

PPIAF Assistance in Lao People's Democratic Republic

Lao People's Democratic Republic (PDR) is one of the least developed countries in the East Asia and the Pacific region. With a population of around six million people, Lao PDR's economy relies primarily on agriculture and mineral exports. It is also remarkably well endowed with water resources, which brought about considerable investments aimed at increasing the use of hydropower, mostly for export to its more prosperous neighbor, Thailand. It comes to no surprise that much of the demand for PPIAF support stems from the energy sector, as the small country undertakes power generation projects with private sector participation as well as rural electrification.

Technical Assistance for Lao PDR's Energy Sector

The Lao PDR government has been pushing for reforms in its energy sector beginning with the Ministry of Industry and Handicrafts' March 2001 "Power Sector Policy Statement," which defines the government's priorities and objectives for the power sector. The timing of the policy statement was critical since private investors' interest in the Lao PDR energy sector had waned especially in the aftermath of the Asian financial crisis. The statement emphasizes the need for developing and enhancing the legal and regulatory framework to effectively direct and facilitate power sector development. However, the statement does not elaborate on actual reform strategies. PPIAF provided assistance in 2002 to the government to fund a consensus building workshop on options for power sector reform and the energy action plan for implementation. The workshop, "Options for Power Sector Reform in Lao PDR," was successfully held on November 4–5, 2002 in Vientiane with around 50 national and international stakeholders in the Lao PDR power sector participating. Different options for engaging the private sector in large-scale hydro projects, as well as in the expansion of rural services and reinforcement of grid supplies, were discussed. Issues pertinent to Laos, such as inter-regional power trade, were also tackled.

The workshop facilitated consensus around the reforms, which led to the 1) development of a rural electrification project, which later led to the establishment of a Rural Electrification Fund (REF) to support both public and private sectors in rural electrification, and 2) approval of a sector-strengthening strategy, which the government began implementing thereafter.

The government has since made strides in improving access in areas where grid extension is feasible through its International Development Association (IDA)-financed Rural Electrification Program. Between 1995 and September 2010, electricity access across Lao PDR steadily increased to 71% from 16%, reaching 730,000 households. For remote areas where grid connection becomes less viable, the government has been promoting decentralized or off-grid delivery models through small local private sector providers. In response to a government request in 2008, PPIAF provided a grant to the Department of Energy to help set up policies and procedures, as well as develop capacity to scale up small public-private partnerships (PPPs) to deliver electricity to off-grid areas. A policy adviser worked closely with government counterparts to develop a policy statement and accompanying procedures to encourage local entrepreneurs to be active partners in providing electricity to off-grid rural areas. Out of the PPIAF supported work, procedures in administering the REF to support and improve viability of PPP initiatives—village hydro, pico-hydro, and solar PV panels—were developed and subsequently adopted by the Department of Energy in May 2010. To ensure successful implementation of these procedures, training activities were undertaken, including enhancing management skills of Provincial Electricity Service Companies to improve their performance. A study tour to Nepal was also organized for high-level officials to learn about Nepal's rural electrification program and see firsthand a community-based micro-hydro project in Kathmandu Valley. This PPIAF activity complements the second phase of the IDA-funded Rural Electrification Program.

PPIAF also supported the government's preparation of its large power generation projects. The Nam Theun 2 hydropower project is Lao PDR's largest, and perhaps one of the most complex, hydropower projects in the world. Nam Theun 2, a 1,070 MW trans-basin diversion power plant on the Nam Theun River (a tributary of the Mekong River) in the central region of Lao PDR, will enable the country to export 995 MW of electricity-generating capacity to the Electricity Generating Authority of Thailand and supply

75 MW of electricity to Electricité du Laos (Lao PDR's state-owned utility) for domestic use. The government of Laos is expected to earn around \$2 billion in revenues over the 25-year concession period of the Nam Theun 2, after which it will take over full ownership of the dam. These revenues are expected to be invested in education, health, infrastructure, and environment protection programs, contributing to poverty reduction in the country.

The Nam Theun 2 is structured as a build-own-operate-transfer project. The concession agreement between the government and Nam Theun 2 Power Company Ltd (NTPC) was executed in October 2002, while the power purchase agreement between NTPC and Electricity Generating Authority of Thailand was executed in November 2003. NTPC is composed of Electricité de France (35%), Italian-Thai Development Public Company Limited of Thailand (15%), Electricity Generating Public Company Limited of Thailand (25%), and Lao Holding State Enterprise (LHSE, a state enterprise holding the government's 25% equity in NTPC).

In 2004 prospective financiers (international and Thai banks) of the project began their due diligence along with multilateral and bilateral parties providing lending and guarantees. During this process, financing parties indicated that a number of amendments in the concession agreement and other project documents would need to be agreed upon as a pre-condition to financing. However, the government's funding for a legal adviser (provided by the World Bank) ended around this critical time. Through the World Bank, the Lao PDR government requested PPIAF support of \$790,325 to enable it to retain the services of the legal adviser to negotiate and finalize the legal and commercial agreements to facilitate and complete the project financing arrangements for Nam Theun 2.

With the help of this just-in-time PPIAF's support, Nam Theun 2 finally reached financial closure on June 15, 2005 with the base project cost of \$1.25 billion funded by 28% equity and 72% debt. Debt facilities include political risk guarantees from the Asian Development Bank (ADB), the World Bank's Multilateral Investment Guarantee Agency (MIGA), export credit agency support from COFACE of France, EKN of Sweden, and GIEK of Norway, and direct loans from a number of multilateral and bilateral development agencies including the ADB, Nordic Investment Bank, Agence Française de Développement (AFD), PROPARGO, and the Export-Import Bank of Thailand. Nine international commercial banks and seven Thai commercial banks provided long-term loans to NTPC. The equity contribution of LHSE is financed by loans, grants, and other financing from donor institutions such as the AFD, ADB, European Investment Bank, and World Bank.

Nam Theun 2 started commercial operation and export of electricity to Thailand in March 2010, and is now supplying around 20% of peak Lao PDR electricity demand. It was officially inaugurated on December 9, 2010. Over 8,000 workers were employed during the peak of construction—80% of them Lao, of which 83% from the affected local provinces Khammoune and Bolikhamsay. As of May 2011, electricity sales from Thailand amounted to \$5.6 million in the previous financial year, and \$10 million is projected to be earned the following year. Of the earnings, approximately \$2 million has been spent on education in poor districts, \$1.7 million on rural roads, \$1 million on public health projects, and the remainder on rural electrification and environmental protection.¹

Nam Theun 2 is among the first power generation projects the government has lined up for export of electricity to neighboring countries and supply to domestic networks. LHSE's (representing the government in NTPC) initial responsibilities of monitoring financial flows related to Nam Theun 2 and the project implementation schedule has now expanded to include at least four additional power plant developments (the three hydropower projects Nam Ngum 3, Nam Theun 1, and Nam Ngiep 1, as well as the Hongsa thermal power plant). For LHSE this meant facing enormous requirements from both the government and private investors for high-quality project analysis of economic and financial viability, advice on the government's position in investment negotiations, prompt and active collaboration with investment partners, detailed monitoring of construction development, participation in power plant operation, etc. To strengthen LHSE's capacity to do this, PPIAF provided grant funding in 2008 to help build LHSE capacity in analyzing legal documents and economic and financial viability of projects,

¹ For further updates, visit www.namtheun2.com and www.worldbank.org/laont2

contract negotiations, and investment promotion. The various capacity building activities were very much a hands-on experience for LHSE staff as they worked on project documents of the various power generation projects in LHSE's pipeline. The legal and financial advisers procured with PPIAF support also provided specific advice on the projects, particularly the Hongsa thermal power plant expected to generate 1,473 MW that will be sold to Thailand. This eventually helped prepare LHSE in finalizing its participation in the Hongsa thermal power plant project. The project reached financial closure in July 2010, with investment commitments of \$3.7 billion. Aside from LHSE, the Hongsa project sponsor includes Thai companies Ratchaburi Electricity Generating Holding Plc (40%) and Banpu Public Company (40%). The project financing for the power plant, consisting of a syndicated multi-tranched, multi-currency facility from nine Thai banks, is considered to be Thailand's largest ever project financing syndication. The Hongsa thermal power plant is structured as a build-operate-transfer project.

Results of PPIAF's Activities in Lao PDR's Energy Sector

Category	Outputs
Enabling environment reform	
<i>Analyses/assessments prepared</i>	<ul style="list-style-type: none"> Modified and updated REF manual to include support to off-grid rural electrification systems, November 2010
<i>Policies prepared or legal or regulatory changes recommended</i>	<ul style="list-style-type: none"> Review of policy issues and provision of policy recommendations on rural electrification indicating potential for renewable energy projects, May 2010
Project cycle-related assistance	
<i>Transaction support</i>	<ul style="list-style-type: none"> Legal advisor helped finalize the legal and commercial agreements necessary to facilitate and close the financing of the Nam Theun 2 hydropower project, 2006
Capacity and awareness building	
<i>Workshops/seminars</i>	<ul style="list-style-type: none"> "Options for Power Sector Reform in Lao PDR" workshop held on November 4–5, 2002 in Vientiane Training on business English, investment policies, contract agreements, financial modeling, and stock market fundamentals delivered to LHSE staff, 2009–2010 Study tour to Nepal to learn about Nepal's rural/renewable energy strategy and on-site visit to a community-based micro-hydro project, November 14–20, 2010 Training of Provincial Electricity Service Companies to enhance management skills, October 2010 In-house training on the use of updated REF Manual for REF staff, 2010
Category	Outcomes
Enabling environment reform	
<i>Institutions created or strengthened</i>	<ul style="list-style-type: none"> Revisions to the REF Manual adopted by the Department of Energy, May 2010

Project cycle-related assistance	
<i>Transactions facilitated</i>	<ul style="list-style-type: none"> Nam Theun 2 reached financial closure in June 15, 2005 with the base project cost of \$1.25 billion Hongsa thermal power plant reached financial closure in July 2010, with investment commitments of \$3.7 billion
Capacity and awareness building	
<i>Consensus achieved</i>	<ul style="list-style-type: none"> The “Options for Power Sector Reform in Lao PDR” workshop helped build consensus around the development of a rural electrification project and approval of a sector-strengthening strategy, which the government began implementing thereafter
<i>Technical capacity enhanced</i>	<ul style="list-style-type: none"> REF Secretariat’s capacity to manage the REF in a more transparent manner improved, 2010 Capacity of Provincial Electricity Service Companies on business management strengthened, 2010

Category	Impacts
<i>Increased number of people with infrastructure services</i>	<ul style="list-style-type: none"> Earnings from Nam Theun 2 in 2010 have been spent on education in poor districts, development of rural roads, public health projects, rural electrification, and environmental protection
<i>Increased employment opportunities</i>	<ul style="list-style-type: none"> 8,000 workers were employed during the peak of Nam Theun 2’s construction (about 80% of them are Lao and mostly from the affected local provinces Khammoune and Bolikhamsay)
<i>Improved level of services</i>	<ul style="list-style-type: none"> With the operation of Nam Theun 2 in 2010, Electricité du Laos’ installed capacity increased by 20%
<i>Fiscal impact on government</i>	<ul style="list-style-type: none"> As of May 2011, Nam Theun 2’s electricity sales from Thailand amounted to \$5.6 million in the last financial year

Technical Assistance for Lao PDR’s Water Sector

Like many developing countries, Lao PDR faces a key challenge of delivering basic services to its growing population, particularly in rapidly growing urban areas. Water services are delivered in urban areas and small towns by state-owned enterprises where there are over-designed schemes resulting in losses and weak investment capacity to further expand services in these areas. At the request of the government in 2003, PPIAF provided support to assist the water regulator Water Supply Authority (WASA) build consensus for small town water supply management models. The PPIAF activity specifically helped explore various management models suitable for water supply provision in Lao PDR and formulate a methodology for determining water tariffs for small towns. The PPIAF activity complements the World Bank’s Water and Sanitation Program’s study on water and sanitation in small towns and fed into the broader framework for a national water tariff policy supported by the ADB and the Norwegian government.

A national consensus building workshop held on September 5, 2003 brought together 70 of the senior provincial and central water supply sector professionals. Representatives from each of the small towns visited during the PPIAF-funded study were also present. Study tours to Vietnam and Cambodia were undertaken where government officials were able to learn from the private sector initiatives in these two

countries. Vietnam counterparts showcased the design-build-lease contractual arrangement for its district towns. In Cambodia, Lao PDR officials learned about the Mini Réseaux d'Eau Potable or small potable water network (MIREP) program implemented by the Groupe de Recherche et d'Echanges Technologiques, a French non-profit organization.

By helping design tariff approaches, the PPIAF activity strengthened WASA's capacity as the national regulator. The study also contributed to building consensus among stakeholders on applicable PPP management models in the water supply and sanitation sector in Lao PDR. Particularly, through the PPIAF-funded study tour, government officials learned about the MIREP Project in Cambodia. This eventually led to a similar MIREP pilot project in Laos.

A second PPIAF grant was requested in 2004 to look at the viability of piloting small town water supply management models involving small and medium enterprises in four provinces of Lao PDR. Building on the findings and recommendations of the initial PPIAF activity, the second PPIAF-supported initiative examined private sector participation options where small and medium enterprises can participate and determine the applicability of output-based contracts.

This led to a proposal for an output-based aid project, which was subsequently endorsed by the government. However, this potential output-based aid pilot project has not materialized yet as the legal framework for a small town private-owned water supply model has to be substantially developed and implemented. An updated review of legal and institutional framework is currently being undertaken with support from the World Bank and other donors.

Results of PPIAF's Activities in Lao PDR's Water Sector

Category	Outputs
Enabling environment reform	
<i>Analyses/assessments prepared</i>	<ul style="list-style-type: none"> • Methodology for preparation of water tariff in small towns in Lao PDR, 2004 • Analysis of management models that can be potentially scaled up in Lao PDR and appropriate institutional arrangements, 2004 • Diagnostic study on present management model and contract options including pre-feasibility analysis of output-based aid pilot project, 2007
Capacity and awareness building	
<i>Workshops/seminars</i>	<ul style="list-style-type: none"> • National Consultation Workshop held on September 5, 2003 • Study tours to Vietnam and Cambodia, July and August 2004

Category	Outcomes
Enabling environment reform	
<i>Institutions created or strengthened</i>	<ul style="list-style-type: none"> • PPIAF helped in designing tariff approaches for WASA and strengthened its capacity as the national regulator, 2005
Capacity and awareness building	
<i>Consensus achieved</i>	<ul style="list-style-type: none"> • The study contributed to building consensus among stakeholders on applicable PPP management models in the water supply and sanitation sector in Lao PDR, 2003

Technical Assistance for Lao PDR's Transport Sector

Transport in Lao PDR is almost exclusively road-based, making road improvements a necessary condition for sustaining the development and poverty impacts of public sector investments. With the initiative of the ADB, PPIAF provided assistance to the Lao PDR government in 2004 to undertake a first step towards building consensus around reforms that will help enhance the functioning of the transport services sector. The activity aimed at promoting discussions on options for institutional arrangements and regulations for an efficient functioning of private sector delivery of transport services to meet economic growth and poverty reduction goals. The work included a diagnostic study on existing institutional arrangements and regulatory framework for freight and passenger transport, and workshops to disseminate the findings of the study and build consensus around the transport services sector reforms. In particular, two workshops were undertaken to disseminate information, receive feedback, and promote discussion on the functioning of the transport services sector. Further, longer-term advice to the Ministry of Transport was recommended to support and develop government competence in regulation of the transport industry such as the enforcement of truck weight limits, development of a vehicle cost model, and potential bus reduction schemes.

In 2011 the Lao PDR government set targets for road network development in its 2011–2015 National Social Economic Development Plan, which emphasizes the construction, expansion, and improvement of the road network. Given scarce public funds, the government faced the challenge on how the transport sector will prioritize its needs and mobilize resources from other sources of funds, including the private sector, effectively and efficiently. It was in this context that the government requested PPIAF assistance in 2011 to carry out a project pipeline screening and initial feasibility assessment of potential road infrastructure PPPs. The PPIAF activity identified two pipeline projects (Road 13 North and Road 13 South), policy recommendations on the country's enabling environment, and critical paths to undertake for PPP implementation, including the legal framework and institutional capacity. During the assistance, PPIAF and the government held a stakeholder consultation workshop in Vientiane on February 15, 2012. The workshop brought participants from several agencies at both central and local levels, as well as private sector representatives. The stakeholders' views and concerns on PPP development in the road sector in Lao PDR were taken into account in the preparation of the recommendations in the PPIAF-funded report. As a result, the government decided to pursue a feasibility study and eventually transaction advisory support in order to move forward with the PPP projects.

Results of PPIAF's Activities in Lao PDR's Transport Sector

Category	Outputs
Enabling environment reform	
<i>Analyses/assessments prepared</i>	<ul style="list-style-type: none"> • Diagnostic study of the existing institutional arrangements and regulatory framework for freight and passenger transport in the road subsector with possible implications for service delivery and tariffs, 2006 • Project pipeline screening and initial feasibility assessment of potential road infrastructure PPPs, June 2012
<i>Policies prepared or legal or regulatory changes recommended</i>	<ul style="list-style-type: none"> • Policy recommendations on enabling environment and critical paths to PPP implementation, June 2012
<i>Plans/strategies prepared</i>	<ul style="list-style-type: none"> • Draft TORs for the feasibility study and selecting a transaction advisor for the two pilot PPP road projects (Road 13 North and Road 13 South), June 2012

Capacity and awareness building	
<i>Workshops/seminars</i>	<ul style="list-style-type: none"> • Workshops to disseminate findings of the study, receive feedback, and promote discussion on the functioning of the transport services sector, September and December 2005 • Stakeholder consultation workshop on PPP development in the road sector, February 2012

Category	Outcomes
Capacity and awareness building	
<i>Consensus achieved</i>	<ul style="list-style-type: none"> • Consensus achieved among stakeholders on the need to build capacity in regulating the transport industry, 2005

Technical Assistance for Lao PDR's Telecommunications Sector

In 2001 Lao PDR passed a telecommunications law to open up the sector to competition, but challenges on implementation and efficient and transparent regulation still remained. To help address these challenges, PPIAF provided grant funding in 2003 to help the Department of Post and Telecommunication under the Ministry of Communications, Transportation, Posts, and Construction review the sector policy and current regulatory regime and provide inputs to a detailed design for a regulatory regime.

The study and training seminars touched on interconnection, price regulation (including tariff rebalancing), licensing, fostering competition, universal access, and service and internet exchange. The study recommended the set up of a Regulatory Bureau within the Department of Post and Telecommunication as a first step towards strengthening the regulatory regime with the expectations that it would ultimately grow into a full-fledged independent regulator.

In 2007 the government separated the Department of Post and Telecommunications from the Ministry of Communications, Transportation, Posts, and Construction and established a new agency, the National Authority of Posts and Telecommunications of Lao PDR (NAPT), by virtue of Prime Minister Decree No.375/PM of 22nd October 2007. NAPT assumed the functions of the Department of Post and Telecommunications such as setting policy and long-term strategies for the sectors, and is also tasked to regulate the post, telecommunications, and internet sectors in Lao PDR, as per the recommendations in the PPIAF-funded study.

Category	Outputs
Enabling environment reform	
<i>Analyses/assessments prepared</i>	<ul style="list-style-type: none"> • Review of the telecommunications sector with an analysis of sector reforms including policy, regulatory regime, and competition issues, 2004
<i>Plans/strategies prepared</i>	<ul style="list-style-type: none"> • Detailed regulatory regime design including institutional capacity building and regulatory processes and procedures, draft interconnection and reference interconnection offer, and tariff regulation rules, 2004
Capacity and awareness building	
<i>Workshops/seminars</i>	<ul style="list-style-type: none"> • Training seminars on interconnection, price regulation, licensing, fostering competition, universal access, and service and internet exchange undertaken from September to December 2003

Category	Outcomes
Enabling environment reform	
<i>Plans/strategies adopted</i>	<ul style="list-style-type: none"> The government established the National Authority of Posts and Telecommunications of Lao PDR (NAPT) in 2007. NATP now regulates the post, telecommunications, and internet sectors in Lao PDR, as well as formulates policy and long-term strategy for the development of the sector.

Looking Ahead: PPIAF Support to Lao PDR

Lao PDR had made a dramatic transformation since its transition from a centrally-planned to a market-oriented economy in 1986. Reforms on various fronts have contributed to reduced poverty, as well as progress in social sectors and infrastructure, specifically regarding electricity access. The recently completed Nam Theun 2 hydro-electric project is now the largest source of foreign direct investment for the country, and it is expected to generate more resources for Lao PDR’s poverty reduction programs. The project also provided valuable lessons and practices for other hydro-electric power projects. Given the vast opportunities in power generation, vibrant private sector interest in Lao PDR’s power sector will undoubtedly continue. Off-grid rural electrification will be the next challenge for the power sector. Outcomes are mixed in other sectors such as water and sanitation, and there can potentially be room for private sector involvement in addressing irrigation supply to boost agricultural productivity and possibly the emerging challenge of solid waste management. PPIAF support will continue to be valuable in strengthening capacities to bring about better chances for successful project implementation and in creating a better enabling environment for the private sector to play a role in improving Lao PDR’s infrastructure.