP (Nam Theun 2 Social and Environment Project) implementation progress that has already commenced. These exercises underpin the more comprehensive assessment of progress towards Project objectives that will be provided in the next Update.

¹ The World Bank (WB) and the Asian Development Bank (ADB) have agreed to keep their respective Boards of Executive Directors informed about NT2 implementation through joint reporting on an *annual* basis, supplemented by *semi-annual* updates. The Project was approved by the Boards of the WB and ADB on March 31 and April 4, 2005, respectively.

² The Project objective 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.

II. COUNTRY ECONOMIC MANAGEMENT

3. ***The economy of the Lao People's Democratic Republic (PDR) is beginning to feel the impacts of the global financial crisis.*** Declining commodity prices have impacted the mining sector, but other major industries (tourism and garments) have so far been little affected. Going forward, however, declining global demand will undoubtedly affect export earnings, lower foreign direct investment and remittances and slow investment and production; the budget will come under pressure from increased demands for spending on social programs; and contingent liabilities of the Government of Lao PDR (Government, or GOL) will rise as weaknesses are revealed in the portfolios of the state banks and in the operations of utility companies. Real GDP growth is expected to drop to 5 percent in 2009 from about 7.9 percent and 7.2 percent in 2007 and 2008, respectively. This is still higher than many countries in the region, but the projections may be further revised downwards when data becomes available. Sustaining the underlying growth will require ongoing efforts to expand the economic base, continue trade reforms and improve the investment climate.

4. ***The headline inflation hit an historical low and stayed below zero percent for three consecutive months to June 2009 and is expected to remain low in the coming months.*** Inflation has been contained at 7.3 percent average over the past five years. While the core consumer price index remained low at below 4 percent, headline inflation was aggravated by the global oil and food price hikes during the second and third quarters of 2008. In 2009, with the recent reduction in these prices, inflationary pressures have eased. Exchange rates to the US Dollar and Thai Baht remained relatively stable, and the BOL is expected to be able to manage well the depreciation pressures that are slowly arising from the crisis. Food prices are projected to remain low and it is not expected that oil prices will rise. At the same time, the Bank of Lao PDR (BOL), which is actively engaged with the Bank, plans to continue following a low inflation policy and aims to manage the monetary aggregates appropriately. However, the recent growth in credit (by 85 percent in 2008) has heightened concerns since it may result in an increase in non-performing loans and instability in the financial sector. A recent increase in the quasi-fiscal activities of the BOL that caused a significant increase in total fiscal deficit, if not withdrawn after the SEA Games, may cause macroeconomic instability.

5. ***Revenue collection³ has risen from 14 percent of GDP in fiscal year FY2006/07 to about 14.9 percent in FY2007/08. However, significant shortfalls are expected in FY2008/2009.*** The sharp fall in commodity prices (especially metal and agricultural products on the export side and fuel on the import side) is having a significant impact on the GOL's revenue collection. The quasi-fiscal activities supported by the BOL have significantly increased the deficit for FY2008/09 to about 8 percent of GDP, up from 3.4 percent in the planned budget deficit. In addition to the expected shortfall in revenues from lower: (i) profit tax and royalties from mining companies; (ii) dividends from state-owned enterprises and commercial banks; (iii) general tax revenues due to the slowdown in economic activities; and (iv) petroleum tax collections, this is mostly due to the expenditures side. While this is a serious challenge to future budgets and reform programs, the Government has maintained prudent fiscal policy in the previous two years as resource sector revenues grew from nearly zero to about 20 percent of the total budget. The Government is planning to finance the deficit through raising additional grants

³ Excluding grants.

from its development partners, introduction of excise taxes on beer and fuel, increased tax and customs law enforcement, issuing of a domestic bond, and use of some of the fiscal reserves accumulated during the past two years.

6. ***The current account deficit of the external balance of payments in 2009 is projected at around 15.8 percent of GDP, an improvement over 2008, as imports for construction of large projects are expected to fall faster than export value.*** The current account deficit (at 16.5 percent of GDP in 2008) was driven by large imports for the construction of big projects in the resource sector and high prices of imported fuel. The overall external balance has been in surplus in recent years as capital inflows continued to balance the large current account deficit (of above 15 percent of GDP). Gross international reserves increased from nearly US\$530 million at end-2007 to around US\$636 million by the end of 2008 (or equivalent to about 6 months of non-resource imports); however, these have been declining slightly since the last quarter of 2008 and are expected to further decline in 2009 as the external account rebalances.

7. ***The external public and publicly-guaranteed debt⁴ as a percentage of GDP remains high, but has been declining (from 59.1 percent in 2007 to about 53.0 percent of GDP by end-2008).*** The debt outlook is susceptible to several risks, including slower growth and higher spending as a response to the global financial crisis. External public and publicly-guaranteed (PPG) debt stocks remain at about US\$2.9 billion at end-2008 (or about 53 percent of GDP), but the high level of concessionality of official borrowing, which comprises most of Lao PDR's debt, keeps debt service ratios relatively contained. Strong economic growth, currency appreciation, and prudent debt management contributed to a decline in the debt ratio over the past few years. The corresponding net present value (NPV) of debt at end-2008 was 35 percent of GDP. In terms of composition, nearly 70 percent of PPG debt is held by multilateral creditors, mainly the Asian Development Bank and World Bank (IDA). About 29 percent is held by bilateral creditors, including a large Soviet-era debt to Russia. Only 2 percent comprises external debt incurred by public entities on non-concessional terms, mainly for hydropower development and electricity generation. The stock of recorded domestic public debt amounted to 2.1 percent of GDP at end-2008, but is expected to increase remarkably in the short- and medium- term as the Government resorts to domestic borrowing to finance large fiscal deficit.

8. ***There are a number of uncertainties associated with the economic outlook, including the duration of the global economic recession.*** Downside risks include continued high credit growth, the possible inability of the mining companies to meet their tax obligations along with the potential for a further decline in copper prices, more delays in the construction of various power plants, and significant delays in implementation of the structural reform agenda. In particular, the following significant risks can be identified based on the previous crisis experience: (i) the accumulation of arrears to private and public entities, and related impacts on fiscal sustainability – especially due to the decline in commodity prices and the corresponding decrease in revenues accruing to the GOL from natural resource sectors; (ii) potential growth in non-performing loans, as credit growth continues without further strengthening of banking supervision and loan assessment, therefore deteriorating the balance sheets of the state-owned commercial banks and creating contingent liabilities; (iii) diversion of resources away from National Socio-Economic Development Plan priorities; and (iv) an increasing fiscal deficit,

⁴ In Net Present Value terms.

which may be financed via domestic borrowing or non-concessional support from non-traditional donors.

9. ***Lao PDR has continued to make impressive progress in its efforts to reduce poverty; however, momentum may be slowed by the impacts of the global financial crisis.*** With an estimated per capita income of about US\$840 in 2008, Lao PDR is among the poorest countries in East Asia. It has made significant strides in poverty reduction. The incidence of poverty fell from 45 percent 1992/93 to 39 percent of the population in 1997/98 and to 33 percent in 2002/03 using Lao PDR national poverty line; or from 59 percent in 1992/93 to 49 percent in 1997/98 and to 44 percent in 2002/03 based on the WB's new US\$1.25 a day 2005 purchasing power parity (PPP) terms. As the impact of the global financial crisis sweeps into the real sector, the poverty rate may rise as: (i) unemployment is likely to increase and real incomes and wages fall; (ii) remittances from Lao workers in neighboring countries are likely to decline; and (iii) reverse migration from abroad, and from urban to rural areas, may exacerbate the situation.

10. ***The crisis gives more urgency to several areas of ongoing structural reforms, aimed at increasing revenues, improving the investment climate and reducing poverty.*** The Government continued to make progress in key reform areas (such as public finance management, trade and private sector development) in 2008. Moving forward, the economy is facing a number of challenges in dealing with the unfolding global financial crisis. The projected reduction in fiscal revenues (from reduced resource revenues, import taxes and other export revenues) will limit the GOL's ability to conduct fiscal policy, at the time when a fiscal stimulus may be most needed. It may also generate pressure to divert new NT2 revenues away from agreed expenditures. Public Financial Management reforms have continued with implementation of the new Budget Law: completion of Treasury, Customs and Tax centralization in three pilot provinces and expansion to other new provinces is ongoing; a new revenue sharing and distribution framework has been designed and ministries and provinces have begun to apply the approved budget nomenclature to their budget plans from FY08/09; and deployment of Treasury modernization is ongoing, although implementation of the Value-Added Tax is now suspended.

III. CURRENT PROJECT IMPLEMENTATION CHALLENGES

General

11. ***Given the size and complexity of Project implementation, progress so far has been commendable.*** The COD is currently scheduled for December 2009, with the official inauguration expected to take place in the first quarter of 2010. The physical construction of the hydropower facility is almost complete and management of the direct environmental impacts of construction has improved in the past year. Testing and commissioning activities are moving forward on accelerated schedules as the Nam Theun 2 Power Company (NTPC) seeks to commence commercial operations as scheduled. As the COD approaches, social and environmental activities across the Project area are also evolving: the focus has shifted from physical resettlement to building sustainable livelihoods for resettlers on the Plateau; from piloting approaches to scaling up in the downstream areas; and from the start-up phase to long-term operations in the Watershed. Overall progress on the social and environmental issues is solid. These issues will continue to be addressed and tackled as per the provisions of the Project

legal agreements. It is worth noting that under the Project legal agreements, social and environmental programs are operating under timeframes that go well beyond the COD. Therefore, it will be a number of years before the programs are complete – and since many challenges remain, a strong and ongoing focus on social and environmental issues will be required in the medium term. Finally, revenue management arrangements are well advanced in terms of having the financial “plumbing” largely in place. The National Assembly has also approved the list of eligible programs in the FY2009/10 Budget cycle. However, much remains to be done to ensure the specific expenditure allocation, tracking and evaluation elements are in place and operational so that the outputs and outcomes of eligible programs can be monitored.

Construction and Engineering Aspects

12. ***Construction is over 98 percent complete, but there are some completion delays.*** The delays are in discrete elements, including aspects of the Power Station and Switchyard, the Nakai Dam (mainly electrical works), and the Downstream works (such as irrigation outlets in the Downstream Channel). At the same time, considerable progress has been made towards completing construction of Project roads and remedying identified problems (such as unstable slope cuts), but some drainage issues are still being addressed. The Electricity Generating Authority of Thailand (EGAT) works, including the transmission lines needed to bring NT2 power to the Thai grid, are on track, and the Mahaxai Substation that will connect NT2 power to the Lao grid is expected to be ready soon. Reservoir filling, which began with the April 2008 impoundment, is progressing as anticipated – with the reservoir reaching 537.7 meters above sea level, just 30 centimeters below full supply level, as of end-May 2009. Monitoring and supervision in the above-mentioned areas, as well as testing and commissioning activities and preparations for operations and maintenance, are being geared to meet challenges at this critical stage of Project implementation. Final planning documentation and procedures for the management and monitoring of testing and commissioning activities, including related access and safety procedures, have been prepared and are being reviewed. Meanwhile, testing and commissioning activities already initiated (such as testing of intake gates and Nakai Dam radial and flap gates) are making reasonable progress.

13. ***Initial synchronization of one of the Francis turbines was completed and the first test energy was delivered to EGAT at the end of June 2009.*** The test delivered a total of 60 megawatts, through the transformer bay and substation, to the 500 kilovolt transmission line that exports electricity to Thailand. Also, Electricité du Laos (EdL) energized the 115 kV network connection to NT2 at the beginning of May 2009. This connection enables station service for ongoing testing and commissioning activities to be provided from the 115 kV network, which is more reliable.

14. ***Construction-related environmental activities are being addressed effectively, and persistent problems are being remedied.*** NTPC and the Head Contractor have increased efforts to address three long-standing problem areas: erosion and sediment control during excavation, proper treatment of grey/waste water, and potential groundwater contamination from Project waste disposal. The Lenders’ Technical Advisor (LTA) has been vigilant in monitoring progress on these aspects. A water quality monitoring system, recommended by the experts, is in place and is working well. A well-equipped and satisfactory data collection and analysis system (utilizing manual as well as automated elements) is in place and is measuring water quality in the

reservoir and downstream on the Nam Theun and Xe Bang Fai rivers as well as the Nam Kathang and the Downstream Channel. Thus far, there are no unexpected impacts on water quality. Some localized low oxygen levels have been registered, but results to date are encouraging and suggest that the reservoir has good mixing capabilities (especially near the intake area), boding well for recovery of water quality in the reservoir. It is, however, too soon to draw firm conclusions, and this is an area where vigilance in monitoring and supervision will need to be exercised for some time to come.

15. ***Financial disbursements are in line with actual Project expenditure levels, and are covered by financing already arranged.*** Of the total Project base costs (US\$1,250 million), about US\$1,128.1 million had been disbursed as of end-May 2009 – of which US\$450 million were drawn under the US Dollar Loan Facilities, US\$406 million equivalent was drawn under the Thai Baht Loan Facilities, US\$183.1 million were equity contributions of private shareholders, and US\$89.0 million were GOL equity. The undisbursed amounts out of the Project base costs were US\$44.0 million and US\$77.9 million equivalent for the debt and equity portions, respectively. NTPC anticipates that the Project final costs up to COD will amount to \$1,290 million – an overall cost increase of US\$40 million over base cost. The additional funding would be drawn from the US\$200 million contingency budget which has already been arranged. Should there be a delay in COD, a further budget increase over the current anticipated total Project cost of \$1,290 million will be necessary; however, it would unlikely exceed the contingency budget allocated for the Project. NTPC is currently assessing more accurately the expected delay and its financial implications and will update the IFIs on this matter.

Environmental and Social Aspects

16. ***The Project is now tackling a series of medium-term “second-stage” environmental and social challenges.*** On the Nakai Plateau, the focus is now on livelihoods and sustaining physical resettlement; the Watershed Management Protection Authority (WMPA) is moving from its setup phase to its long-term operations phase; the Downstream program is largely past the piloting phase and is well into scale-up; Project lands issues are gradually being wrapped-up; and water quality safeguards and monitoring systems are in place and operational. Within these areas, the following issues are receiving particular attention at this time: (i) a multi-stakeholder process to strengthen Plateau livelihoods, addressing technical, social, and institutional issues, and any potential trade-offs between them; (ii) monitoring water quality and addressing any related problems; (iii) improving the socio-economic monitoring analysis and data collection process; (iv) finalizing preparations for impacts in the Xe Bang Fai downstream; and (v) prioritizing enforcement efforts in the Watershed over a longer timeframe.

17. ***Unanticipated impacts are being addressed promptly as they emerge.*** Residents of the village of Song Khone in the NT2 Watershed experienced unanticipated inundation of some of their agricultural land by the rising reservoir late last year. Shortly afterwards, this village was relocated by Government to join another Watershed village around half a kilometer away. NTPC has effectively intervened to address the issue of inundated agricultural land, and has done so in consultation with Government and the IFIs. The IFIs are also working with Government to ensure that involuntary resettlement that followed the inundation is compensated appropriately. IFIs have also expressed concern on Government’s proposal to physically relocate some villages located in or close to the buffer zone of the watershed to make way for a gold mining project. In

response to these concerns, Government has dropped plans to relocate one of these villages, Ban Pakatan, which is currently receiving benefits from the NT2 downstream program. The gold mine remains a significant concern for the NT2 project because of potential social and environmental impacts on both the downstream and watershed areas. However, the nature or extent of these impacts are not yet clear, and the IFIs have signaled to Government that they expect such potential impacts to be clearly mapped out in a Environmental and Social Impact Assessment, as required by Lao regulations and NT2 project agreements. This will provide a basis for a more direct discussion on how to manage this issue.

Plateau Livelihoods

18. ***Livelihood development for those resettled on the Nakai Plateau remains an immediate challenge for the Project.*** Now that all households have been resettled and the reservoir is effectively full, the focus for the affected communities is on building livelihoods. Activities based on agriculture, livestock, fisheries, forestry and off-farm opportunities have been initiated to achieve income targets set in the Project and the quality of life envisaged for those resettled. As implementation continues, technical, social and institutional challenges are being identified and addressed through a “livelihood process,” an ongoing series of multi-stakeholder workshops designed to take stock of lessons to date, build consensus around priorities for the future, address any potential trade-offs across the livelihood pillars (such as for different uses of land), and review the extent to which some of the entitlements identified in the concession agreement (CA) remain priorities when compared to other potential benefits of similar expense that could be provided. The Bank task team will continue to supervise and monitor the livelihood process to ensure that any changes to the legal obligations of the parties remain consistent with applicable and agreed environmental and social policies and guidelines.

19. ***Adapting to a new agricultural system and way of life will be always challenging to the resettlers.*** Soil quality has always been a constraint to providing an adequate livelihoods base for resettlers on the Nakai Plateau. To date, a variety of technical inputs (trials, soil testing, fertilizers, rotational legumes) and support have been provided to resettlers, and evidence from Project monitoring suggests that many resettlers have been fairly successful in their first full rice growing season using fertilizers on their 0.66ha plots. Irrigation design and implementation for lower areas of 0.66ha and drawdown zone plots is well underway and will be completed as the reservoir draws down in early 2010. Anecdotal evidence suggests that resettlers are well aware of the varying performance of their neighbors – and that peer-to-peer learning, along with demonstration households, is probably the most effective way of building sustainable livelihoods over time. With this in mind, the livelihood team is working to organize more systematic agricultural demonstration activities – including for soil improvement, forage/green manure development and rice production – that will help villagers make informed choices about their agricultural activities. Since successful adoption of new and more intensive agricultural techniques is also a social challenge, NTPC and GOL are working to more closely integrate their livelihood and community development activities. Finally, lessons to date suggest that crop rotation on additional land will become key to sustaining productivity across poor soils -- and the livelihood process, described in paragraph 18 above, has been addressing how best to enable this. A fuller discussion of this issue is included in paragraph 25 below.

20. ***Limited forage for livestock this year is creating pressure on communities.*** As anticipated, pressure on livestock is high at present, due to the flooding of traditional forage lands by the reservoir, limited drawdown during the first dry season, and the time needed to produce significant forage on the Plateau. With GOL support, NTPC implemented a buffalo reduction program over the last year by bringing livestock traders to the Plateau. However, the program saw fewer buffalo being traded than anticipated as resettlers sought above market prices for their livestock. In the short term, Government and NTPC will respond to this pressure by bringing additional fodder onto the Plateau and by compensating families for any livestock that die due to Project impacts. In the medium term, sustainable livestock management will likely require the use of both the drawdown zone and some agro-forestry zoned areas in Village Forestry Association (VFA) land for forage or fodder production, as well as reduction of livestock numbers to a level proportionate with food availability. The livestock redistribution elements of the program – where those without livestock are provided with some – can only take place once sufficient animal feed is sustainably available. The livestock strategy for resettlers thus focuses on: registration of large animals; compensation for Project impacts; continued marketing of excess animals; fewer, fatter livestock; and an emphasis on small animal (goat, pig, duck and chicken) production, with supporting services.

21. ***Those resettled are enjoying temporary windfall fish catches on the reservoir, but progress is needed to establish fisheries associations and to establish formal fisheries management efforts to ensure longer-term sustainability.*** The CA obligations to provide households with small boats and fishing gear have been met, and resettlers have been benefiting from very high fish catches over the last few months. Approximately 80 percent of this catch is being sold to fish traders coming from as far away as Vientiane. The remaining catch is used for household consumption. While the fishing windfall helps to boost resettler incomes, it also underscores the urgency of finalizing institutional arrangements for sustainable management. Four fishing-related regulations, finalized and signed by Nakai District authorities in April 2009 establish a Reservoir Fisheries Association and corresponding Village Fisheries Groups, along with rules for fishing and marketing. Enforcement of fisheries regulations on the reservoir is likely to remain a long-term challenge due to the size of the reservoir, the number of communities who live in its proximity, and the fact that a number of institutions have a role in its protection, including the WMPA and the two institutions mentioned above. The Reservoir Management Committee is responsible for ensuring an integrated approach to these efforts.

22. ***Water quality affects the availability and viability of aquatic life and fish, and calls for control of debris and disease.*** Water quality in the reservoir has evolved according to predicted changes. The water column is largely anoxic between the Nakai Dam site and Ban Thalang (the resettled village closest to the dam), but water quality improves in the middle and upper parts of the reservoir, including the areas in front of the resettler villages. Water releases to the Nam Theun River downstream of the Nakai Dam have had consistently high dissolved oxygen content. Fish biomass in the reservoir is rapidly evolving as the fish adapt to the new environment, and these changes are being closely monitored. The last three months of fish catch monitoring suggest steadily increasing amounts of fish, although global experiences suggest that fish levels can be volatile over the first few years of a new reservoir, and the current windfall fishing levels cannot be taken for granted. Debris control programs have been successfully implemented, and log booms are in place. Floating logs and debris continue to be removed from the reservoir by patrols, and local communities are also collecting floating debris for their own

use. Aquatic weed and mosquito monitoring programs have not detected any blooms or mosquito problems in the reservoir.

23. ***Deriving sustainable income from forestry requires the VFA to transition from an NTPC-supported operation to effective self-management.*** Based on revenues from supplying wood for resettler village construction, the VFA Board is preparing to pay its first dividend to all resettler households – an important moment for building bottom-up support for the VFA. Now that the resettlement period is over, the VFA needs to shift to a more sustainable business model involving: (i) timber harvesting, processing and marketing; (ii) sustainable non-timber forest product harvesting and production; (iii) forest plantation development; (iv) appropriate agro-forestry and grazing development by resettler communities; and, potentially, (iv) eco-tourism development. From the recent livelihood process, as well as detailed reviews undertaken by WB consultants, it is clear that the VFA will need to undergo a transition in its legal status (to be eligible for a business license to operate a wood processing and marketing business), consider a management contract arrangement for its timber processing and marketing business line, receive a long-term timber harvesting quota from Government to avoid year-to-year uncertainty, establish clear zones within its land for the different forest uses identified above, and create clear and community-owned “rules of the game” for these zones in order to protect its core forest from resettler encroachment. The VFA will also need to significantly strengthen its day-to-day operational capacity to ensure efficient, effective, transparent and sustainable management when NTPC support is discontinued.

24. ***Viable and functioning markets and farm and off-farm activities will be needed to achieve income levels envisioned for those resettled.*** A marketing strategy has been developed to encourage and support resettlers in gaining access to markets across the various livelihood pillars. This matter was fully explored at the livelihood workshop held in February 2009. Following up on this, further research and consultations with the resettlers are being undertaken on marketing options, especially for contract farming and adaptation to NT2 conditions. The International Center for Tropical Agriculture has been contacted to provide expertise on this. Income from these agricultural opportunities will be supplemented by off-farm income from activities including tourism and handicrafts.

25. ***Optimizing the productive use of land is the key to sustainable livelihoods on the Plateau.*** The Plateau livelihood process discussed above has clarified that a coordinated approach to the use of individual household plots, VFA agro-forestry zones, and the drawdown zone is critical to improving and sustaining agricultural yields over the medium term as well as producing enough fodder and forage for livestock. Given soil quality, rotation of crops with legumes and other plants that improve soil quality and provide fodder for livestock is vital, and will require the coordinated use of the various areas available. NTPC is currently developing its proposals for how to make this work, in consultation with other stakeholders. The arrangements will be finalized as part of a participatory land use planning exercise that will take on the Plateau in the coming months. This participatory land use planning process will help consolidate the various land-related programs (resettled village boundaries, extent of the drawdown zone, VFA use zones, individual titled land, etc.) in a form that is understood and supported by the communities, and consistent with the CA and national laws.

26. ***Survey information on household incomes will be the bottom line that measures whether household incomes are on track to meet targets.*** In the short run, there will be swings in income driven by factors such as windfall fishing profits, agricultural experimentation, the timing of VFA dividends, etc. The ultimate objective is that a combination of the available livelihood opportunities will allow villagers, household by household, to reach the income targets set in the CA – namely, a doubling of incomes by five years after relocation (i.e., by 2012/2013). The Project is collecting household data from all resettler households on a monthly basis, as well as using more detailed Living Standards Measurement Study-style surveys once or twice year. The data is being used not only to measure progress towards the longer-term income targets, but also to understand shorter-term issues such as how different households and villages are building differing livelihoods, or to identify and monitor the well-being of particularly vulnerable households. The WB, on behalf of the IFIs, is working closely with NTPC on the analysis of this data, and the relevant Independent Monitoring Agency (IMA) is responsible for confirming the integrity of the survey process.

27. ***Health programs are an important and positive contribution to the welfare of those resettled.*** Health outcomes in the Nakai plateau area have been impressive. For example, in the last semester of 2008, the immunization rates of key vaccines (diphtheria, pertussis, and tetanus) reached 98 percent among the target population, as compared to the national coverage of 76 percent. The contraceptive prevalence rate has increased from 46 to 56 percent. The nutrition status of children under five years of age is in the process of data collection and will be reported in the next semester. Sustainability of the established health programs is being encouraged through further strengthening of the capacity of provincial authorities to deliver these programs going forward, including through encouraging the Government to expand the staffing of these facilities to bring them in line with national targets.

Consolidating Plateau Resettlement

28. ***Community Development is also in progress to help ensure the sustainability of community infrastructure, services and facilities constructed under the Project.*** Almost all community infrastructure is complete and in use.⁵ Reconsideration of designs led to a delay in provision of granaries, but NTPC and the GOL have recently agreed on a new design. Designs for a program to manage solid waste are also being finalized, and NTPC has agreed to help Government implement this program even though it was not part of the original Project agreements. Village Development Committees, including parent-teacher associations and water user groups in each resettled village, have been established and trained in operation and maintenance of community infrastructure. Technical training will also be provided for village volunteers to repair and maintain community facilities, and more specialized services will continue to be provided by NTPC or Government. For example, repairs of some electrical boxes are currently underway, and water quality monitoring for the new water supply is also ongoing. Resettlers also have requested that secondary education be provided for their children, which suggests that resettlers have already begun to focus on the long term and are less dependent on

⁵ New housing for Phon Phek village is not yet complete due to delays in obtaining a wood quota. This village was not inundated by the reservoir but Government and NTPC agreed to include it as a Project beneficiary due to some impacts from the intake channel. Since no resettlement has taken place, the timeframe for benefits for this village has operated on a slightly different timescale.

their children as a source of labor. Though Project agreements make no such provisions, NTPC and Government have agreed to discuss this request.

29. ***Residents of the Old Sophia village have gradually elected to move to their new village.*** Fourteen households in this community had decided against being resettled in a new village, and decided instead to remain on the Watershed side of the reservoir. Since the last Board update, these households have gradually moved to new homes in a resettler village and now receive the full package of resettlement assistance. The Resettlement Management Unit and the various oversight bodies (including the IFIs and the POE) have tracked this process closely. In addition, consideration is being given to how best to support the particular needs of this community in its new location.

Downstream Areas

30. ***Community-oriented development activities, as well as impact monitoring, are progressing well for the Nam Theun downstream.*** The closure of the diversion tunnel in April 2008 reduced the amount of water flowing through the Nam Theun for some distance below the dam wall, and a monitoring program is in place to check on negative impacts in the 37 villages downstream of the Nakai Dam. Thus far, there has been no need to activate the Emergency Contingency Protein Replacement Program. Grant-based investments are underway in these villages as part of the compensation program, and the nature of the investments – ranging from fish ponds to paddy land development – depends on the community's preferences.

31. ***Impacts on the Xe Bang Fai downstream will start shortly as the testing of turbines commences.*** Initial impacts are likely to be limited by both the testing program (starting with one turbine) and the growing natural volume of water as the rainy season starts. The Xe Bang Fai downstream program is a combination of mitigation (such as flood gates or adjustments to irrigation pumps), compensation (such as direct compensation for river bank gardens) and development measures. Development measures include a water and sanitation program, a savings and credit scheme to help affected villagers develop alternative livelihoods, some specific investments (such as in fish ponds), and technical assistance to encourage, for example, market integration or the development of dry season and/or shorter season agriculture. The implementation of the development program has been accelerated to cover all 44 villages along the Xe Bang Fai, which were planned for coverage before the COD. An assessment of the savings and credit scheme to date was recently completed and showed generally strong performance. Overall participation rates are solid, repayment levels are around 90 percent (including some loan rescheduling) and more than 40 percent of the poorest villagers are participating in the program. The assessment also provided recommendations on how to strengthen the sustainability and efficiency of the scheme, as well how to expand the participation of poor and vulnerable households. These recommendations will be addressed in the forthcoming iteration of the downstream rolling implementation plan. The expansion of this scheme to the remaining riparian and hinterland villages will continue over the next year.

32. ***Registration of river bank gardens is finalized, and adjustments to irrigation pumps as well as a new socio-economic survey are due to be completed before major impacts occur.*** Registration of the river bank gardens, now fully complete in all villages, is necessary to monitor the impacts of the additional water flows and enable compensation in case of damages, and final

methodologies for compensation are being established. Adjustment to irrigation pumps (hose pipes) will be completed after the rainy season and before the start of irrigation pump operations for the dry season cultivation. Ongoing monitoring activities (on fish catch, water quality, erosion, socio-economic changes, etc.) continue throughout the downstream areas to detect impacts and guide mitigation measures.

The Watershed

33. ***While reservoir formation provides Watershed villagers with the benefit of increased access to the outside world, care is being taken to address any negative project-related impacts in the watershed area.*** The WMPA and NTPC have signed a Memorandum of Understanding agreeing to coordinate their response to Project-related impacts for 31 villages located in the Nakai-Nam Theun National Protected Area. These villages have been identified as having some degree of reliance on the Nam Theun River or its tributaries upstream of the Nakai Reservoir, and NTPC has included this area in its fish catch monitoring program with a view to being able to support the WMPA if Project impacts materialize.

34. ***Social and environmental issues require careful management in the Watershed and the surrounding buffer zone.*** Government has a national policy of consolidating the administration of nearby small villages into one administrative authority, and this approach has been implemented in the Watershed as well as on the Plateau. Care needs to be taken to recognize the particular needs of differing ethnic groups within this arrangement, including in the land use planning and management processes. NTPC is currently completing a survey of Project impacts, while the IFIs are working with national authorities on the social and safeguards issues involved in both the movement of people, and the administrative consolidation process. In addition, the development of a gold mining concession that is partly within the buffer zone of the watershed (the same one mentioned above in paragraph 17) has the potential to create both social and environmental impacts on Project affected communities. The IFIs are engaging closely with Government to ensure that any potential impacts are adequately addressed in accordance with the applicable environmental and social safeguards policies and guidelines.

35. ***Responsibility for the wildlife program will transfer from NTPC to the WMPA in the coming year.*** The wildlife programs have shown impressive levels of performance. There have been strong achievements in wildlife rescue (during inundation), elephant management, creation of artificial wetlands, patrolling and enforcement, and increasing public awareness. The wildlife rescue program was largely completed at the end of February 2009, while the monitoring of released wildlife will be continued in the Watershed area. Significant numbers of Large Antlered Muntjac – a rare and only recently discovered species endemic to the area – were captured and released into appropriate areas, as well as numerous other species.

36. ***Increased protection efforts are addressing anticipated additional threats to Watershed biodiversity triggered by formation of the reservoir, but more needs to be done to achieve long-term sustainability in the Watershed.*** As expected, reservoir inundation has facilitated access to the Watershed by boat, magnifying the challenge of protecting the area's biodiversity. While a program to include resident villagers in the conservation of the Watershed appears to be working fairly well, threats to biodiversity in the Watershed from outsiders remain significant. These threats come not only from across the Vietnamese border, but also from those in the peripheral

impact zones on either side of the Watershed, and now increasingly from resettled communities, given the new access opportunities afforded by the reservoir. The WB completed a mid-term review of the Socio and Environmental Management Framework and First Operational Plan for the Watershed in February 2009, and concluded that the WMPA had come a long way in establishing a viable institutional structure as well as a reasonable balance of conservation and development activities. However, as the WMPA moves into its long-term operational phase it will need to significantly strengthen enforcement activities to meet external threats (including mobilizing additional support from law enforcement authorities), strengthen the technical quality of its livelihood programs, and focus on how to extract maximum results from its long-term US\$1 million annual budget.

37. ***Risks to the Nakai Nam Theun National Protected Area arising from resumption of logging around the watershed side of the Reservoir are being handled.*** It was recently brought to the Banks' attention that logging operations have resumed east of the Nam Theun River in the Watershed area. From the Government's perspective, this resumption was viewed only as a continuation of previously-agreed salvage logging approved for the reservoir drawdown area. On the other hand, the IFIs consider the agreed salvage logging to have been formally completed during 2008, noting that the areas where additional logging was taking place were not part of the Government's agreed salvage logging plan. Furthermore, there are real concerns that these new logging activities could directly encroach upon the adjacent national protected area.

38. ***These serious concerns were immediately raised with the Government.*** On Government's suggestion, a joint high-level field visit by Government Ministers and officials, IFI management and technical staff (World Bank, ADB and AFD) and NTPC was undertaken to verify the facts on the ground. There was evidence to indicate that the boundaries of the NT2 Watershed had been encroached upon by the logging contractor. Following this visit, the IFIs formally urged the Government to suspend ongoing logging operations east of the Nam Theun River and review the current situation to confirm that any salvage logging operation is done only for the purpose of removing biomass to improve water quality (as explained during the field visit) and that such activity is consistent with the existing decrees and project agreements. Also, Government was urged to initiate a process to review the current authorizing environment and mandate for watershed protection and reservoir management to prevent recurrence of such issues.

39. ***Government has responded to IFI recommendations.*** The above-referenced ongoing logging operations have now been suspended. On the authorizing environment, the Prime Minister has authorized the Deputy Prime Minister to directly supervise the activities of agencies involved in the watershed and reservoir, and the Provincial Governor is required to take specific actions to strengthen patrolling and enforcement of the protected area. The responsibility assigned to the Deputy Prime Minister elevates the authorizing environment for watershed management, while specific instructions given to the Provincial Governor will enable him to mobilize the needed additional resources, including police and military personnel for patrolling and enforcement purposes, something that the POE has also recommended. The Deputy Prime Minister has already met with all the key Government ministries and agencies, and given clear directives for strict adherence to the Prime Minister's decision to stop any illegal logging activities from taking place. The IFI concerns have thus been substantially addressed through the Prime Minister's directives. The next important steps will be for the Government and IFIs to

review of the relevant decrees and legal agreements and identify and address any areas of inconsistency. Then, the IFIs will seek agreement with Government on the boundaries of the watershed, and the planning and monitoring regime that needs to be in place for any future biomass clearance/salvage logging operations.

Stakeholder Engagement

40. ***Constructive stakeholder engagement and consultation have underpinned Project implementation so far, but require ongoing focus.*** Consultations at the local level continue to provide valuable inputs on livelihood development and implementation of the Downstream program, and need to continue with strong Project support in the future. The third annual NT2 Stakeholder Forum took place in October 2008, providing roughly 400 participants with a broad range of information on NT2 implementation progress, but the sheer size of this forum has begun to undermine its effectiveness. Alternative ways to achieve the objectives of transparency and outreach will need to be considered. The last Donor Round Table took place in November 2008 and the periodicity and relevance of this arrangement has been established.

Revenue Management Arrangements (RMA)

41. ***Significant progress has been made by the Government in improving core public financial management systems to comply with the revenue management arrangements.*** On budget planning, the Government has: (i) mandated minimum spending on health and education sectors by provinces from FY2008/9 budget; (ii) approved a new revenue sharing formula for reducing horizontal imbalances at the provincial level; and (iii) revised the chart of accounts and budget nomenclature to reflect a more functional composition of expenditures. On budget execution the Government has: (i) put all revenue accounts in control of the National Treasury and commenced centralization of the Treasury, Tax, and Customs Departments; (ii) updated the Government financial information system to record transactions nationwide using commercial leased line services; and (iii) increased monitoring of expenditures and reduced the ability of budget entities to reallocate expenditures. On reporting and monitoring the Government has: (i) started publishing annual consolidated budget reports to Parliament as mandated in the Budget Law; (ii) published an annual budget within the first quarter of the start of the fiscal year; (iii) piloted quarterly budget execution reports; and (iv) developed improved reporting formats that provide more concise and precise information on budgetary spending. On external audit the State Audit Organization has: (i) completed the Audit Peer Review with New Zealand; (ii) developed a comprehensive capacity strengthening plan, with a focus on readiness for NT2 funds flow audits; (iii) increased staffing by almost 50 percent; and (iv) completed and submitted to Parliament the audit report for the fiscal year 2007/8 budget on time, as per the Budget Law.

42. ***Progress on the medium-term expenditure framework for social sectors as well as on developing performance measurement systems for expenditures has been limited.*** Although technical support has been provided to develop medium-term expenditure frameworks for social sectors, these have yet to be incorporated into the budget formulation process. One of the key reasons for this is that sectors are developing needs-based strategies with support from a number of development partners, while the Ministry of Finance (MOF) has been developing budget plans that would be more affordable. This has meant that the top-down (affordability-driven) budget

planning process has not connected well with the bottom-up (needs-based) sector strategies. Work remains ongoing in trying to establish an operational medium-term fiscal framework, and at the same time improve the interface between the top-down and bottom-up planning processes.

43. ***Indicative allocations for priority sectors have been approved by Parliament.*** The National Assembly in its June 2009 session approved allocation of the FY2009/10 NT2 revenues for use by eligible programs as part of the FY2009/10 budget cycle. After due consultation with sector ministries, the Ministry of Finance had included the following indicative allocations in the budget submission: (i) education 35 percent; (ii) rural roads 30 percent; (iii) health 20 percent; and (iv) environment and forestry 15 percent. These allocations would be adjusted in the future, depending on performance. As this Board update is being prepared, sector ministries are now finalizing the implementation details and specifics of the approved eligible programs, which had been discussed at the three workshops hosted by MOF and supported by the Bank.

44. ***Looking ahead, work will need to begin on developing appropriate reporting and monitoring tools.*** As eligible programs have been determined and approved, it is now important to commence work on the reporting formats consistent with the eligible programs, determine baseline expenditures and establish additionality. This will be done between July-November 2009. At the same time, focus will be given to supporting the SAO on developing appropriate mechanisms and capacity to audit these eligible programs. The Public Expenditure Review process will be tailored to ensure appropriate and timely advice is provided to the government in this regard.

45. ***The second Public Expenditure Review (PER) exercise has commenced.*** The Government through its Letter of Implementation Policy had confirmed at the time of Board approval of the Project in 2005 that it would undertake PERs every other year. The last PER was completed in 2007, and the work on the next PER has commenced and will be undertaken as a programmatic exercise. Through this exercise, the Bank will be able to determine (by August 2009) the level of readiness of the NT2 RMA before revenues are transferred to the Government in early 2010. However, looking ahead, the Bank will need to determine the best modality and timing for tailoring the PER and Public Expenditure Tracking Survey (PETS) processes to adequately support the government in this regard.

Ensuring Sustainability

46. ***NT2 faces the challenge of shifting from focused Project implementation to normal operations.*** NTPC and its sub-contractors have been responsible for directly managing many of the Project activities to date, ranging from construction to community health programs. Over time, many of these assets and programs will be handed over to Government control. A strategy is being developed to guide handover of Project infrastructure and programs from NTPC to the Government, with a view toward ensuring long-term sustainability of Project outcomes through solid planning, capacity building and availability of resources. Each area of the Project will have slightly different handover timeframes and risks; some are primarily focused on physical assets such as Project roads, while others are substantially about conduct and capacity, such as health or community development. The Government, NTPC, the IFIs, and other oversight entities will be discussing each one of these program areas in turn to confirm the requirements of the handover

process. There is considerable potential for linking into broader development programs, such as the WB's Khammouane Development Project (most relevant to the Downstream areas).

47. ***Extracting and sharing the lessons of NT2 for broader hydropower development continues.*** More can be done, however, to pave the way for tapping synergies with broader regional development efforts, and encouraging tailored use of Project lessons to mainstream good practices and inform future hydropower development, thus helping to extend the positive influence of NT2 well beyond the direct Project benefits. Both the International Finance Corporation and the Multilateral Investment Guarantee Agency are exploring opportunities for some further quality investments in Lao hydropower, and the NT2 experience provides an excellent platform for coordinated World Bank Group approaches. The next Lao-Thai High Level Forum on Sustainable Hydropower Development, expected to take place in Vientiane later this year, needs careful nurturing. Ahead of this, the Government organized an in-country high-level workshop chaired by the Deputy Prime Minister to advance discussions among a range of stakeholders (including Project developers) on how to enhance the quality and promote the environmental and social sustainability of investments in hydropower in Lao PDR based on lessons from existing projects, including NT2. The NT2 practices and experiences continue to attract international attention, with several countries expressing interest to learn from the Lao experience. Through the World Bank's South-South Exchange Trust Fund, senior officials and technical staff of the Government of Tajikistan visited Lao PDR between July 20 and 26, 2009, to learn from the Lao. Besides visiting the NT2 project area, the Tajikistan delegates engaged in extensive discussion with the Lao on the following topics: macro-economic framework and revenue management, public-private partnership arrangements, environmental and social safeguards, transparency, accountability and participation, and working with IFIs in large infrastructure projects.

IV. PROJECT SUPERVISION AND OVERSIGHT

48. ***The IFIs are continuing their close supervision of Project implementation, as are other Project oversight entities.*** There are numerous entities involved in the oversight and monitoring of the NT2 Project – reporting variously to the head contractor, NTPC, Government, the Project lenders generally, and the IFIs specifically – including those bodies that were established as independent of any of these parties. The Vientiane-based team (now 10 staff between the WB and ADB, including the co-team leader for the Project) is working closely with Government and NTPC and visiting some part of the site almost every week. The POE visited the Project from mid-March to early April, and the LTA, the Government of Lao Engineer, the Dam Safety Review Panel, and the IMA continue their regular scheduled visits. Two members of the International Advisory Group (IAG) have also visited the site in the last few months. Care is being taken to ensure that the depth and variety of oversight and the number of visitors/visits does not undermine the ability of Government and NTPC to deliver on the demanding deadlines they face with respect to the fast approaching COD.

49. ***The Project is designed to accrue long-term benefits, and a long-term supervision commitment by the IFIs is required.*** NT2 includes many different timeframes for benefits and risks. These timeframes range from the relatively short-term physical construction period to the much longer-term periods such as the VFA forest concession and the funding to the WMPA in

support of conservation of the Watershed. Benefits from the electricity sales revenues, livelihood programs, and environmental protection are set to grow over time, while risks should shrink as program implementation continues. The approach of COD makes this a good time to be consider and discuss how to streamline the overall monitoring and oversight arrangements, both to focus them on the longer-term issues, and to reduce any potential overlaps that may exist, while ensuring sufficient coverage.

UPDATE FROM ADB ON THE THEUN-HINBOUN 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 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 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, GMS Lao Company Limited (formerly named MDX Lao 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 existing power plant will generate on average 275 GWh per annum less after Nam Theun 2 started full impoundment of 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\$72.35 million in 2008. With the impoundment of Nam Theun 2 upstream, the revenues of the present facilities are expected to be maintained at about US\$56.00 million in the future until the Theun Hinboun expansion project has been completed in 2012 (see paragraph 7). THPC's financial performance is very good. THPC has a healthy profit and maintains a comfortable debt-servicing capacity. The project generated a cumulative net income of US\$189.80 million from 2003 to 2008. THPC's dividend payments in the same period amounted

to US\$155.40 million, of which US\$93.24 million went to EdL. In addition THPC paid about US\$3.78 million in royalties to the Government in 2008. In 2004 THPC started paying taxes. The profit tax payment for 2007 was about US\$3.17 million and about US\$5.46 million for 2008. 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 EIA 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 addressed 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 Theun-Hinboun Expansion Project (THXP, 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 socio-economic baseline surveys were carried out in 10 villages as per the targets in the logframe, 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 THXP. New VDCs have been established in villages that are impacted by Project Construction activities from the THXP and new VDCs will be established in host village communities in 2009-2010.

- **Social mitigation implementation.** Savings and credit programmes have been established in 62 villages, and 48 livestock groups were established as of mid-2007. A number of these programs are being modified and improved under the THXP.
- **Water supply.** More than 130 dug and more than 60 tube wells were completed, as well as four gravity fed systems, several water pumps for domestic use and gardens, and culverts by mid-2008. Several wells have become dry and there are issues of water quality in a number of areas that are 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 the original project. Health Programs have been reviewed by a health expert as part of the Public Health Action Plan for the THXP. A number of activities will increase in scope and intensity while the revolving medicine funds were discontinued.
- **Wild fishpond building.** Six large wild fishponds with good fish yield following the wet season were built at the Hinboun area. Additional efforts have been made to expand these activities in the Nam Kading area.
- **Savings and credit funds.** As noted above, 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. A revision has led to the scheme being changed into a Village Revolving Fund that is run by the villagers themselves under the supervision of the Lao Women's Union and THPC.
- **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 THXP.
- **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 Expansion Project (THXP) in mid-2007. The Company signed the PPA with EGAT and a Concession Agreement with the Government in December 2007 and August 2008 respectively. Financial Close was achieved on October 8, 2008. The THXP consists of 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 square kilometers that will regulate the river flows into the Theun Hinboun head pond and increase power output in the dry season. The THXP also includes increasing the installed capacity at the existing power plant from 220 MW to 440 MW for export to Thailand exclusively, and a hydropower plant of 60 MW at the new dam to sell electricity to EdL. The additional energy generated by the expansion project to about double its present annual generation, when completed in 2012, will offset the reduced generation resulting from the reduced water releases from the NT2 reservoir starting in June 2008. Main civil works and electromechanical works contracts have been awarded and preliminary works commenced.

8. An expatriate Social and Environmental Division (SED) Manager is responsible for the execution of the Environmental and Social Plans of the new THXP, and has integrated the work of the former EMD with the proposed THXP mitigation plans as of mid-2007. A Draft Final Environmental Impact Assessment and Environmental Management and Monitoring Plan and a Resettlement Action Plan were approved by the Water Resources and Environment Agency on June 18, 2008. 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 SED established with five units: Administration, Resettlement, Social Development, Downstream and Environment. Full implementation mode for this division was reached by mid-2008, ahead of construction, and more than 100 staff have been recruited. In addition, 237 public information and support workers have been engaged locally in cooperation with the affected communities. Demonstration farms have been established, and village and housing design in accordance with cultural practices has been completed in consultation with affected people. More than 70 formal and informal consultations have been carried out with the about 780 households to be resettled and three host communities. The first group resettled in February-April 2009 includes vulnerable ethnic groups in order to allow them longer time to adjust at the new site. The first group to be resettled in February-April 2009 includes vulnerable ethnic groups in order to allow them longer time to adjust at the new site. Relocation to new resettlement sites will be completed by May 2011 at the latest. Residual impacts from the existing project will be incorporated into the livelihood restoration strategy with income targets for improving the standard of living in the downstream and through backward relocation if required. ADB has agreed with THPC that it will conduct regular safeguard missions for the duration of the construction activities.