



## Preface

### Project History

The Mekong Secretariat identified the potential for hydro-power development on the Nam Theun and Nam Kading river systems in the 1970s, following implementation of the Nam Ngum Hydropower Project in the Lao People's Democratic Republic (Lao PDR). Motor Columbus, a Swiss engineering firm, was engaged by the Mekong Secretariat in the early 1980s to investigate three projects on the Nam Theun. Subsequently, in 1984 and 1986 the Australian firm, Snowy Mountains Engineering Corporation (SMEC), performed geotechnical investigations in the area of the proposed Nam Theun 2 Hydroelectric Project (the Project) dam site. In 1991, the Government of Lao PDR (GOL), with support from the World Bank and the United Nations Development Programme (UNDP), commissioned SMEC to undertake a Project Feasibility Study (SMEC, 1991). This study included an Environmental Status Report, which was the first evaluation of environmental issues for the Project. In 1993, GOL negotiated with SMEC and the Transfield Group to develop a Memorandum of Understanding (MOU) for constructing and operating the Project. Another group, consisting of Transfield, Electricité de France (EDF), Italian-Thai Development Public Company Limited (ITD), Phatra Thanakit and Jasmine International replaced the original consortium of SMEC and Transfield in 1994. The new consortium, known as the Nam Theun 2 Electricity Consortium (NTEC), began negotiating a power purchase agreement with Electricity Generating Authority of Thailand (EGAT). By early 1994, the build-own-operate-transfer (BOOT) project concept with GOL equity was firmly in place. After May 1997, the Asian economic crisis affected EGAT's energy demand forecast, and GOL and the Royal Thai Government agreed to divide the power purchase scheme into two stages – 1,600 MW by December 2006 and a further 1,700 MW by March 2008. GOL, the World Bank and NTEC continued to undertake further assessment of both the economic viability and the potential environmental and social impacts of the Project. Several studies to evaluate potential alternatives were started at that time, including a Study of Alternatives by Lahmeyer and Worley International (1998), which formed the primary basis for selecting the Nam Theun 2 Project. Subsequently, the World Bank commissioned a study to determine the ranking of potential hydropower projects throughout Lao PDR (Lahmeyer and Worley International, 2000), which has since been updated. In 2001, Electricity Generating Public Company Limited (EGCO) replaced both Phatra Thanakit and Jasmine International in NTEC, which continued to develop the Project. On January 1<sup>st</sup> 2004, the responsibilities of NTEC were transferred to the Nam Theun 2 Power Company Limited (NTPC), a special purpose company that was established under the laws of the Lao PDR to further develop, construct, own and operate the Project, and which is wholly owned by EDF, Electricité du Laos, EGCO and ITD.

### GOL Environmental & Social Concerns

Prior to considering development of the Project, GOL began instituting a series of national protected areas within Lao PDR in response to concerns over ongoing uncontrolled habitat loss and hunting of wildlife. The International Union for Conservation of Nature (IUCN), of which GOL has been a State member since 1969, proposed the formation of more than 30 protected areas and forest reserves in Lao PDR, including on the Nakai Plateau, on which the

Project reservoir will lie, and in the Nam Theun watershed above the proposed reservoir. In June 1991, GOL modified the proposed Nakai Plateau and Nam Theun National Biodiversity Conservation Areas (NBCAs) by combining parts of both into the single Nakai Nam Theun NBCA (NNT NBCA). The NNT NBCA was gazetted in October 1993 along with 17 other NBCAs throughout the country and they, together with two other NBCAs added in 1995-1996, cover some 12.5% of the land area of Lao PDR.

In addition, during MOU negotiations for development of the Project, GOL identified a number of important Project-specific issues relating to environmental and social impacts. These included i) the resettlement of 17 villages located in the inundation area; ii) flooding along the Xe Bang Fai; iii) re-routing of Road 8B around the proposed inundation area; and iv) development of measures aimed at compensating for the loss of flora and fauna both in the inundation area and below the dam.

### Involvement of the World Bank & First Environmental Assessments

In late 1994, GOL invited the World Bank to become involved in the Project, both as a provider of funds for GOL's stake in the Project and as country-risk loan guarantor. During its initial visit, the World Bank mission identified that environmental and social impact assessments would be required for evaluation. Further environmental and social assessment work was then targeted to address World Bank Safeguard Policies and Directives. NTEC engaged TEAM Consultants of Thailand (TEAM) to prepare a preliminary environmental assessment, which was released in November 1994. TEAM, supported by EDF and SMEC, began to obtain information about the hydrology of the Nam Theun and undertook dry season investigations in 1994 and 1995. Based on this information, a second preliminary environmental assessment report was completed in April 1995. In November 1995, the World Bank issued a list of outstanding concerns, including the need for an Alternatives Study that ranked power generation projects, an Economic Impact Analysis and an Environmental and Social Project.

### Nam Theun Social & Environmental Project

A November 1996 World Bank mission developed a concept for project-based assistance to GOL, known as the Nam Theun Social and Environmental Project (NTSEP), to be funded through an International Development Association (IDA) credit and to be treated as GOL equity in the Project, provided that the activities to be funded were part of both the Environmental Assessment and Management Plan and the Social Development Plan. The first studies identified a number of peripheral impacts that would occur during the construction period. These studies also recommended the development of corridors between the NBCAs that surround the Project site. In addition, the World Bank established a fund to develop a management plan for the NNT NBCA. The plan was developed by IUCN in association with the Wildlife Conservation Society (WCS). When the loan guarantee for the Project is received from the World Bank, the initial programmes under the NTSEP will be funded. The funding received from the World Bank will enable GOL to begin detailed planning for the resettlement

programmes, allow them to manage the non-labour population influx associated with the construction period and provide additional funding for continuing with the implementation of the NNT NBCA management plan.

## Development of the EAMP

Once the management plan was prepared for the NNT NBCA and the format for the NTSEP was established, NTEC began to search for a company to prepare the full Environmental Assessment and Management Plan (EAMP).

Seatec International, Thailand, in association with Sinclair Knight Merz (SKM), Australia, was selected to prepare the EAMP. A first draft EAMP was completed in May 1997 and submitted to the World Bank and GOL for review and comment. GOL organisations that reviewed the initial draft included the Science, Technology and Environment Agency (STEA), the Ministry of Agriculture and Forestry (MAF), and the Ministry of Industry and Handicrafts (MIH). In response to the comments and recommendations from the World Bank and GOL agencies, a number of additional studies were commissioned to provide an evaluation of critical environmental, social and economic issues. These included updating information on water quality from previous modelling, defining water quality impacts in the Xe Bang Fai, explaining the hydrological model, presenting reservoir management issues, reviewing downstream flooding impacts and mitigation, and updating knowledge of aquatic biodiversity based on additional fish surveys.

A second draft EAMP was produced in 2000 and a third in 2001. These drafts were based on the results of new studies and on reviews and comments received on earlier versions, and included various design changes incorporated into the Project since 1997. The design changes were based on EGAT's request to operate the Project as an intermediate peaking facility rather than as a base load plant. The main additions to these versions were related to i) the amendment of the operating regime to cease operation when flooding in the Xe Bang Fai is imminent; ii) the modification of release equipment design to ensure better water quality for release into the Nam Theun and the Xe Bang Fai; iii) improved mitigation measures; and iv) measures to improve GOL institutional capacity to handle the Project. A fourth draft of the EAMP was prepared by Seatec International in March 2003 to update the previous versions and integrate the comments expressed by various parties, including the World Bank and the Panel of Experts. Dr John R. Bizer, who acted as the chief rewriter of the EAMP, prepared the fifth draft in October 2003 and this version in March 2004. The main additions and improvements to the EAMP since October 2003 include i) a chronology of deforestation on the Nakai Plateau; ii) an assessment of the natural habitats that will be affected and conserved by the Project; iii) a pest management plan; iv) details of the water quality monitoring programme; v) baseline social conditions, impacts and mitigation measures; and vi) a presentation of the public consultation and disclosure process. Various experts, presented in Annex B, assisted all the teams with preparation of the various drafts of the EAMP.

This advanced draft forms the basis of the documentation to be used during the public consultations. Comments received will be incorporated into the final draft of the EAMP, which will also incorporate findings from additional studies being undertaken by NTPC, the WB and the ADB and which will be released during public consultations. These include i) an assessment of the policy, legal and administrative framework within Lao PDR (NTPC); ii) an analysis of the riparian release and spills from the Nakai Dam (NTPC); iii) an assessment of the current biomass in the inundation zone (NTPC); iv) a revision of the Environmental Manage-

ment Plan (NTPC); v) an analysis of flooding in the lower Xe Bang Fai; vi) a cumulative impacts assessment (ADB); vii) Thai Transmission Lines EIA due diligence (ADB); viii) capacity and institutional assessment (ADB); ix) economic issues (WB); x) strategic and sectoral assessment (WB); and xi) sources of growth studies (WB).

## The Suite of Safeguard Documents

Over the course of the Project's development, the need for new and additional studies has emerged. Additional studies have so far included the Resettlement Action Plan (RAP) first released in 1997 and updated in 1999, 2002 and 2003, and the preparation in 2002 and 2003 of an Ethnic Minorities Development Plan (EMDP). In May 1998, IUCN prepared a revised Environmental and Social Management Plan (ESMP) for the NNT NBCA, which was then updated in 1999, and in 2000 the GOL issued an updated Operational Plan. The updated NNT NBCA Management Plan together with the updated Operational Plan, formed the basis for the development of the Social and Environment Management Framework and first Operational Plan (SEMFOP) in 2002, updated in 2003.

The EAMP, the Social Development Plan (SDP, which includes the RAP and the EMDP) and the SEMFOP form a suite of documents addressing environmental and social issues in the Project area. They are the synthesis of studies that were conducted and updated from the beginning of the Project. All documents in the suite have undergone intensive review processes that have involved various stakeholders, including the Project-affected people, GOL, the Panels of Experts and the World Bank.

The documents of the suite address different needs. Environmental issues are developed in the EAMP, the presentation of the NNT NBCA and of its proposed management are dealt with in the SEMFOP, social and resettlement issues are presented in the SDP, and in particular in the RAP, while ethnic minorities issues are addressed in the EMDP. In order to avoid excessive repetition and voluminous documentation, topics discussed in one document are only briefly outlined in other documents and the reader is referred to the relevant location of the detailed discussion. The reader will have to pick up the right document to gain knowledge of specific issues and impacts and the ways in which the Project is proposing to deal with them.

In addition to the EAMP, SDP and the SEMFOP documents, there is also the Summary Environmental and Social Impact Assessment (SESIA). This stand-alone document serves as an integrated summary of the EAMP, SDP and SEMFOP and takes the place of an executive overview.

## Organisation of the Report

The EAMP presents the environmental impacts attributable to the Project during the construction and operation phases, and the proposed mitigation measures. It includes i) a description of existing environmental conditions and the identification of significant environmental issues; ii) an evaluation of the potential for environmental impacts; iii) a short presentation of the existing social conditions and issues; and iv) the identification of opportunities for avoiding, mitigating and compensating for those impacts, and for enhancing environmental conditions.

The first volume, the EAMP Main Text, consists of six chapters:

**Chapter 1: Project Background**, provides a brief description of the Project. It establishes the need for the Project, focusing on its economic viability, as well as its environmental and social acceptability. This chapter also introduces the reader to the policy, legal and administrative framework of GOL.

**Chapter 2: Analysis of Alternatives and Project Description**, provides a description of the Project alternatives and justification for the proposal put forth by NTPC. It also presents the Project features in detail. This is followed by details of the Project's construction, operation and decommissioning. Finally a description of the study areas that were identified for evaluating the impacts of the Project is presented.

**Chapter 3: Assessment of Environmental Impacts**, addresses global and regional issues related to the Project, such as greenhouse gases and biodiversity. The analysis then presents the baseline environmental conditions, the various impacts of the Project and mitigation measures for the construction and operation phases.

**Chapter 4: Assessment of Social Impacts**, briefly presents the social context, social impacts and how social mitigation and management measures have been integrated into the Project design in the various project areas.

**Chapter 5: Public Consultation and Disclosure**, describes the process of disseminating information about the Project to the various stakeholders, the main outputs of these briefings and meetings and how feedback was incorporated into Project design.

**Chapter 6: Environmental Management Plan**, summarises the provisions of the environmental mitigation and management plan. It identifies the responsibilities of the various parties to the Project, outlines the basic programmes and includes potential adaptive management.

The Conclusion summarises the main environmental impacts of the Project together with the associated mitigation measures and management plan that have been designed to minimise adverse effects.

The second volume of the EAMP, Annexes, contains supporting documentation for various issues that are addressed in the Main Text.

Throughout the EAMP the Lao words *Nam*, *Xe* and *Houay* may be found. They all mean "river" in the Lao language. To avoid repetition and confusion, the English word "river" is not repeated after the Lao name of a river, for example the text uses "Nam Theun" instead of "Theun river". Similarly, the word *Ban*, meaning village, is also used throughout the EAMP document. National Biodiversity Conservation Area (NBCA) and National Protected Area (NPA) have the same meaning in the text of the document and are transposable.

## Procedure for Questions & Answers

Comments and questions on this document can be sent to [eamp@namtheun2.com](mailto:eamp@namtheun2.com). Answers will be compiled into Question & Answer documents to be posted on the Project website [www.namtheun2.com](http://www.namtheun2.com).

