

Nam Theun 2 Hydroelectric Project

Project Implementation Plan

Part B: Social Activities

Chapter 4: Downstream Nam Theun and Xe Bang Fai Programme

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Table of Contents

Acronyms and Abbreviations

1	Introduction.....	3
1.1	Issues.....	3
1.1.1	General:.....	3
1.1.2	Issues by Zone:	3
1.1.3	Downstream areas and impacts:.....	3
1.2	Objectives / Measures	3
1.3	Obligations per CA	3
1.4	Scope of Works and Key Dates	3
1.4.1	Scope of work for the Downstream Nam Theun and Xe Bang Fai Programme (DSP).....	3
1.4.2	Scope of work for the Implementation Plan	3
1.5	Arrangement for Procurement and Implementation	3
1.6	Budget.....	3
1.7	Monitoring	3

Acronyms and Abbreviations used in this Chapter

ADB	Asian Development Bank
DSP	Downstream Nam Theun and Xe Ban Fai Program
DAFO	District Agriculture and Forestry Office
DCC	District Compensation Committee
DTORILRP	Draft TOR for Implementation Planning TA of Livelihood Restoration Programme in Xe Bangfei Mainstream and Hinterland, Nam Phit and Nam Theun (Downstream) Villages
DS	Downstream
EAMP	Environmental Assessment and Monitoring Plan
IP	Implementation Plan
NT DS	Nam Theun Downstream
PAP	Project Affected Persons
PAV	Project Affected Villages
RMU	Resettlement Management Unit (GOL)
RC	Resettlement Committee
RO	Resettlement Office (NTPC)
XBF	Xie Bang Fie
WB	World Bank

1 Introduction

The **Down-Stream Nam Theun and Xe Ban Fai Programme (DSP)** is intended to restore livelihoods, implement resettlement where needed and compensate for asset impacts in the so-called “downstream areas” which will be subject to environmental changes due to construction and operation of the Nam Theun hydropower facility. The structure of the DSP will be defined based on the outcome of the IS. The DSP will include the fisheries monitoring survey programme, the downstream fisheries baseline and downstream socio-economic baseline.

Accordingly, the first phase of the DSP is the Implementation Plan (IP) structured as follows:

Implementation Plan:

1. Baseline Study
 - a. Fisheries monitoring and survey programme
 - b. River bank cropping and gardening
 - c. Domestic water use
 - d. Fixed assets
2. Sectoral Economic study of DS regions
3. Feasibility study for restoration options
4. Consultative Planning
5. Draft Implementation Plan

1.1 Issues

1.1.1 General:

Livelihood	Riverside gardens Fisheries
Assets	Riverbank erosion, irrigation pumps, domestic water, access across river, Flooding

1.1.2 Issues by Zone:

Zone	Impacts on communities
4	Reduced flow, loss of fish catch (some species) for villages who fish in that stretch of the river
8	Approximately 60 households who either use or occupy the land on the channel alignment can be adversely affected.
9	None is indicated
10A	Impacts will be limited to those associated with backwater effects created by additional discharge entering XBF at what is now the Nam Phit
10B	Impact will be greatest... related to increases in flows and rivers levels, changes in discharge regime, erosion of the river banks, effects on land use (river bank gardens) and fisheries
11	Similar impacts as in Zone 10B although severity of some is expected to be less due to larger size of the XBF and large natural discharge in this stretch of XBF

12	Negative impacts will also result and could include increased flooding of land, fish catch, river bank gardens, lower access across the river and water supply impacts
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Source: SDP Volume 3.

1.1.3 Downstream areas and impacts:

River	Impacts
Xe Bang Fai	Losses of riverbank gardens because of higher water levels and some erosion of the riverbanks in the upper reaches in the early years; Decrease catch of fish and other aquatic products due to habitat modification, possible water quality modification in the early years and more difficult fishing due to higher/faster water. Some fish species may be extirpated; Losses of some riverside buildings; Poor water quality for domestic use in the early years; More difficult dry season river crossing; Increased flooding in the lower XBF; Water flow may require some modification to the flexible pump-to-supply connection
Nam Phit	The upstream will be isolated cutting off fish migration. Water velocity in the upstream lined section and downstream unlined section will be too high for most of fish species to maintain habitat or migrate.
Nam Kathang	Expected to have very limited impact but water will no longer be suitable for domestic use .
Nam Theun DS to TH Headpond	Most of the current fish population will disappear due to changes in hydrology . There are no permanent settlements or established villages along this reach of the river, but some households (around 415) from nearby villages occasionally use this reach for their fishing activity.

Source: SDP Vol 3

1.2 Objectives / Measures

The DSP will be implemented to mitigate impacts and compensate project affected people for the predicted negative impacts that will result from the release of the NT2 hydropower turbine waters into the downstream channel and subsequently in the XBF and the change in river flow resulting from the dam on the Nam Theun.

The Downstream Nam Theun and Xe Bang Fai Programme reflects ADB and WB safeguard policies on involuntary resettlement which have the following objectives (SDP Volume 3 1.2)

- Avoid involuntary resettlement wherever feasible;
- Minimize resettlement where population displacement is unavoidable by choosing alternative viable project options;
- Where involuntary resettlement is unavoidable, to ensure that affected people receive assistance preferably under the project so that they will be at least as well off as they would have been in the absence of the project.
- And to assist ethnic minority and other vulnerable people to improve their socio-economic conditions

The DSP is due to be implemented between Financial Close (FC – currently scheduled for June 2005) and Commencement of Operation Date plus 5 years (COD +5 years– currently scheduled for October 2014) at a total cost of 16.0 million USD.

The first phase of the DSP is the development of an Implementation Plan (Ref. CA Schedule 4 Part 4 Clause 6) due to start immediately after FC and taking one year to complete. During that time, this Implementation Plan will develop in details how to implement the full Downstream Nam Theun and Xe Bang Fai Programme to COD + 5 years. The scope of works shown below describes the Implementation Plan for the first year.

In addition, the Downstream Fisheries Baseline and Downstream Socio-economic Baseline (Ref. CA Schedule 4, Part 4, Clause 3) are intended to provide baseline data of livelihood conditions and natural resources fisheries conditions prior to the start of impacts at COD. These surveys will begin implementation at FC in parallel with the Implementation Plan.

1.3 Obligations per CA

NTPC Obligations

<i>Reference:</i>	<i>Description:</i>
Schedule 4 Part 4	Social Component (Downstream Areas)
3	Obligations to prepare and update Baseline Surveys
4	Company's Obligation to Develop and Fund Mitigation and Compensation and resettlement in the Downstream Areas
4.1	Company's obligation to develop the Mitigation, Compensation and Resettlement Process
4.2	Company's funding obligations and principles for allocation of funds
5.1	Objectives of the Mitigation, Compensation and Resettlement Process
5.2	Parties to comply with and implement the Mitigation, Compensation and Resettlement Provisions.
6	Development of Implementation Plan
7.1	Allocate responsibilities in the Implementation Plan

1.4 Scope of Works and Key Dates

The general scope of work for the Downstream Nam Theun and Xe Bang Fai Programme is included below for reference (section 1.4.1) , subject to confirmation from the outcome of the Implementation Plan (section 1.4.2) which is described more fully.

1.4.1 Scope of work for the Downstream Nam Theun and Xe Bang Fai Programme (DSP)

Consultation/Monitoring:

1. the conduct of on-going consultations in which (a) villagers are fully informed of predicted impacts and their rights to compensation, (b) villagers are encouraged to voice their concerns and forward proposals for mitigation and compensation approaches and activities, and (c) the villagers are fully involved in pilot compensation implementation and then the monitoring of impacts;
2. participatory monitoring to observe and measure the environmental impacts of the Project and any resultant socio economic impacts, and adjust the compensation and development program accordingly.

Resettlement / Assets:

3. the incorporation of engineering design features to minimize environmental impacts, such as design of the intake channel transferring water from the reservoir to the intake structure (enabling the water from the epilimnion to be withdrawn preferentially), the regulating pond (avoiding most variable flows into the XBF which would otherwise have resulted from the peak load operation of the powerhouse), the downstream channel (avoiding discharge into a small watercourse), the aeration weir in the downstream channel and the riverbank protection at the confluence of the downstream channel and the Xe Bangfai;
4. the implementation of mitigation in and along the XBF itself, where (a) selected sections of the riverbank will be protected against erosion, (b) village water supplies will be improved, if required, and (c) resolution of the problem of decrease dry season river crossing due to increased dry season flows;
5. The compensation for impacted assets such as houses, buildings and resettlement where needed

Livelihood restoration:

6. the conduct of studies, and surveys in order to define current livelihoods that may be impacted and predict the type of level of impacts;
7. livelihood compensation, whereby all and any negative impacts on villagers socio-economy - mainly in fisheries and riverbank gardens - will be fully compensated and restored; the exact method of compensation, and the compensation options implemented will depend on the results of the feasibility study that will be launched after FC, and on the ongoing consultations with affected villagers. This compensation program will be fully coordinated with the planned Xe Bangfai development program;

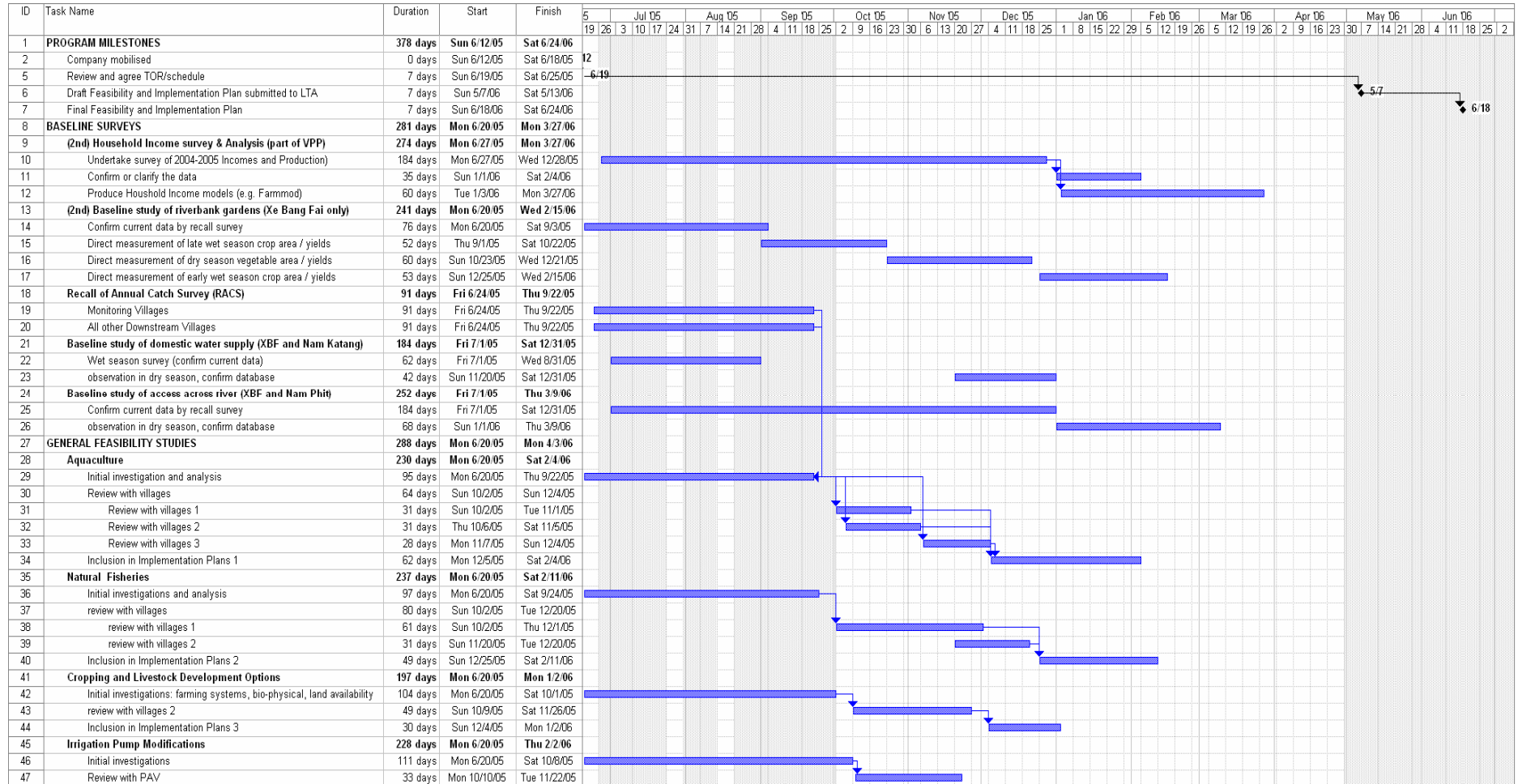
1.4.2 Scope of work for the Implementation Plan

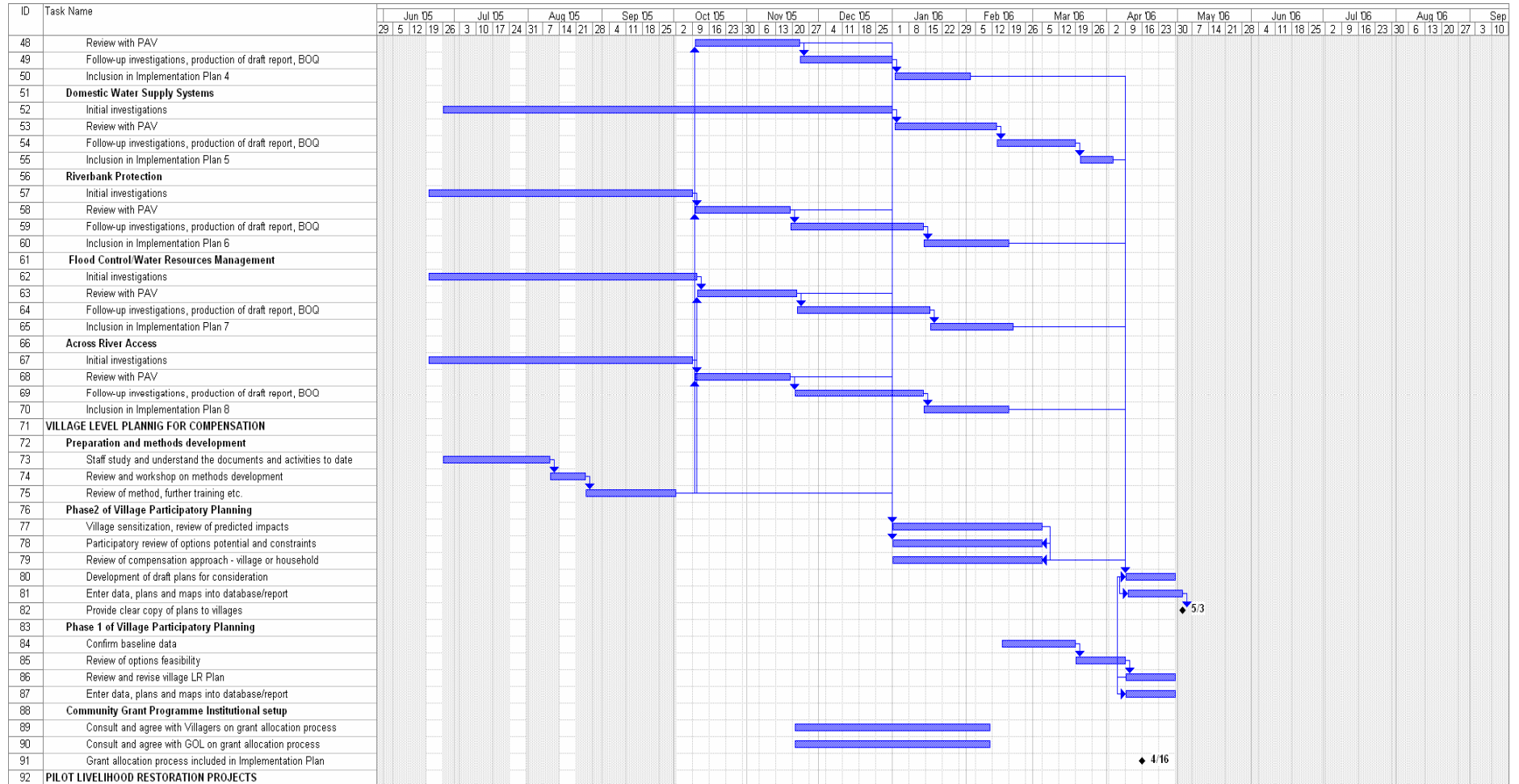
The scope of work included in the present PIP relates to the Implementation Plan only as defined in the CA (Ref. Schedule 4, Part 4, Clause 6.1(a)). When the IP is complete, it will feature in the PIP as an Additional Plan detailing the scope of work for the DSP.

The Implementation Plan scope of work will include

1. a revision of foreseeable impacts of environmental changes on the regional economy and typical households.
2. principles for identification and consultation of project affected people,
3. measures for resettlement,
4. compensation, livelihood restoration and mitigation,
5. technical assistance including pilot works,
6. disbursement mechanisms for community grants
7. implementation schedules,
8. monitoring indicators and budgets.

Indicative Schedule for Implementation Plan.





Indicative scope of work and key dates for Implementation Plan:

PROGRAM MILESTONES	Start	Finish
Implementation Plan duration	Jun-05	Jun-06
Company mobilised	Jun-05	Jun-05
Review and agree TOR/schedule	Jun-05	Jun-05
Draft Feasibility and Implementation Plan submitted to LTA	May-06	May-06
Final Feasibility and Implementation Plan	Jun-06	Jun-06
BASELINE SURVEYS	Jun-05	Mar-06
(2nd) Household Income survey & Analysis (part of VPP)	Jun-05	Mar-06
(2nd) Baseline study of riverbank gardens (Xe Bang Fai only)	Jun-05	Feb-06
Recall of Annual Catch Survey (RACS)	Jun-05	Sep-05
Baseline study of domestic water supply (XBF and Nam Katang)	Jul-05	Dec-05
Baseline study of access across river (XBF and Nam Phit)	Jul-05	Mar-06
GENERAL FEASIBILITY STUDIES	Jun-05	Apr-06
Aquaculture	Jun-05	Feb-06
Natural Fisheries	Jun-05	Feb-06
Cropping and Livestock Development Options	Jun-05	Jan-06
Irrigation Pump Modifications	Jun-05	Feb-06
Domestic Water Supply Systems	Jun-05	Apr-06
Riverbank Protection	Jun-05	Feb-06
Flood Control/Water Resources Management	Jun-05	Feb-06
Across River Access	Jun-05	Feb-06
VILLAGE LEVEL PLANNING FOR COMPENSATION	Jun-05	Jul-06
Preparation and methods development	Jun-05	Oct-05
Phase2 of Village Participatory Planning	Jan-06	Jul-06
Phase 1 of Village Participatory Planning	Feb-06	Apr-06
Community Grant Programme Institutional setup	Nov-05	Apr-06
PILOT LIVELIHOOD RESTORATION PROJECTS	Dec-05	Feb-06
Selection of Pilot Villages	Dec-05	Jan-06
Selection of activities	Jan-06	Feb-06
REGIONAL ECONOMIC STUDY	Dec-05	Apr-06
Review available socio/economic data	Dec-05	Apr-06
Sectoral Economic Assessment	Feb-06	Apr-06

1.5 Arrangement for Procurement and Implementation

NTPC will be primarily responsible for the procurement of services from another company (not NTPC) and for its supervision for the development of the Implementation Plan with special emphasis on consultation.

The implementation of the Downstream Nam Theun and Xe Ban Fai Programme is summarized below:

<i>Description</i>	<i>Activity</i>	<i>Implementer</i>	<i>Village Consultation/ Participation</i>
Planning	Inception Report	Company	No
	Baseline Surveys	Company/NTPC/ GOL	Yes
	Village level planning	Company/NTPC / GOL	Yes
Supervision	Supervise Company developing IP	NTPC	No
Implementation	Baseline surveys	NTPC/Company / GOL	Yes
	Livelihood and asset feasibility studies	Company	Yes
	Consultation	Company / GOL	Yes
Training	Baseline Surveys	Company/NTPC	Yes
Scheduling	Maintain and update IP schedule	NTPC/Company / GOL	No
Procurement	Procurement of services for IP	NTPC	No
Funding	NTSEP	NTPC	No

NTPC staff responsible for the IP are described in Part A, Figures, 11, 12, 13. Standard project management practices will apply.

The procurement process of the 12 month Implementation Plan due to start soon after FC calls for international competitive bidding. Expressions of interests have been sought for this contract and the successful bidder will be selected soon after FC with a view to mobilize as soon as practicable.

1.6 Budget

While the table presented below shows exact total budget of \$16 million, the Implementation Plan budget is indicative and is included in the “Fisheries and TA” activity.

Activity	To COD	To COD+5	Total
RMU	55,000	1,505,000	1,560,000
Fisheries and TA	1,000,000	1,110,000	2,110,000
Fisheries compensation measures	2,950,000	4,450,000	7,400,000
Asset impact mitigation	1,020,000	1,410,000	2,430,000
Fisheries monitoring	420,000	580,000	1,000,000
Contingencies	1,000,000	500,000	1,500,000
Total	6,445,000	9,555,000	16,000,000

Source: SDP Volume 3, Table 8-14

1.7 Monitoring

General:

The monitoring programme of socio economic parameters for the DSP will be developed fully in the course of the Implementation Plan. Expected monitored parameters are summarized in the next section. The monitoring will be undertaken by villagers with the assistance of the both the RMU/DCC teams and NTPC team for the DSP. Monitoring of socio economic parameters will provide baseline information (pre impact) and impact and measures effectiveness information. Based on this information, adaptive management can be used to modify the implementation of the measures to optimize results.

Fisheries:

Fisheries is a special component of this monitoring programme because it is anticipated that the project will have an important impacts and in view of its importance in providing livelihood Fisheries monitoring is developed further below.

The NT2 Project must have accurate information and data on household fish catch, now and over the course of the Project, in order to have a basis on which to fairly compensate households who currently catch fish and gather aquatic products in the Xe Bangfai and other downstream areas that will be impacted by the NT2 Project.

However, there are about 29,000 households in about 302 villages who currently catch fish and gather aquatic products in the rivers and wetlands that will be impacted. Data must be obtained at least four times over the course of the Project, as follows:

- Pre-Construction (pre-Project baseline, ending at about October 2005);
- Pre-COD (before about October 2009); and
- Post-COD - twice, at COD + 1 and COD + 4.

The participatory monitoring program in which villagers work with GOL and NTPC to observe and measure the environmental impacts of the Project and any resultant socio-economic impacts (using fish catch, erosion rates, water quality, river garden surface areas etc...as indicators for example), and adjust the implementation of the mix of livelihood models accordingly.

Phase 1 of the Fish Monitoring Survey Programme (FMSP) will be conducted approximately over a 12 months period (FC to FC + 1), with the following objectives:

- To develop, test and modify (as appropriate) a participatory fisheries monitoring program in representative households in representative downstream villages (a network of participatory, village based fish catch monitoring);
- To assess whether this participatory fisheries monitoring program can be used to calibrate – and thus increase the accuracy of – the recall surveys of annual fish catch (RS-AFC, i.e. of previous year's fish catch) which will be undertaken in all downstream villages (unless a village fisheries assessment is sufficient in some villages);
- To assess whether such a correlated/calibrated **RS-AFC** can provide accurate and/or adequate database for the targeting and sizing of compensation and livelihood restoration programs at household, group or village level (to compensate for lost fisheries due to impacts of the NT2 Project; or
 - whether a **Village (level) Fisheries Assessment** will be sufficient, in mainly lower impact zones and villages, for the assessment of fisheries impacts and development of compensation programs in those villages.

The **FMSP** program must be conducted in all downstream (and one upstream) rivers (and wetlands) that will be impacted the NT2 Project. The two downstream and one upstream Region, and a summary of the fisheries impacts in these regions (see SDP Volume 3, Chapters 4 and 5 for detailed explanations) are as follows:

Region 1: Downstream of the Nakai Dam, up until the Theun Hinboun Dam.

This area will be impacted by drastic decrease in water. However, there are no villages actually located on the banks of the Nam Theun river in this stretch, then this impact will be mainly on fisheries in the mainstream Nam Theun, and that part of the fisheries in its tributaries that is reliant on migratory species.

The number of potentially impacted villages in this region is about 51.

Region 2: Downstream of the Powerhouse, in the Xe Bangfai basin, including

- The Nam Khama / Nam Phit:
This stream will be canalized into the Downstream Channel;
- The Nam Kathang:
The Nam Kathang headwaters will become the regulating pond. While it is planned to reintroduce the same water flows into the Nam Kathang from the regulating pond, these waters will be sourced mainly from the reservoir (not runoff or springs in the upper watershed, as at present). In addition, the headwaters will be cut off from the rest of the river;
- The Xe Bangfai river:
From the point of confluence of the Downstream Channel to the junction with the Mekong River. The detailed impacts in the region are described in the SDP, Volume 3; and
- Backwater affected rivers and wetlands of the Xe Bangfai. The number of potentially impacted villages in this region is about 220.

Region 3: Various tributaries upstream of the future reservoir (Nam Sot, Nam Theun, Nam Noy and Nam On)

These tributaries are in the designated NNT National Protected Area and the NT2 Watershed and NPA. The fisheries of migratory species will be impacted.

The number of potentially impacted villages in this region is about 31.

In total, there are about 302 villages in these areas whose households fish in these various potentially impacted rivers

Proposed survey methodology will include:

- Review of previous studies
- Village fisheries assessment
- Direct fish catch monitoring by fish monitoring households

Overall Parameters to be Monitored per SDP Volume 3, 9.2.3 to 9.3.6. It is planned that villagers will be monitoring and NTPC will be collecting and compiling data for analysis and use for various purposes including DSP, environment, health etc...

Aspect	Indicators
Socio-economics	Population and household size
	Livestock holding, consumption and sale
	Rice and other agricultural production, sale and consumption
	Fish catch, sale and consumption
	Household assets (hand tractors, rice mills, water pump, vehicles radios, etc)
	Other sources of income (imputed and cash)
	Percentage of poor households: living below national poverty line
	Land holding by type of land (irrigated paddy by season, riverbank garden, orchards, kitchen gardens, swidden land, etc)
	Type and use of fishing gears, favoured fishing area, seasonality etc
	Commodity prices at selected market sites
Health & Nutrition	Domestic water sources e.g., public piped systems, lined wells, unprotected dug wells
	Use of latrines
	Presence of acute illness, including malaria and dengue fever
	Maternal, infant and child mortality rates
	Blood test for anaemia (haemoglobin rates of less than 7 gm/day) and moderate anaemia (haemoglobin rates of less than 7-11 gm/day)
	Food consumption of mothers and children for nutritional balance and composition of diets
Erosion	Erosion rate and sites
Fisheries	Fish catch per unit effort (CPUE)
Riverbank Assets	Buildings within 30 m of the current river bank in the Upper and Middle XBF (25 villages)
Village Gardens	Gardens above riverbanks, riverside crop gardens (usually in the end of the rainy season), riverside vegetable gardens (usually planted in the dry season)
Water Sources and Quality	See EAMP
XBF Crossing	Across River Access

Method of Data Collection per SDP Volume 3, 9.2.3 to 9.3.6:

Aspect	Methods
Socio-economics	Household Survey
Health and Nutrition	Household Survey, HIS
Erosion	Morphology Monitoring by Detailed Cross-Sectional Survey
Fisheries	Household Survey, 1-2 Villagers Per Village Serving as Fisheries Monitors under DAFO Supervision with Technical Assistance of Experts
Riverbank Assets	Regular Trips (minimum of one per quarter in the first two years) by RMU and NTPC staff for visual detection
Village Gardens	Baseline surveys, River garden Study with Hydrology Modelling and Village Consultation; Following COD, assessment study will be done if required
Water Sources and Quality	NTPC Water Quality Monitoring Program
XBF Crossing	Close monitoring