

# Environment and Social Monitoring Report

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Monthly Progress Report  
May-December 2006 (3/4)

## LAO PDR: GMS Nam Theun 2 Hydroelectric Project

Prepared by the Environment and Social Division of Nam Theun 2 Power Company, Ltd.

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**Nam Theun 2 Power Company Ltd.**

**Nam Theun 2 Hydro-Electric Project**

**Monthly Progress Report  
covering activity in September 2006**

**Part C : Environmental & Social Report**

## Table of Contents

<b>1</b>	<b>GENERAL OVERVIEW .....</b>	<b>5</b>
1.1	Staffing NTPC, GOL (EMU, RMU, DWG) and Partners .....	8
1.2	Unanticipated Project Impacts .....	9
1.3	Additional Plans and PIP updating .....	9
1.4	Grievance procedure .....	9
1.5	Communication .....	9
1.6	Procurement .....	9
<b>2</b>	<b>SOCIAL ACTIVITIES .....</b>	<b>11</b>
2.1	Physical Cultural Resources, Project Lands, Camp Followers .....	11
2.1.1	Physical and Cultural Surveys & Salvage .....	11
2.1.2	Project Lands .....	14
2.1.3	Camp Followers .....	22
2.2	Public Health Regional and Resettlement Programs .....	25
2.3	Nakai Plateau Resettlement .....	35
2.3.1	General .....	35
2.3.2	Infrastructure .....	40
2.3.3	Livelihood .....	45
2.2.3.1	Nakai Plateau Forestry Development Program .....	46
2.2.3.2	Nakai Plateau Agricultural and Livestock Development Program .....	48
2.2.3.3	Fisheries Reservoir Program .....	55
2.2.3.4	Community Development Program .....	55
2.4	Downstream Areas Development Plans .....	61
<b>3</b>	<b>ENVIRONMENTAL ACTIVITIES .....</b>	<b>63</b>
3.1	General .....	63
3.2	Wildlife Programmes .....	63
3.2.1	Fish Impacts in upstream and downstream river species .....	63
3.2.2	Wildlife Management and Monitoring Programme .....	64
3.2.3	Asian Elephant Program .....	64
3.2.4	Transitional Strategy for Reservoir Impoundment .....	65
3.2.5	Adaptive Management Programmes .....	65
3.3	Water Quality Monitoring and Assessment Programme .....	66
3.4	Environment Management Unit (EMU) Technical Assistance (TA) .....	73
3.5	EMO's activities linked to construction .....	73
<b>4</b>	<b>INTERNAL AND EXTERNAL MONITORING .....</b>	<b>75</b>
<b>5</b>	<b>GOL RELATED ACTIVITIES .....</b>	<b>77</b>

<b>5.1</b>	<b>Watershed Management Protection Authority (WMPA).....</b>	<b>77</b>
<b>5.2</b>	<b>Optimization of Salvage Logging on the Nakai Plateau .....</b>	<b>77</b>
<b>5.3</b>	<b>Social issues (RMU &amp; DWG) .....</b>	<b>77</b>

## **General Overview**

# 1 General Overview

## ***Procurement:***

In September, procurements have been mainly, but not only focusing on the construction of the wooden houses for the resettled people of Village Group 2; and the Independent Monitoring Agency on behalf of the GoL.

## ***Project lands:***

- Implementation of the livelihood restoration programs continued. UXO clearance for land to be used in horticulture program in Gnommalat was completed. Final preparations for infrastructure development related to frog and pig raising were made. A field day was conducted to increase knowledge and interest in forage / large livestock program.
- Preparations for handover of additional lands to the HC related to LPA 18 and LPA 26a proceeded. PAP assets were surveyed for land associated with DT5a (spoil disposal).
- An ethnic minority specialist began assisting the Project Land team in improving communication with PAPs who are ethnic minorities.
- Land reallocation for 27 PAPs who lost all of their productive land in Gnommalat continued. Clearing of vegetation continued and arrangements for removal of stumps and plowing commenced.

## ***Public Health:***

- Upgrading health infrastructure: Boreholes in Kengdaeng and Nadou HCs are under construction.
- Equipment: fax machines were provided to Nakai and Mahaxai DHOs
- Training, capacity building: Long-term training for X-ray and Ultrasound in Vientiane for Gnommalat and Khamkeut District Hospitals during July to September 2006 is completed, STIs training program, Peer educator training on STIs prevention among youth group, Soya milk production training in Nakai, Presentation of the NTPC's Health Program, monthly meetings in four districts and Khammouane PHO.
- Health Education Program: HIV/AIDS awareness program conducted, awareness raising on health issues during outreach activities and MCH clinic.
- Supervision: Monthly MCH clinics were conducted in six villages in Nakai, Supervisory visit to the resettlement villages in Nakai and other villages in Mahaxai and Gnommalat.
- Resettlement Program: English and Lao report on Nongboua health checks and survey has been completed and distributed. Monthly MCH clinics have been conducted in six villages.

## ***Nakai Plateau resettlement***

### ***Infrastructure:***

- Extra topographic survey and mapping: The contract for the extra survey work required at Area 13 for the Ban Thalang irrigated agriculture area was suspended in July because of the heavy rain. The company returned to the site in September.
- UXO search and clearance: The contractor has maintained good progress during the month despite the heavy rains and completed the large central areas 1 and 2 for Nakai Neua and Nakai Tai and have started on Area 7. From November 2005 to date the contractor has found and destroyed 1,446 UXO items, including 895 bomblets. There is an ongoing contract for UXO community awareness and on-call roving response teams with the same contractor. By the end of August the roving unit have found and disposed of further 1,267 UXO items including 1,132 bomblets. The communications channels between villagers and the response team

continue to work very well, with any finds of suspicious items in community areas being quickly reported.

- Timber houses: The construction of timber houses in Area 16 (Pilot Village) for 8 families resettling from Ban Keng Gnao is completed. The contractors awarded the timber houses construction contracts at areas 17 Bouama, 18 Phonsavang and 19 Sop On have continued with the construction works. The contractor for the northern villages of Sop Ma and Sop Hia has been given notice to start work on 30 October. The two contracts for the northern villages of Nong Boua Kham and Sop Phene have not yet started due to necessary additional preparation works on the site (site clearance, access etc.) and VFA timber supply problems
  - Roads and tracks: Bids have been received for the construction of the access roads and tracks in the southern areas of Ban Done and Khone Khen. Evaluation of the bids is underway. Road construction was limited because of the wet ground conditions. Some improvement works were completed on the access road south of Oudomsouk.
  - Irrigation: The contract for the construction of the irrigation area extension at the Pilot Village for the Keng Gnao resettlers was suspended because of the heavy rains.
  - Villages Layout: The preparation of preliminary resettlement village and agricultural layouts for the VG2 villages is continuing by NTPC personnel in consultation with villagers.
  - Community Buildings: The preparation of bidding documents for the construction of community buildings is underway and bidding procedures will commence in September.
- Domestic Water Supply and Sanitation: The rains have affected the progress with the borehole drilling program during the month because of the poor road surfaces and the heavy drilling rigs. There has been only 1 successful well completed in Kaeng Deng Health Center in Khamkeut district under the Health Infrastructure rehabilitation Programme. To date, 74 deep productive boreholes have been successfully drilled and developed on a total of 84 tentatives. There has been a total of 10 failures due to insufficient and therefore un-exploitable water yield. Sixty six (66) are equipped with water lifting devices.
- Electricity: The electrification of the 8 new houses at the Pilot Village is underway. The design of the resettlement village electrification systems is underway and complete for five villages.

#### Livelihood Plans:

- The livelihood coordination unit has been appointed early September, following the green light given by POE on 17th August 2006 when the whole approach has been presented.
- The last quarter 2006 program of the coordination unit has been defined, in collaboration with the Livelihood advisor (September report mission released). The main Target for the coordination unit is to prepare Implementation Plans for each livelihood component with the relevant teams, including a 2007 technical & financial program to be finalized.
- The agro-sylvo-pastoralism production systems land use planning for reallocated household area and common land management has been prepared and presented on 14th September 2006 at PAFO office in Thakhek (25 people from RMU, NTPC, PAFO and DAFO attended the meeting). The Director of PAFO endorsed the approach. The program will be presented to Resettlement Committee and Khammouane Provincial Governor shortly.
- Beginning of program structuring for the Land allocation component of Coordination Unit: internal agreement between Forestry and Agriculture/Livestock land use.

#### Forestry:

- Production at 3 sawmill improved but achievement of sawn wood production target difficult.

#### Agriculture / Livestock:

- Agriculture and Livestock team continues to focus on the transition resettlement villages in terms of livelihood restoration.
- The 2 technical Assistants have been requested to propose a technical program for end 2006, to follow up and evaluate the current rainy season cropping system, evaluate the existing training centers and other urgent work to be carried out by the end of 2006.

Fisheries:

- It is scheduled to start early October a feasibility study in order to propose a livelihood implementation plan focus on fisheries and more detail scheduling for 2007. This work has to permit to install fishery team beginning of 2007 to manage a fishery implementation program. A contract for the above study has been prepared to be signed early October 2006. Investigations on-going in GOL to select some senior Lao Government staff to participate to this study.

Community Development:

- Activities on going

**Downstream Program:**

- Work continued to develop livelihood restoration activities, including establishment of village organizations, village revolving & savings funds, and demonstration farms.
- The World Bank was requested to provide approval for the hiring new downstream staff, as described in the August MPR.
- Work continued to finalize the Downstream Restoration Program documentation. It is expected that the final report will be released during October.

The following table summarizes the downstream activities in the 21 pilot villages at downstream locations

**Environment:**

- Water Quality sampling (22-26 August) and analysis
- Ongoing Interim HEC Monitoring and continued procurement activities for Elephant Program Phase II.
- Continued procurement activities for the Wildlife Programs.
- Submission, review and revision of the Final Report for the baseline survey for fish and aquatic species in upstream and downstream rivers (Wildlife Program Element B).
- Revision of the Environment Management Manual for the EMU.

**Monitoring:**

- LTA mission from 18 to 22 September 2006

## 1.1 Staffing NTPC, GOL (EMU, RMU, DWG) and Partners

### ○ NTPC E&SD Staffing

Legend:

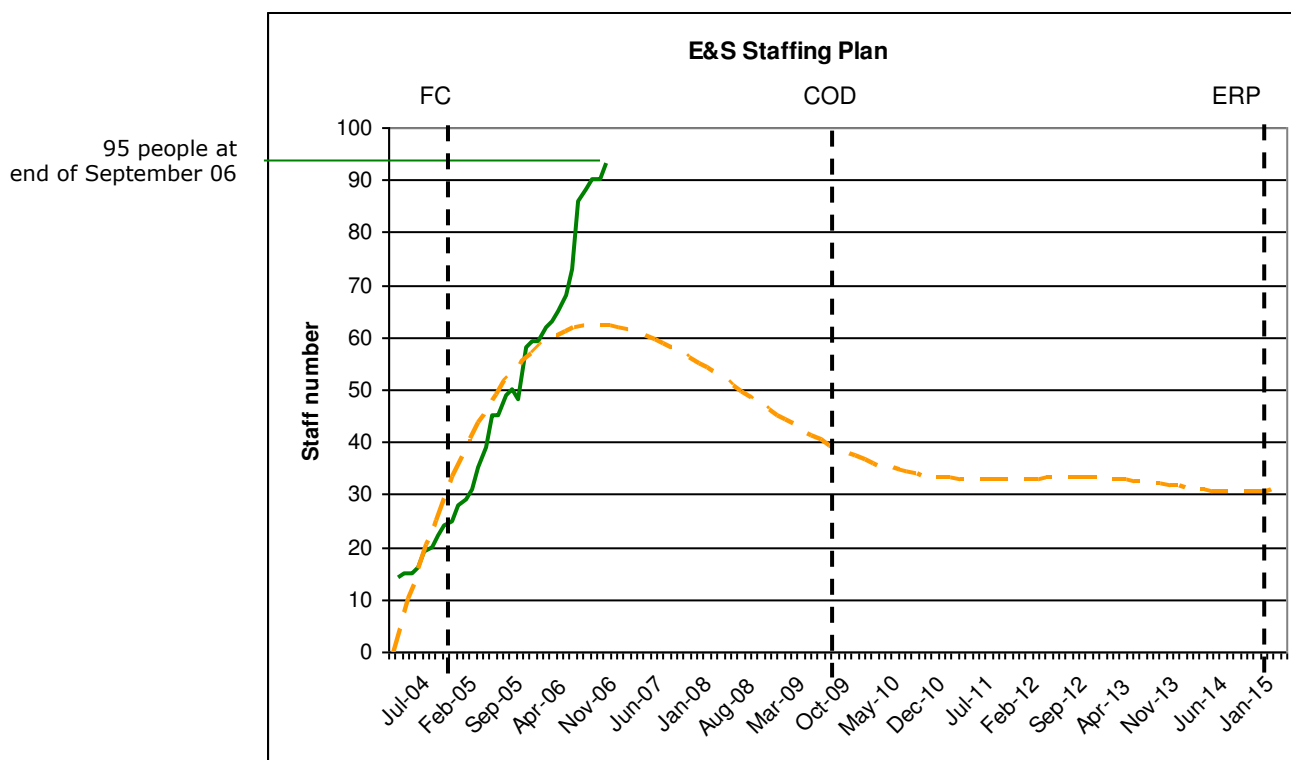
Scheduled staffing plan

Actual staff recruitment

FC = Financial Close

COD = Commercial Operation Date

ERP = End of Resettlement Period



In addition to NTPC staff, individual consultants are working full/part time with NTPC teams

Recruit 2 staff of Livelihood Restoration Officer – Horticulture, Irrigation, Market development (HIM) and Livelihood Restoration Officer – Non Timber Forest Products (NTFP) for Project Land and start on 9 October 2006.

The construction of the Nakai Residential Complex in Oudomsouk for use by the NTPC E&S team is on-going (complex of 54 rooms/studios/apartments and 6 villas).

### ○ EMU Staffing

No change from previous report.

### ○ RMU and DWG Staffing

No change from previous report.

### ○ Partners

No change from previous report.

## 1.2 Unanticipated Project Impacts

No change from previous report.

## 1.3 Additional Plans and PIP updating

- PIP / AIP

No change from previous report.

- Additional Plans

No change from previous report.

## 1.4 Grievance procedure

Work continued to develop District and Village Grievance Committees in the Xe Bangfai, Xaybouli, and Kaysone Districts. This included the distribution of regulations, entitlements, and grievance procedure posters.

Village grievance committees were organized in six new resettlement villages on the Nakai Plateau, including Sop Ma, Nongbouakham, Nongboua, Bouama, Phonsavang, Sop On

Eight new claims in Gnommalat were received, and three new claims for Nakai District. During the upcoming month these claims will be investigated.

## 1.5 Communication

No change from previous report.

## 1.6 Procurement

In September, procurement activities have been mainly, but not only focusing on:

- the procurement process for the construction of the wooden houses for the resettled people of Village Group 2,
- the procurement process for the implementation of the downstream programme,
- the procurement process for the construction of community buildings for VG1
- the procurement process for the construction of roads for areas 1 and 2
- the procurement process for the construction of roads for areas 21 and 22
- the procurement process for the construction of 5 houses for Project Lands
- the procurement process for the Independent Monitoring Agency – Resettlement Nakai Plateau (on behalf of the Government of Lao PDR)
- the procurement process for the development and update of the PIP,

## **Social Activities**

**Physical Cultural Resources, Project Lands,  
Camp Followers**

## 2 Social Activities

### 2.1 Physical Cultural Resources, Project Lands, Camp Followers

#### 2.1.1 Physical and Cultural Surveys & Salvage

Based on the findings of the baseline survey and the impact assessment advice provided by the HC, the PCR items and sites were separated into four PCR plans for (i) movable PCR; (ii) PCR within construction areas; (iii) PCR within the Reservoir; and (iv) PCR along the Xe Bangfai.

##### **Movable PCR Plan**

To date the Institute of Cultural Research (IoCR) has implemented this plan which consisted of a series of consultations and management measures. Management measures included (i) securing PCR in situ; (ii) relocating PCR to the security of the temple; and (iii) improving security at the temples to help prevent the impact of theft.

No special remarks for this reporting period.

##### **PCR within Construction Areas Plan**

To date the Department of Museums and Archaeology (DMA)/IoCR has implemented this plan which also consisted of a series of consultations and management measures. Management measures included (i) appeasement ceremonies; (ii) relocation of PCR; and (iii) redesign of the Project to avoid impacts from construction.

Activities during September 2006 include:

- The DMA have submitted a revised report for the Archaeological Salvage of Land Parcel 1a (Pha Phen) together with an interactive database of the archeological items identified. The report and database are currently under review by NTPC.
- On 17-25 September, the IoCR conducted consultation and appeasement ceremonies at Ban Chachumkong for two stupa sites located within the alignment of the 500 kV Transmission Line. IoCR assisted with the logistical arrangements for the appeasement ceremonies, relocation and construction of the plinths to seat the stupas at their new site.

##### **PCR within the Reservoir Plan**

To date IoCR have completed consultation for all resettlement villages and completed management measures for almost all VG1 PCR sites. Activities included (i) appeasement of spirit sites (ii) identification of new cemetery sites and UXO clearance prior to use; (iii) an appeasement ceremony for old cemetery sites; and (iv) ceremonies for the old temple sites prior to relocation of Buddha images.

Activities during September 2006 include:

- On 16-18 September 2006, the IoCR conducted a consultation and an appeasement ceremony at Ban Nong Boua prior to opening their new cemetery site.
- The plan for providing management measures for VG2 PCR sites is being developed. Villages still requiring management measures include (i) Thalang; (ii) Nakai Tai; (iii) Nakai Neua; and (iv) Ka Oy. Activities will be implemented by IoCR and are scheduled to commence in November 2006.
- UXO clearing activities for the new cemetery sites is still ongoing.

##### **PCR along the Xe Bangfai Plan**

The plan for PCR along the Xe Bangfai will be implemented in coordination with the Downstream Program. One historic site will require an archaeological salvage. Twelve temples located on the banks where surveyed to prioritize monitoring effort and identify any requirement for pre-operations management measures (relocation of infrastructure or bank protection).

Activities during September 2006 include:

- Contract finalized for DMA to conduct an archaeological salvage of the historic kiln site which is located on the banks of the Xe Bangfai. Activities are scheduled to commence on 23 October and will consist of (i) consultation with Ban Mahaxai and Pova Neua; (ii) survey and map both banks to assess the number and distribution of the kilns; (iii) conduct an archaeological investigation of three of the best specimen kilns; and (iv) archaeological salvage of two kilns for transportation back to Vientiane and display in the National Museum, Vientiane.

### **Chance Find PCR**

In addition to baseline PCR there is potential for additional PCR (chance find PCR) to be identified during construction. DMA and IoCR are providing ongoing technical assistance to NTPC to deal with these chance find PCR as and when they are discovered.

Activities during September 2006 include:

- On 23 September 2006 a meeting was held between IoCR, HC/CC, Khamkeut District and relatives of the deceased of a grave site identified within Phonsa-at Solid Waste Disposal Facility. A walk over survey was conducted and HC/CC presented the design and function of the facility. Although the facility had been designed to comply with the family's requests during consultation in August 2006, they did not agree to the proposal. The CC agreed to identify a new site to avoid any further conflict. On 28 September 2006, the IoCR, HC/CC, EMU and Khamkeut District identified a new site and seek approval from DAFO. Previously, on 17 August 2006, IoCR had conducted an appeasement ceremony for the disturbance to date.

On 17-19 September 2006 the IoCR conducted an appeasement ceremony for Nakai Tai territorial spirit site. Previously, on 23-24 August 2006, consultations were held at Ban Nakai Tai in response to concerns over the disturbances to their territorial spirit from road construction activities. Villagers indicated that the road was also impacted on their community forest and not within the agreed project land boundary. The issue was subsequently resolved with Project Lands.

### **PCR Monitoring**

On 12 September 2006, the monthly PCR monitoring was undertaken by the EMO. The PCR monitoring continues to focus on PCR sites located in the vicinity of the Downstream Channel. The following table presents the villages and their PCR included in the PCR monitoring.

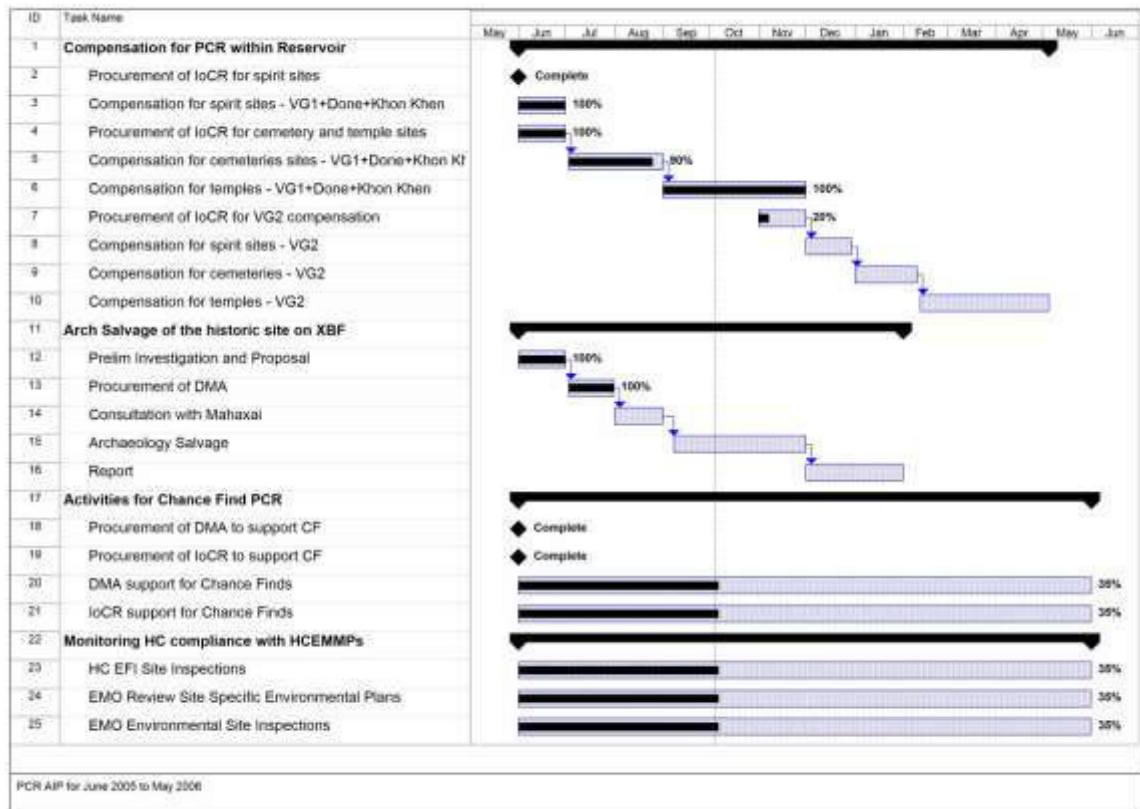
<b>Village</b>	<b>PCR ID</b>	<b>PCR Type</b>	<b>Issue</b>
That	PCR/ADJ/52/5	Historic	No issue
	PCR/ADJ/52/6	Cemetery	No issue
	PCR/ADJ/52/7	Temple	No issue
Phathoung	PCR/ADJ/42/1	Spirit	Concerned about quarry activities impacting the western face of Phou Phathoung

In response to community concerns, on 20 September 2006 IoCR conducted an additional consultation at Ban Phathoung. Villagers indicated that their spirit site was being impacted by quarrying activities encroaching onto the western face of Phou Phathoung. The HC/CC were contacted and requested to provide information. The HC/CC confirmed that (i) the western face of Phathoung would not be directly impacted by quarry activities; (ii) CC will implement management measures to help prevent further rock fall down the western face; and (iii) CC will install an access track to collect fallen rock. This information will be disseminated to the village.

### **Other Activities**

#### **PCR Training**

During their July 2006 mission the WB, although indicating that the Chance Find Procedure appeared to be working well, were concerned at the limited number of archaeological finds and request strengthening of the PCR recognition procedure. In response, on 26-28 September 2006 the DMA conducted PCR training to EMO Inspector, HC/CC Inspector and UXO Clearance personnel. Attendees were provide with booklets and posters to disseminate the information to others

**PCR Schedule:**

*Buddhist ceremonies conducted at the old (left) and new (right) sites for the Ban Chachumkong Stupas which were relocated outside the alignment of the 500 kV Transmission Lines.*

## 2.1.2 Project Lands

### Main events in September:

- Implementation of the livelihood restoration programs continued. UXO clearance for land in Gnommalat to be used in horticulture program was completed. Final preparations for infrastructure development related to frog and pig raising were made. A field day was conducted to increase knowledge and interest in forage / large livestock program.
- Preparations for handover of additional lands to the HC related to LPA 18 and LPA 26a proceeded. PAP assets were surveyed for land associated with DT5a (spoil disposal).
- An ethnic minority specialist began assisting the Project Land team in improving communication with PAPs who are ethnic minorities.
- Land reallocation for 27 PAPs who lost all of their productive land continued in Gnommalat. Clearing of vegetation continued and arrangements for removal of stumps and plowing commenced.

#### ○ Baseline Studies

The collection of baseline study data is complete.

#### ○ Meetings & Consultations

Weekly coordination meetings with the DCWG and RMU continued during the month of September. Meetings were held with the members of the Lender's Technical Advisors' group to discuss progress regarding Project Land activities, including compensation and livelihood development programs.

#### ○ Compensation

Compensation payments have been distributed to PAPs during the month of September according to the table below.

No	Req. No.	LPA #	LPA	No. PAPs	Description	Amount Required (kip)
1	3419	30	DS tunnel portal	3	PAP>10% 1 year production	3,680,000
2	3379	33	Powerhouse	34	PAP>10% 1 year production	71,454,000
3	3418	34	Regulating Pond	166	PAP>10% 1 year production	191,327,000
4	3378	35	Regulating Dam	69	PAP>10% 1 year production	134,993,000
5	3380	36	Residence Nam Theun	18	PAP>10% 1 year production	17,489,000
6	3443	40	Contractor's camp	6	PAP>10% 1 year production	4,711,000
7	3442	42	Phou Phathoung Quarry & access Rd.	5	PAP>10% 1 year production	7,789,000
8	3384	01-a	Phou Pha Phen Quarry	8	PAP>10% 1 year production	23,116,000
9	3383	06-b	Dam site access	2	PAP>10% 1 year production	9,355,000
10	3382	20-a	Intake structure	1	Furniture Factory <i>Final compensation</i>	49,004,000
			<b>Total</b>	<b>312</b>		<b>512,918,000</b>

Additional payment is being prepared for 8 PAPs in response to necessary adjustments in calculation of required compensation which will be distributed in November.

Preparation for October PAP compensation payments, many of which will be final payments began.

Related to compensation payments, preparations for contracting a family finance management trainer began during September. It is expected that the consultant will commence work in October.

Further work was done to prepare additional compensation payments related to transmission line activities in Kaysone, Xaibouli and Xe Bangfai Districts.

Tables are included at the end of this section which include further details of compensation provided to date.

### **Resettlement Actions Plans (RAPs):**

Resettlement Action Plans (RAP): RAPs 1-4 were completed on June 20<sup>th</sup> and posted for review by IFI on the NTPC secure website. Work is on-going to finalize RAP 5.

### **Oudomsouk Urban Planning Resettlement Action Plan:**

Bids from construction companies were received for the 5 Project Lands resettlement houses in Oudomsouk. The award is expected in the first week of October, with construction commencing before the end of October.

### **Livelihood restoration**

Livelihood restoration programs continued during September for PAPs whose livelihood is more than 10% affected by project activities. Contracts for implementation of the various programs have been completed and are currently being implemented. Developments to specific components of the livelihood restoration program during the month of September are described below.

*Rice Improvement:* The rice improvement program started in May 2006, for 146 PAPs, in Gnommalat and Mahaxai Districts, out of the 160 farmers who participated at the training at Thasano Rice Research Station between March 26<sup>th</sup> and April 4<sup>th</sup>. DCWG officers have continued to closely supervise this work. Results from the demonstration fields should be known in the coming month as the fields are harvested.

*Fish cultivation:* No activities during the month of September.

*Rattan and bamboo:* Arrangements for hiring an additional Project Land team member to assist with NTFP components (including rattan and bamboo) of the livelihood restoration program. It is expected that employment will commence in mid-October.

*Orchid cultivation:* Implementation of the contract with the University of Laos for orchid development in Nakai and Gnommalat districts continued during the month of September, with initial activities being concentrated in Nakai District. The project aims to preserve the numerous existing species of orchids available in the Nam Theun 2 project area, as well as to assist interested farmers in understanding the possibilities for commercialization of orchid cultivation.

*Vocational training:* 68 PAPs, 10 of whom were from Oudomsouk, completed non-agricultural vocational training at the Khammouane Vocational Training Center in Thakhek during August. Training was in the areas of tailoring, weaving, electrical works, cooking, accounting, carpentry, and general construction.

*Forage and Livestock:*

The forage plot establishment was completed during September. The month of September was unseasonably dry which necessitated replanting and watering of some areas to assist growth of seedlings and cuttings. In addition to shortage of soil moisture from rainfall, forage seeds were pillaged by ants in many sites. A farmers' field day was conducted on September 30<sup>th</sup> for all participating PAPs at Ban Siang Dao in Gnommalat. This village received some support from CARE during 2004-5 to establish forage plots and farmer's groups. The field day was organized to give participants an opportunity to obtain a better vision of their direction with large animal husbandry and also to learn from the experiences of the host farmers. The PAPs demonstrated a high level of interest in expanding their knowledge and overall were very enthusiastic about the program.

*Frog & pig raising, mushroom cultivation:* Activities in association with the Non-Formal Education Development Centre of Laos continued for mushrooms cultivation, pig and frog raising. 10 PAPs have

been selected and confirmed for mushroom activities, 18 PAPs for pig activities, and 5 PAPs for frog raising activities. PAPs were from Ban Kobong, Sangkeo, Thongmang, Lao, Gnommalat Tai. Detailed designs and bills of quantity for necessary infrastructure were finalized, bids were received and evaluated, resulting in a company being selected for construction of the facilities. It is expected that construction will commence in early October. In the interim some theory training, development of training manuals and procurement of training materials is ongoing.

Horticulture: Preparations for the horticulture portion of the livelihood restoration program continued in Nakai, Gnommalat and Mahaxai districts. Land clearing and ploughing in Gnommalat and Mahaxai will commence following completion of UXO clearance. During September, the Khammouane Province Army was contracted through an amendment to an existing contract for UXO clearance in the replacement land area. This work has been completed during September. Arrangements for hiring an additional Project Land team member to assist with the horticulture program started. It is expected that employment will commence in mid-October.

Replacement land: A land area of approximately 44 ha was identified near Gnommalat earlier this year for redistribution to PAPs which have lost their entire productive land holdings. Land allocation for the 27 PAPs was agreed to and documents were signed by all parties in May. Clearing of vegetation remaining after UXO clearance continued during September by PAPs. Quotations were gathered for mechanical removal of stumps and other large debris, as well as for plowing. Implementation expected to commence in mid-October.

Table: Livelihood Restoration Inputs provided to date

LPA	Location	Option	No. PAPs		Value	
			>10%	<10%	Cash	Kind
30,34,37, 33, 35	B. That	<b>Total :</b>	<b>18</b>	<b>5</b>	<b>5,760,000</b>	<b>34,077,000</b>
		1. Jatropha	3			900,000
		2. Mushroom	1			1,110,000
		3. Pig raising	3			6,450,000
		4. Frog raising	3			5,748,000
		5. Forage& lage animal raising	2			19,869,000
		6. Vocational training	6	5	5,760,000	
33,34,35,3 7,38A, DT1	Nongseng	<b>Total :</b>	<b>42</b>	<b>9</b>	<b>18,080,000</b>	<b>20,234,500</b>
		1. Jatropha	10			3,400,000
		2. Mushroom	1			1,110,000
		3. Pig raising	1			2,150,000
		4. Frog raising	1			1,916,000
		5. Rice plantation	5	4	220,000	8,248,500
		6. Rattan	6		1,200,000	3,410,000
		7. Vocational training	18	5	16,660,000	
33,34, 35, 36,37, 38a, DT1	Keovilay	<b>Total :</b>	<b>26</b>	<b>1</b>	<b>1,660,000</b>	<b>29,213,000</b>
		1. Mushroom	2			2,220,000
		2. Pig raising	1			2,150,000
		3. Frog raising	1			1,916,000
		4. Rice plantation	13	1	220,000	8,431,000
		5. Rattan	6		1,440,000	1,250,000
		6. Forage	1			13,246,000
		8. Horticulture	2			
33,34,35,3 6,37, 38a, 38b, DT1, DT2	Ban Lao	<b>Total :</b>	<b>54</b>	<b>3</b>	<b>7,120,000</b>	<b>34,259,000</b>
		1. Jatropha	24			1,300,000
		2. Mushroom	2			2,220,000
		3. Pig raising	3			6,450,000
		4. Frog raising	1			1,916,000
		5. Rice plantation	9	1	220,000	6,511,000
		6. Rattan	4		960,000	2,616,000
		7. Forage	1			13,246,000
		8. Vocational training	8	2	5,940,000	
		9. Horticulture	2			
34,35,38a, DT2, DT3, DT4	Nalatkuay	<b>Total :</b>	<b>31</b>	<b>12</b>	<b>1,340,000</b>	<b>84,122,000</b>
		1. Mushroom	1			1,110,000
		2. Pig raising	6			12,900,000
		3. Frog raising	1			1,916,000
		4. Rice plantation	17	9	440,000	23,991,000
		5. Fish farming	6	3	900,000	44,205,000
38a, 38b, 51, DT7, DT10, DT13	Gnommalath Tai	<b>Total :</b>	<b>36</b>	<b>29</b>	<b>11,080,000</b>	<b>57,914,500</b>
		1. Jatropha	8			800,000
		2. Mushroom	3			1,110,000
		3. Pig raising	4			8,600,000
		4. Frog raising	1			1,916,000
		5. Rice plantation	4	18	220,000	21,165,000
		6. Rattan	1			200,000
		7. Forage	1			13,246,000
		8. Vocational training	4	11	10,860,000	
		9. Orchid	10			10,877,500
	<b>Nakai District</b>					
	<b>Oudomsouk</b>	<b>Total :</b>	<b>20</b>	<b>0</b>	<b>6,310,000</b>	<b>10,877,500</b>
18		1. Vocational training	10		6,310,000	
		2. Orchid	10			10,877,500
	<b>Mahaxay District</b>		<b>1</b>	<b>175</b>	<b>1,320,000</b>	<b>61,592,500</b>
	Mahaxay tai	Rice plantation		15	220,000	15,908,500
	Phoxaynua	Rice plantation		20	220,000	1,408,000
57	Phonsa at	Rice plantation		6	220,000	8,730,000
		Jatropha		21		1,250,000
57	Nadu	Rice plantation		7	220,000	19,820,000
57	Banlao	Rice plantation		6	220,000	9,629,000
	Phovanua	Rice plantation		11	220,000	1,597,000
38d	B.Kengsavang	Horticulture	1	4	-	-
57	Phachoumkong	Jatropha		25		1,000,000
57	Lak 9	Jatropha		20		1,000,000
57	Lak 7	Jatropha		40		1,250,000
	<b>Big Total</b>		<b>228</b>	<b>234</b>	<b>52,670,000</b>	<b>332,290,000</b>

- Handover of lands to Head Contractor

*Access to land in LPA 18*

Preparations for handing over additional land for construction of the Saddle Dam 12B in Oudomsouk were made during September. This will require removal of four houses and other minor assets. Calculation of moving allowance for these families was started and payment will be provided no later than 6<sup>th</sup> Oct, to ensure access to the land by the HC on 16<sup>th</sup> Oct.

*Access to land in LPA 26a*

Preparations for handing over additional land for construction of the intake structure / headrace channel were finalized. The land was occupied by the Dok Mai Pek Drinking Water Factory. Calculations for moving allowance started and payment will be made before 6<sup>th</sup> Oct. The Nakai District government decision allowing only moving allowance and not full replacement of this structure, built after the 2003 deadline. It is expected that the land will be handed over to the HC on 1<sup>st</sup> November.

*Access to land for DT5a (spoil deposit)*

PAP assets were compiled during September and assessment of compensation entitlements started. Compensation depends on separation into which PAPs are impacted greater than and less than 10% of their productive land assets. Impacts from DT5a will necessitate some PAPs being transferred from the <10% category to > 10% category as they have already been impacted by in other LPAs.

- Other

*UXO Clearance*

Identification of additional sites that require UXO clearance for livelihood development programs and Project Land compensation commenced. It is expected that work will begin in October. The UXO clearance contractor, PCL, will be paid based on a daily rate due to the fragmented parcels of land and current land use.

*Community Infrastructure*

Discussions were held between the Project Land team and villages which may experience domestic water shortages (dry wells) during the coming dry season commenced. Surveys are expected to be conducted in October to determine the number and location of improved water sources. A combination of deep boreholes with hand pumps and concrete-lined shallow wells will be employed.

*Ethnic minority specialist*

During the month of September the Project Land team received the assistance of an ethnic minority specialist to assist with communication with Makong minority groups in the Gnommalat region, specifically Ban Sangkeo, Thongmang, Gnommalat Neua, Gnommalat Tai and Ban Laonangam.

*Safety issues*

The Project Land team continued to work closely with the NTPC Safety Consultant to prepare supporting documents and pictures, as recommended by the consultant, for placement in local schools and markets. The Project Land team also visited several of the construction sites with the consultant during September.

Four guards were assigned to LPAs 33, 35, 38a (upper and lower). Additionally, four representatives from each village were selected to conduct daily surveillance of the areas and to supervise each guard in their village. Ban Keovilay is responsible for LPA 33, 35, Ban Nongseng for LPA 38a (upper) and Ban Lao for 38a (lower).

*Summary of Transitional Assistance*

Name of village	TT PAP>50	Comp. PAP	TT days	TT amount(Kip)
Keovilay	51	40	307	7,675,000
Nongseng	19	18	208	5,200,000
Lao	29	26	220	5,500,000
Thathod	2	0	0	-
Phonlatkuay	25	16	139	3,475,000
Thongmang	13	1	14	350,000
Watthat	6	6	78	1,950,000
Gnommalatneua	1	0	0	-
Gnommalat Tai	10	0	0	-
Namixay	1	0	0	-
Mahaxay	2	0	0	-
Nakai	2	0	0	-
<b>Total :</b>	<b>161</b>	<b>107</b>	<b>966</b>	<b>24,150,000</b>

*Compensation along the 115 & 500kV transmission lines*

LPA	Location	# PAPs	Amounts paid	in progress	Remark
52	Gnommalath				115&500 KV parallel
	Mahasay				
53	Gnommalath				115KV
	Mahasay				
54	Gnommalath				500 KV
	Mahasay				
	Xebangfai	59	37,835,576 kip	8,948,020 kip	
	Xaybouly	186	123,316,000 kip	85,646,000 kip	
	KaysonePhomvihanh	57		42,426,000 kip	
55	Gnommalath				Access to 500 KV
	Mahasay				
	Xebangfai	1		475,000 kip	
	Xaybouly	4		600,000 kip	
	KaysonePhomvihanh				
	<b>Total</b>	<b>307</b>	<b>161,151,576 kip</b>	<b>138,095,020 kip</b>	

Pictures of September Activities / Developments for Project Lands



RMU, DCWG, PAP and NTPC PL Team meeting



Compensation money being prepared



Guard along Downstream Channel



New temporary pass-through for Downstream Channel



Replacement land being cleared in Gnommalat



Replacement land being cleared in Gnommalat by >10% PAPs

### 2.1.3 Camp Followers

- Population Management: Monitoring of labor and population movement:

This activity is placed under direct control of RMU since January 2006.

- Human Trafficking Control

This activity is placed under direct control of RMU since January 2006.

- Infrastructure Development

No changes from previous report.

- Public Health

#### STIs and its control:

No changes from previous report.

#### Water Quality monitoring of domestic water supply:

Ever since the NTPC work started in the area, the number of restaurants has been steadily rising. Table below shows the latest available data we have. The quality of water supply in the restaurants has been a priority for health program as the water used for washing hands and food items like vegetables and other items and dirty dish washing is all done by the water obtained from shallow wells behind each restaurants. These shallow wells are often contaminated by the toilets which are situated rather close to the wells, again behind the restaurants and other contaminated water seeping or flowing into the wells.

Ideally these restaurants should have access to clean water supplied by local municipal authorities either by piped water supply or by the deep bore well pumps. This is not the case in any one of the project areas.

Until such time that the clean water supply is made available to these areas, HPMU started interim plan to improve the hygiene of the restaurants. Two main initiatives have been put in place:

1. Tap water for hand washing facility in each restaurant
2. Chlorination of the water used from shallow well for cleaning purposes

Common practice has been to wash hand in a common basin kept at the entrance of the restaurant and water changed periodically, a practice totally unhygienic. A major education and awareness campaign preceded this program in the districts and now people understand the significance of this program.

The tap water for **washing hands** is encouraged by the HPMU in each restaurant and half of the cost, with a maximum of 200,000 Kip is reimbursed (Camp followers budget). A number of restaurants have complied and District Health Offices are encouraging the remaining restaurants to follow the suit. See Table below.

#### **Hand Washing Facilities by Districts:**

No	District	Total No of restaurants	Using tapped basin for washing hands	Sept 06 Activity	Remarks
1	Mahaxai	6	1	1	Camp followers budget
2	Gnommalat	30	20	0	
3	Nakai	16	5	0	
4	Khamkeut	15	5	0	
<b>Total</b>		<b>67</b>	<b>31</b>	<b>1</b>	

The **chlorination** of the shallow wells is the next step. The district health officers responsible for environmental health are encouraging all restaurants to chlorinate water at regular intervals and this is also done in a participatory manner. The cost of chlorination is shared by the restaurant and the project to make water used for washing and cleaning kitchen items safe and hygienic.

**Chlorination of Shallow Well Water by Districts:**

No	District	Total No of restaurants	Chlorinating Water in Restaurants – Sept 06	Chlorinating Water in Households
1	Mahaxai	6		In Plan for Oct 06
2	Gnommalat	30	15	
3	Nakai	16	2	
4	Khamkeut	15		
<b>Total</b>		<b>67</b>	<b>17</b>	

In addition to restaurants, household are also encouraged to chlorinate their shallow well water for domestic use. At present water is chlorinated at the storage point and not the well itself.

At present chlorine is purchased from Vientiane and this is expensive, cumbersome and time consuming. The Provincial Health plans to install a machine on the premises to produce chlorine locally. This will enable prompt supply and ease the distribution, at the same time making the program cost efficient. The purchase of the machine has been approved under the Camp Followers budget.

**Water Supply**

Under water supply budget, the water supply for a number of health centers and the new District Hospital in Gnommalat are planned. Following table summarizes the numbers and progress to date.

**Number of Bore Well Water Supply by Districts**

No.	District	Bore Wells	Sites
1	Mahaxai	1	1. Nadou Health Center – under construction
2	Gnommalat	3	1. District Hospital 2. Nasok Health Center 3. Khetphid Health Center
3	Nakai	***	1. Many for each resettlement village under the infrastructure development plan.
4	Khamkeut	1	1. Kaeng Deng Health Center - completed

\*\*\* Detailed progress of infrastructure plans for Nakai (resettlement plans) from Infrastructure team

**Monitoring of the quality of water from the shallow wells**

Monitoring of water from shallow wells is carried out at monthly intervals by the E&S's Environment Division. Sentinel sites have been selected in Nakai and Gnommalat for this purpose. (5 from Nakai and 10 from GMLT)

Repeated checks have demonstrated that the water is contaminated showing presence of high levels of E.coli. E coli counts keep fluctuating depending on the seasons, higher in the rainy season. See Annex 1.

- Traffic Safety and Regulations

Development of regulations / Review and strengthening of regulations: No changes from previous report.

Road Safety: No changes from previous report.

- Social Security and capacity building for local agencies

Support and technical assistance for District Police Offices:

Establish inter-sectoral Task Force on Population management and security: No changes from previous report

.

# **Social Activities**

## **Health Programs**

## 2.2 Public Health Regional and Resettlement Programs

Following major activities were undertaken during September 2006:

### Upgrading health infrastructure:

- Boreholes in Kengdaeng and Nadou HCs are under construction.

### Equipment:

- Two fax machines were provided to Nakai and Mahaxai DHOs and one printer for Khammouane PHO

### Training, capacity building:

- Long-term training for X-ray and Ultrasound in Vientiane for Gnommalat and Khamkeut District Hospitals during July to September 2006 is completed.
- One-month training on Maternal and Child Health in Vientiane for Kengdaeng Health Center staff will be completed on 5<sup>th</sup> October 2006.
- STIs training program for private pharmacies in Khamkeut on 13-14 September 2006.
- Peer educator training on STIs prevention among youth group in Khamkeut and in Mahaxai on 13-16 Sep 2006 and 25-28 Sep 2006 respectively.
- Soya milk production training for five villages in Nakai on 13-14 September 2006.
- Presentation of the NTPC's Health Program during the MOH 5-Year Review and Planning Workshop of the Khammouane PHO on 8-9 Sep 2006.
- Monthly meetings were held in four districts and Khammouane PHO on 28<sup>th</sup> September to 3<sup>rd</sup> October 2006.

### Health Education Program:

- HIV/AIDS awareness program was conducted during boat racing festival in Nakai on 30 September and 1 October 2006.
- Awareness raising on health issues during outreach activities and MCH clinic.

### Supervision:

- Routine supervision of the health center staff's activities was conducted during the month
- Monthly MCH clinics were conducted in six villages in Nakai resettlement areas, namely Nongboua, Sop On, Bouama, Sop Phene, Phonsavang and SopMa.
- Family files of the villages in Gnommalat, Mahaxai, Khamkeut and Nakai have been prepared and computerized prior to setting up MCH clinics.
- Supervisory visit to the resettlement villages in Nakai and other villages in Mahaxai and Gnommalat.

### Resettlement Program:

- Logistic arrangement for conducting health checks and survey in Sop On Village in early October 2006.
- English and Lao report on Nongboua health checks and survey has been completed and distributed. It has been posted also in the NTPC E&S library.
- Monthly MCH clinics have been conducted in six villages. The MCH clinics will be extended in four new villages in October 2006.

### Other activities

- Two patients were referred from resettlement villages to provincial hospital for treatment during the month under Equity Fund.

- An interest group for women has been set up for soya milk production in six villages to promote child nutrition linked to MCH clinics. This program will also serve as an income generation for villagers involved in making the soya milk.

Abbreviations used in this section:

DCD	District Community Development
DH	District Hospital
DHO	District Health Office
HC	Health Center
HPMD	Health Properties Management Division
HPMU	Health Program Management Unit
ICHC	Integrated Community Health Center
IFMT	Institut Francophone pour la Medecine Tropicale
MCH	Maternal and Child Health
MOH	Ministry of Health
NCCAB	National Committee for Control of AIDS Bureau
ORPP	Outbreak Response Preparedness Plan
PH	Provincial Hospital
PHO	Provincial Health Office
TMRC	Traditional Medicine Research Center
UNPFA	United Nations Population Fund
VHC	Village Health Committee
VHV	Village Health Volunteers
WHO	World Health Organization

<b>Public Health Infrastructure &amp; Equipment, vehicles</b>			
<b>Buildings</b>	Progress during the month	Progress to date	
Consultancy services for preparation of bidding document		100%	Delayed consultancy with Ministry of Health leading to delayed start infrastructure programs
Khammouane Provincial Hospital		100%	Only refurbishment of emergency ward. The balance according to hospital needs is transferred to medical equipment and ambulance
District Hospital	5%	50%	<p>Refurbishment works in Nakai, Mahaxai and Khamkeut hospitals have been completed in July 2006.</p> <p>Renovation works of the roof for the Khamkeut District hospital are behind the schedule because lateness in providing roof sheets.</p> <p>District Hospital new construction will start in October and likely to be completed before next rainy season. Initial expenses are for land clearance and transformer for GMLT DH.</p>
Health Center	0%	50%	<p>Refurbishment work for Nadou and Kengdaeng Health Centers have been completed in July 2006. Khetphid and Nasok HCs and Nongbouakham Integrated Community Health Center (IHC) - in Resettlement Health Program - new construction will start in October. (Note: Two additional IHCs belonging to health program are under Infrastructure budget)</p> <p>Boreholes in Kengdaeng and Nadou HCs are under construction.</p>
Infrastructure maintenance			Most of the infrastructure maintenance will be required after 2008 onwards.

Medical & Other Equipment	Monthly Progress	Progress to date	
<b>Medical and Lab Equipment</b>			
Consultancy for preparation of bidding document		100%	Delayed consultancy with Ministry of Health leading to delayed procurement program
Medical Equipment (KMN Provincial Hospital, 4 District Hospitals and 6 Health Centers)	3%		Lot II items have been distributed to 4 district hospitals (DHS)
			Lot I, III and IV being shipped to Laos by successful bidder. Expected to arrive in 2-3 months (includes big items like X-Ray and Ultrasound), for 4 DHS and KMN PH
			In addition, some biochemistry and laboratory equipment is on order as well. Further supply of medical equipment will be assessed according to need after completion of the construction work.
Ambulance Equipment and other sur-charges		90%	All ambulances have been installed with the emergency equipment. Provincial hospital ambulance equipment awaits arrival of the ambulance.
STIs Program	2%		Develop STI services at provincial and district levels, including introductory workshops and drug revolving funds for STI Program. (This item originally was budgeted under medical equipment hence in this section)
<b>Non-Medical Equipment</b>			
Photocopier	0%	100%	One for each DHO and the Khammouane PHO
Computers & printers			Two sets to each district health office and two sets to Khammouane Provincial Health Office. One printer for PHO in September 2006
Audio-visual equipment (television and DVD player)			One set of television and DVD player to district health offices and health centers for health education program. Additional BCC equipment will be provided in 2006-07
Fridge, water cooler, LCD projector, fax and other items			One set to each district health office and district hospital and a fridge to Khammouane Provincial Health Office. Two fax machines for Nakai and Mahaxai DHOs in September 2006
Hospital beds (Khamkeut)			30 steel beds with mattresses to Khamkeut District Hospital
Hospital furniture (KMN Provincial Hospital, 4 District Hospitals and 6 HCs)			Hospital furniture will be provided according to the need after completion of refurbishments and new construction work
Bed Nets, including impregnation	0%	30%	2,875 nets for 21 villages of Mahaxai, 3,011 nets for 35 villages of Gnommalat, 3,234 nets for 15 villages of Nakai and 2,364 nets for 15 villages of Khamkeut. Nets will be supplied regularly during the life of the project. Vector control measures/equipment will be provided according to need. Total: 11,500 bednets and 22,710 tablets of Supatab
Other package non-medical equipment			Other package of non-medical equipment will be provided according to the need after completion of refurbishment and new construction work
Road safety communication			This money will be spent in conjunction with overall road safety program in NTPC project areas.
<b>Vehicles</b>			
Motorbikes	0%	70%	12 motorbikes (6 from project and 6 donated by NTPC) distributed to DHOs and HCs. Plans of replacement mid project.
4WD Pickups	0%	80%	Four 4WD pickups procured and distributed one each to Nakai, Mahaxai, Gnommalat Districts and one to Khammouane Provincial Health Office. Vehicle use policy has been developed in conjunction with the GOL for exclusive use of health work.
Ambulances	25%	-19%	Two ambulances have been handed over to Khamkeut and Gnommalat Districts. The third ambulance arrived and was handed over to Nakai district on 9 <sup>th</sup> August. Forth ambulance was ordered after a request from Provincial Hospital for replacement of the old one. Expected to arrive by mid-September 2006.

Public Health Program - including awareness programmes			
Supplies - Drugs, kits, forms and manuals.	Monthly Progress	Progress to date	
<b>Drug and Medical Supply</b>			
KMN Provincial Hospital		38%	Drug revolving fund for emergency is ongoing and is supervised regularly.
District Hospital		83%	Drug revolving fund for four districts is ongoing and is supervised regularly
Health Center		79%	Drug revolving fund for four health centers is ongoing and is supervised regularly
Community level (Village Drug Revolving Fund)		41%	Drug revolving fund for 68 villages is ongoing and is supervised regularly.
Community level (TBA kits)		67%	Traditional Birth Attendant kits to 96 trained TBAs is ongoing and is supervised regularly
<b>Office and Vehicle Operating cost</b>			Operating costs have been transferred to 4 DHs/DHOs and KMN PH/PHO 2 time per year, including health centers.
KMN PH/PHO			Progress in percentage will be more realistically calculated at quarterly intervals
DHs/DHOs			Progress in percentage will be more realistically calculated at quarterly intervals
HCS			Progress in percentage will be more realistically calculated at quarterly intervals
<b>Others (training materials, printing forms, etc. ...)</b>			Including BCC materials / Obstetric registers in print 2007 calendar as health education materials – under prep.
Health Education and Awareness Program	Monthly Progress	Progress to date	
STIs including HIV/AIDS	10%		Apart from regular health education program in health facilities, special health education and awareness activities are organized on special events such as World AIDS Day and boat racing festival.
			Substantial numbers of people from the community attend these public events - 23 public event sessions were held in four districts and in Thakhek since September 2005 to date.
			Separate session was held for, GOL, NTPC and RMU staff
			Special focus was also given to construction contract staff during the new house construction in the resettlement areas.
			Introductory Workshop; Orientation Workshop; Preliminary interview and medical checks up of service women and setting up STI services in four districts
			Peer education training program – Youth group in Khamkeut & Mahaxai on 13-16 Sep 2006 and 25-28 Sep 2006 respectively. Peer education training program – High School student plans for the end of 2006.
			Special health education and awareness activities are organized on boat racing festival in MHX on 22-23 Aug and in Nakai 30 Sep to 1 Oct 2006.
Operating cost for PCCA/DCCA	2%		To date: 100 sessions and 15,673 participants
Relocation/medicinal plants			PCCA and DCCAs are responsible for carrying out education and awareness activities in the area of STIs including HIV/AIDS. Their capacity is limited but slowly improving. It is important to support them in this program for sustainability.
Consultancy fees (road safety, PHC, psychosocial, etc.)			Initial work was carried out. Further studies will be carried out in conjunction with National Traditional Medicinal Research Center (TMRC) after resettle population move into their permanent housing. TMRC team was invited by HPMU to jointly explore livelihood aspects of medicinal plants and further continuation of study on Nakai Plateau Plants and Practices. Joint meetings were held with the Community Development, Forestry, Agriculture and local health officers. A number of visits were made to resettlement villages and the experimental farms. Report is awaited from TMRC.
			This money will be spent in conjunction with overall road safety program in NTPC project areas.

<b>Strengthening Human Resource in Public Health</b>			
<b>Supervision and Monitoring</b>	Progress during the month	Progress to date	
Incentive			Incentive were distributed two times to provincial, district and health center in all project target areas, while only one time were provided to village health workers since they were trained in the past few months. Discussions are being held to find ways to link these incentives in future to performance. The third incentive program plans for the end of 2006.
Field visits for supervision and support			<p>Resettlement Health Program - bi-weekly visits to all resettlement sites for review of environmental and health situations, including emergency care for any patients.</p> <p>Regional Health Program - through integrated outreach program consisting of health center, district health, provincial health and HPMU staff visiting health centers and villages.</p>
Integrated Outreach Program			<p>Integrated outreach work consist of more comprehensive health education and awareness on a number of health topics such as maternal and child health, STIs including HIV/AIDS, malaria, diarrhea, respiratory infections, hygiene and sanitation, road safety</p> <p>To date: 253 sessions and 15,866 participants</p>
Strengthening Health Service Delivery	10%		<p>Regular review of service delivery to district hospitals and health centers by district health staff.</p> <p>Referral system for emergency patients has been developed and is linked to quarterly review and training program.</p> <p>Emergency obstetric care referral system is also developed and will be reviewed quarterly</p> <p>Maternal and Child Health service is being organized at monthly intervals for resettled populations. This will be followed by all health centers in their respective villages.</p> <p>Monthly MCH clinics were conducted in six villages in Nakai resettlement areas, namely Nongboua, Sop On, Bouama, Sop Phene, Phonsavang and SopMa. Family files of the villages in Gnommalat, Mahaxai, Khamkeut and Nakai have been prepared and computerized prior to setting up MCH clinics.</p>

Training	Progress during the month	Progress to date	
Community level	%		<p>Seven TBA training sessions (96 participants), seven VHV training sessions (101 participants) and seven VHC training sessions (66 participants). Periodical training and refresher program will continue throughout the life of the project.</p> <p>Soya milk production training for five villages in Nakai on 13-14 September 2006.</p> <p>STIs training program for private pharmacies in Khamkeut on 13-14 Sep 2006.</p> <p>To date: 17 sessions and 301 participants</p>
Health Center, District and Provincial levels	%		<p>Five training sessions including three TOT (MCH, STI, TBA and peer educator) (102 participants)</p> <p>Training sessions for all level of health workers will be repeated at periodical intervals depending on the subject matter.</p> <p>Laboratory services training is planned for June-July 2006</p> <p>STI Program - Peer educator training in 4 districts</p> <p>Referral system training program will be conducted mid Oct 2006.</p> <p>To date: Eight sessions and 128 participants</p>
Long Term	%		<p>Two long term training session, namely emergency medicine and ICHC of three months (9 participants) and one month (two participants) respectively.</p> <p>Another 3-month course for Khamkeut District .....</p> <p>Long term training for X-Ray and Ultrasound in Vientiane for Gnommalat and Khamkeut District Hospitals during July to September 2006 is completed.</p> <p>One-month training on Maternal and Child Health in Vientiane for Kengdaeng Health Center staff will be completed on 5<sup>th</sup> October 2006.</p> <p>To date: Five sessions and 14 participants</p>
Study Tours		90%	<p>All district hospital and health center staff were taken for study tours to Integrated Community Health Center (ICHC) in Vangvieng and Taleo (59 participants)</p> <p>To date: Four trips and 61 participants</p>
Workshop on how to identify psychosocial/drug abuse problems			<p>It requires different methodology to assess the situation. The focus group discussions in future will reflect on this social problem if it exists in the communities</p>
On the job training			<p>This activity is incorporated with on the job training during supervision and support.</p> <p>TOT course on peer education in Thalad</p> <p>STI training program – treatment and lab for KK, GMLT and MHX DH staff</p> <p>Biochemistry training for Khamkeut and Khammouane PH</p> <p>To date: Six sessions and 28 participants</p>

Meetings	Progress during the month	Progress to date	Monthly meetings are held in each district and Khammouane Provincial Health Office. These meetings provide an opportunity for educational updates on conceptual and methodological aspect of health service delivery along with the achievements and future plan
Create Outbreak Detection and Response Preparedness Unit		100%	Implementation of the National Avian Influenza awareness program in conjunction with the provinces (Khammouane, Bolikhamxay and Savannakhet) To date: Two meetings and 35 participants
Meetings at provincial and district levels			Regular meetings at provincial and district levels To date: 64 meetings and 1,056 participants
Quarterly meeting at HC (VHVs, HCs)			Plans to start in the next quarter
Health education materials and activities - design and production	2%		Support under health education program for all health facilities in the project areas. Number of IEC materials have been developed/ copied and distributed to district, health center and villages like posters, VCDs and DVDs.
Develop the procedures for the referral system			Referral system methodology to be developed and training conducted in Jun-Jul 06
Zonal Health Committee Meeting (4 x per year for each ICHC; and for DH)			It will be implemented once the ICHC is in place
Adapt ICHC accounting and management system			New system will not be introduced. Instead, GOL system similar to other areas in the province will be implemented

<b>Public Health Monitoring and Surveillance</b>	<b>Progress during the month</b>	<b>Progress to date</b>	
Task force meeting			To be redefined as the present definition is difficult to define.
Routine data collection/HIS			Routine data collection and collation. (Note: considerable backlog to be completed)
Outbreak Response Preparedness		100%	Report published and distributed in English.
Outbreak Response Operational		10%	Translation of English report and distribution, followed by training workshops.
Scientific support			Scientific support and areas of support are being redefined. Possibility of getting assistance from additional sources.
Existing data analysis 2004		100%	Completed
Midterm survey	0%		Will be carried out in 2008-09, with planning starting in mid-2008
Special surveys	5%		One Health checks and survey in Nongboua Village. Others will be carried out in the new resettled villages after 100% completely moved. English and Lao report on Nongboua health checks and survey has been completed and distributed. It has been posted also in the NTPC E&S library. Logistic arrangement for conducting health checks and survey in Sop On Village in early October 2006.
Monthly MCH clinics			<p>Monthly MCH clinic for Nongboua and Sop On villages are regularized now.</p> <p>The monthly MCH clinics will be extended to the regional health program. Health center staff are being trained to conduct this activity at monthly interval in all villages.</p> <p>Monthly MCH clinics were conducted in six villages in Nakai resettlement areas, namely Nongboua, Sop On, Bouama, Sop Phene, Phonsavang and SopMa. Family files of the villages in Gnommalat, Mahaxai, Khamkeut and Nakai have been prepared and computerized prior to setting up MCH clinics.</p>

<b>Equity Fund</b>	<b>Progress during the month</b>	<b>Progress to date</b>	
5% of total budget			<p>With the fast track resettlement program in operation, there has been an increasing need for emergency provision for individuals. To date six individuals have been referred and paid for treatment in Provincial hospital Thakhek.</p> <p>To date: Eight cases were referred to Khammouane PH</p>

# **Social Activities**

## **Nakai Plateau Resettlement**

## 2.3 Nakai Plateau Resettlement

### 2.3.1 General

**Following completion of Transitional resettlement** of the first eight villages was in August – villagers continued to consolidate in their new locations. Clearing of plots and participation in the construction of new permanent houses continued throughout the month. Participation in the construction of villages based agricultural extension offices has also been good.

Rice and protein distribution programmes as described in previous reports is continuing, as are bi-weekly health checks.

The challenge now is to keep the transition resettlers busy by continuing to provide a variety of livelihood opportunities.

The arrival of two new expatriate extension workers has significantly boosted the capacity of the livelihood team to focus not only on the immediate opportunities provided by the overall plateau development, but also on the long term sustainability of agricultural livelihoods for resettlers.



There was a short break in the rain during September but access around the plateau remains difficult.

Construction of village based agricultural extension and demonstration areas was completed during September, with the main centers being at new Sop Hia (Area 8a) and Sop On (Area 19).

Construction of permanent housing progressed well in Boua Ma, Phonsavang and Sop On.

At the end of September 2006, the new villages of Sop On, Phonsavang, Boua Ma, Sop Ma, Sop Hia/Nam Nian (first group), Sop Phene and Sop Ma have been established with all villagers living in their new locations. All of the 142 households of Ban Done, and all of the 52 households of Khone Kaen, are engaged in the clearing of house plots, after having built and relocated to temporary houses on their new plots. Access to Khone Khen and Ban Done remains by 4WD truck only.

VFA timber for housing.



**Transitional Livelihoods:**

Currently 100% of agricultural plots have been cleared at new Sop On, 100% at new Phonsavang, and 20% at new Boua Ma. All the agricultural plots of the 8 Keng Yao families that moved to the Pilot Village have been cleared. These plots are currently planned with upland rice.



A short break in the rain mid-September enabled road contractors to make limited progress

Training and assistance in home gardens is on-going and most transition resettlers have productive gardens for home consumption and trade.

The opportunity to supply labor for work associated with UXO clearance and village construction is provided to all villages, in addition to food support in the case of transition resettlers.

There remains a full time presence of NTPC and District supervisors and community facilitators in each village.

Ban Done – access roads  
have boosted trading  
opportunities.



Most NAKAI activity has now shifted focus from implementation of Transition Relocation to planning and implementation of sustainable livelihood models.

Two schedules are presented in the following pages:

The first schedule shows the phases of resettlement for the various villages listed in order of potential impact by cofferdam and main dam

The second schedule shows progress of the respective tasks associated with resettlement of the same villages.

			statistical impact in 2006 (cofferdam)		statistical impact in 2007 (part. dam)				2006				2007				2008					
number	village name	hh # (2006)	10%	1%	10%	1%	new area	New area code	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4		
8	Ban Hat Khamphane	23	3	3	3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed		Flood impact by dam partly built	Reservoir impounding						
9	Ban Sop Ma	23	3	3	3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed									
10	Ban Keng Gnao	20	3	3	3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed									
10	Ban Keng Gnao	8	3	3	3	3	16	N2	preparation of transitional phase	transitional phase			relocation completed									
13	Ban Sop On	104	3	3	3	3	19	N3	preparation of transitional phase	transitional phase			relocation completed									
14	Ban Done	142	3	3	3	3	21	N4	preparation of transitional phase	transitional phase			relocation							completed		
15	Ban Khone Khen	52	3	3	3	3	22	N5	preparation of transitional phase	transitional phase			relocation							completed		
5	Ban Sop Phene	56	2	3	3	3	11	N6	preparation of transitional phase	transitional phase			relocation completed									
11	Bouama	74	2	3	3	3	17	N7	preparation of transitional phase	transitional phase			relocation completed									
12	Ban Phonsavang	41	1	3	3	3	18	N8	preparation of transitional phase	transitional phase			relocation completed									
1	Ban Sop Hia	34	1	2	3	3	xx	Nx	relocation of lower hh on upper part of the old village	preparation of transitional phase		transitional phase		relocation						completed		
1	Ban Sop Hia (first group)	30	1	2	3	3	8a	N9		transitional phase			relocation completed									
	Ban Nam Nian (first group)	6	0	0	3	3	8a	N9		transitional phase			relocation completed									
4	Ban Nong Boua Kham	57	1	2	1	2	9	N10		preparation of transitional phase	transitional phase		relocation completed									
3	Ban Thalang	79	0	1	1	2	13	N11			preparation of transitional phase	transitional phase		relocation		completed						
6	Ban Nakai Neua	88	0	1	1	2	1	N12			preparation of transitional phase	transitional phase		relocation		completed						
2	Ban Nam Nian	30	0	0	3	3	xx	Nx			preparation of transitional phase	transitional phase		relocation		completed						
7	Ban Nakai Tai	179	0	0	1	2	2	N13			preparation of transitional phase	transitional phase		relocation		completed						
16	Ka Oy	10	0	0	0	0	19	N3				preparation of transitional phase		transitional phase		relocation completed						
16	Ka Oy	15	0	0	0	0	21	N4				preparation of transitional phase		transitional phase		relocation completed						
17	Ban Oudomsouk / Phon Phan	103+56	0	0	0	1		N14				preparation of transitional phase		transitional phase		relocation completed						

Page 39 / 80

### 2.3.2 Infrastructure

Wet season rainfall continued in September and the three road construction contractors made minimum progress during the month. Timber house construction has continued and the UXO contractor made good progress despite the rains.

#### ○ Topographic survey and mapping of indicative locations

The contract for the survey and mapping of an extra 237 ha near Area 13 for the Ban Thalang irrigated agriculture area was suspended in July because of the heavy rains. The contractor returned to the site in September and it is anticipated that the field survey and mapping will be completed in October.

A small contract for survey and mapping and the installation of Nakai FSL beacons was signed. This is for the further identification of Oudomsouk houses that will be either be flooded or impacted by the Nakai Reservoir. The survey will also include about 15 ha at Phone Pan Peck for a possible alternative new housing area.

There is still no final resolution to the question of how many (ex Nam Pan) Sop Hia and Nam Nian resettlers will be resettled to the Plateau area and how many will resolve to move to Khamkheut District. These villagers have been tending to change their minds frequently. Consultations with GOL and with resettlers are on-going: it is anticipated that those resettlers whose final choice is to move to the plateau will be relocated to the previously identified Area 7.

#### ○ Finalization of village location – Village layout Design

Village Development Plans: All VG1 layouts have been completed (except for that portion of Sop Hia and Nam Nian that was previously scheduled to move to Nam Pan). The preparation of layouts for the remaining villages is underway as shown in the table below.

<b>Name of the original villages in VG2</b>	<b>New village area</b>	<b>Village layout</b>	<b>Agriculture Layout</b>
Thalang	Area 13	Complete	More topographic survey and mapping required
Nakai Tai	Area 2	Complete	Complete
Nakai Neua	Area1	Complete	Complete.
Done	Area 21	Complete	Complete
Khone Khen	Area 22	Complete	Complete

#### ○ UXO search and clearance

Despite the rains, the contractor continued to make good progress during the month and completed the large central Areas 1 and 2 for Nakai Neua and Nakai Tai. Search and clearance is underway at Area 7 for the Sop Hia and Nam Nian households that have chosen to move to this Nakai Plateau area.

Since November 2005 to date, the contractor has searched and cleared nearly 1,000 ha of resettlement area plus miscellaneous other areas such as for the VFA sawmill and log storage areas, road earthworks borrow areas, cemeteries etc. Up to 22 September 2006, 1,446 UXO items have been found and destroyed, the vast majority being bomblets.

The same contractor also has a contract for "Resettlement Area UXO Community Awareness and Emergency Response Teams." The community awareness activities continue to progress smoothly and the system of villagers preparing response forms and placing them in "drop boxes" provided is working. Many educational materials have been prepared and distributed to the villages. The planning of an awareness workshop for village educators is underway.

The response team continued to visit villages to check on reported suspect items. To date, 1,267 UXO items, including 1,132 bomblets, have been found and destroyed by the response team.

### ○ Roads and drainage

Six bids have been received for the construction of access roads and tracks at the southern areas for Ban Done and Ban Khone Khen. Evaluation is underway. The design of access roads is underway at: Oudomsouk Urban Area B for Oudomsouk PAPs that will be affected by Nakai Reservoir inundation; Nakai Tai and Nakai Neua.

There are three ongoing road construction contracts. As stated previously, the wet conditions have caused minimal earthworks progress on all three contracts during the month. The resettlement access road to the south of Oudomsouk was in a poor condition because of use by trucks transporting timber for house construction at Areas 17, 18 and 19. Therefore the Contractor completed some surface improvement works.

#### Southern Access roads to and within villages:

There has been little progress and completion is still estimated at about 82% for the construction of access roads to and within the new villages of Bouama (area 17), Phonsavang (area 18) and Sop On (area 19).

#### Southern Resettlement Road:

There was minimum progress on the contract for the construction of the Southern Resettlement Road, 11.765 km long. The construction is about 30% complete.



Southern Resettlement Road no longer suitable for cars, but the buffalos like it

#### Northern Access roads to and within villages:

The contractor has continued work on the construction of access roads to and within the new villages of Sop Ma (area 8), Vietic Sop Hia (area 8a), Nong Boua Kham (area 9) and Sop Phene (area 11) and has made some progress with embankment fill and track grading. It is estimated the works are about 55% complete.

A contract Variation Order was signed with the contractor to undertake similar works for the access tracks for the village housing area only at the nearby Area 13 for Ban Thalang.

### ○ House Construction

Contracts for the construction of timber houses for VG1 resettlers have been awarded but only four companies have commenced construction. The problem with the delivery of sawn construction wood is improving but not to an extent where the two remaining contractors can be given notice to proceed and this will be delayed to the start of the forthcoming dry season. The delays are due to:

- original surveys by GOL overestimated the volume of construction hardwood species available;
- VFA sawmill equipment still in procurement;
- Restrictions on transporting logs to/from other sawmills (traffic management concerns)
- Complicated and time consuming procedures (tax exemption, permissions etc.)

Other contracts are planned to start as follows:

<i>Areas and Villages concerned</i>	<i>Contract No</i>		<i>Start Date</i>
Area 17 for Bouama Area 16 for Keng Gnao	C604	Area 16	20 March 06
		Area 17	19 May 06
Area 18 for Phonsavang	C605		16 May 06
Area 19 for Sop On	C606		21 Apr 06
Area 8 for Sop Ma / Hat Khamphane Area 8A for Sop Hia	C607	Area 8a	30 October 06
		Area 8	30 October 06
Area 9 for Nong Boua Kham	C608		deferred to dry season
Area 11 for Sop Phene	C609		deferred to dry season

The eight houses for Keng Gnao resettlers at Area 16 are complete. All the three Contractors (at Area 19 (Sop On), 18 (Phonsavang) and 17 (Bouama)) have completed the construction of the work camps and progress with foundations and the concrete piers and continue their progress on the structural timber parts of the buildings.



New House in Pilot Village (Keng Gnao resettlers)

Houses under construction in new Sop On



### ○ Community Buildings

Each resettlement village will have a primary and nursery school, village office and meeting hall, market, warehouse and a rice mill and workshop. There will also be two clinics, four seed processing and agricultural storage facilities and four organic fertilizer facilities located at various villages. The sizes of most of the buildings will vary according to village size.

The preparation of bidding documents for the VG1 and some of the VG2a (schools and health centers) buildings has commenced is underway and the bidding procedures will commence in October.

### ○ Domestic Water Supply and Sanitation

As always and previously reported, resettlement village water supplies are a combination of:

- Rainwater collected from house roofs, via guttering and down-pipes to a 2,000 liters capacity tank; and
- Deep machine drilled boreholes equipped with VLOM (Village Level Oriented maintenance) hand pumps.

Toilet/bathrooms are and will be installed at every house and in some selected community buildings. The construction of the VG1 resettlers' rainwater collection facilities and toilet/bathrooms is included with the housing construction contract. The construction of these toilets/bathrooms is now completed for the 8 new Keng Nyao resettlers' families in Ban Nongboua Pilot Village.

The same constraints than the ones met for the houses construction prevail for the toilet/bathrooms construction.

#### Boreholes with hand pumps:

The recapitulative progression for September 2006 and the summary of the actual performance vs initial and temporary revised update plan (based on the continuous reconciliation of the data on resettlers' population) are included in the following pages. This following summary includes the boreholes drilled for the benefit of Project Affected Persons (PAPs) by the construction of the Nam Theun 2 infrastructure as well as those under the health infrastructure rehabilitation plan.

The drilling performance has been limited to the successful realization of one borehole only in the Kaeng Deng Health Center in Khamkheut district under the Public Health Infrastructure rehabilitation Programme. As for August this is mainly due to poor access to the majority of the planned drilling sites which has not allowed the move of the heavy drilling rigs. Also, the machines were not present on the sites for almost 3 weeks in order to allow their compulsory required routine maintenance in their base and undertake several needed repairs on hydraulic components.

It is noteworthy to mention 4 unsuccessful drilling undertaken in Gnommalat district in the Health Centers of Khed Phit, Nadou and Nasok as well as Gnommalat district Hospital. The soft soil condition that was encountered in those places did not allow the drilling technique utilizing the Down the Hole Hammer (DTH) combined with air without collapsing. Rotary technique utilizing drilling mud and additives as bentonite is required to permit keeping the holes open. The design of the holes will however not vary.

The drilling of these 4 holes is postponed until November 2006 the latest, and adequate equipment will be provided by the Champasack WES Section during the next drilling campaign.

As of the end of this reporting period, an actual total of 74 deep boreholes are successfully completed out of 84 drilled since the beginning of the operations in December 2005 with the Champasack Provincial Nam Saat drilling team.

The completion of the objectives of the on-going contract with Champasack is expected now in February 2007 the latest.

Another contract to cover the remaining VG2b, VG3 and VG4 is planned to be established from February 2007 immediately after the completion of the current contract.

The supply process of imported Afridev VLOM deep well hand pumps is long-time engaged and the equipment is not yet delivered to Laos. The required costs based on the Unicef SD proforma have been transferred in August. Due to administrative and complicated procedures, it is foreseen that now the delivery will not be done before a few months.

## RECAPITULATIVE MONITORING DRILLING PERFORMANCE

SITUATION ON MONTH OF: SEPTEMBER 2006

RECAPITULATIVE TABLE No 1: 'Project Lands'						Balance vs plan		Total Completion						Completion September 2006		
			Initial plan		Temporary Revised 3rd Plan	Productive	Equipped	Total BHs drilled	Productive	Equipped	Failures	Failures				
			Option average coverage 8 Houses/BH	Difference initial plan vs temporary revised 3rd plan	Option average coverage 8 Houses/BH	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled	Productive	Equipped	Failure	
No	New Area	Villages	Total Qty	Total Qty	Total Qty											
1	ODS New Urban area A (Oudomsouk May)	Oudomsouk SD12B PAPs	9	1	10	1	1	9	9	9	0	0.00				
2	ODS New Urban area C (Primary School)	Oudomsouk SD12B PAPs	1	0	1	0	0	1	1	1	0	0.00				
3		Oudomsouk SD12B PAPs - ODS old areas 8, 7 and market	5	0	5	0	0	5	5	5	0	0.00				
4		Pon Pan Pek - Intake PAPs	5	0	5	0	0	5	5	5	0	0.00				
5		NRC Oudomsouk	0	1	1	0	1	1	1	0	0	0.00				
		New 8 Houses GML	0	1	1	1	1	0	0	0	0					
6	xxx	Others - ESTIMATE QUANTITY - To be finalized and adjusted during implementation period as per demand.	22	-8	14	14	14	0	0	0	0					
SUB TOTAL Project lands			42	-5	37	16	17	21	21	20	0	0.00	0	0	0	

RECAPITULATIVE TABLE No 2: "Nakai Plateau resettlement"						Balance vs plan		Total Completion						Completion September 2006		
			Initial plan		Temporary Revised Plan	Productive	Equipped	Total BHs drilled	Productive	Equipped	Failure	Failures				
			Option average coverage 8 Houses/BH	Difference initial plan vs temporary revised plan	Option average coverage 8 Houses/BH	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled	Productive	Equipped	Failure	
No	New Area	Villages	Total Qty	Total Qty	Total Qty											
1	16	Ban Nongboua, Keng Nyao (PV)	7	0	7	2	2	5	5	5	0	0.00				
2	17	Ban Bouama	11	1	12	4	5	12	8	7	4	33.33				
3	18	Ban Phonsavang	8	-1	7	0	0	8	7	7	1	12.50				
4	19	Ban Sop On	17	2	19	8	8	11	11	11	0	0.00				
5	8	Ban Sop Ma, Hatkhamphan, Keng Nyao	11	0	11	7	7	4	4	4	0	0.00				
6	8a	Ban Sop Hia Vietic	7	0	7	2	4	8	5	3	3	37.50				
7	9	Ban Nong Boua Kham	10	1	11	11	11	0	0	0	0					
8	11	Ban Sop Phene	9	0	9	7	8	2	2	1	0	0.00				
9	21	Ban Done	22	0	22	14	14	9	8	8	1	11.11				
10	22	Ban Khon Kaen	8	1	9	7	9	3	2	0	1	33.33				
11	1	Ban Nakai Tay	27	0	27	27	27	0	0	0	0					
12	2	Ban Nakai Neua	14	-1	13	13	13	0	0	0	0					
13	13	Ban Thalang	12	0	12	12	12	0	0	0	0					
14	7	Ban Sop Hia/ Nam Nian	11	-6	5	5	5	0	0	0	0					
15	KK	Ban Sop Hia/ Nam Nian	0	7	7	7	7	0	0	0	0					
16	xxx	Oudomsouk	15	-1	14	14	14	0	0	0	0					
17	PPP	Ban Pon pan Pek	0	2	2	2	2	0	0	0	0					
SUB TOTAL Resettlement villages			189	5	194	142	148	62	52	46	10	16.13	0	0	0	

RECAPITULATIVE TABLE No 3: "HEALTH INFRASTRUCTURE"						Balance vs plan		Total Completion							
			Initial plan		Temporary Revised Plan	Productive	Equipped	Total BHs drilled	Productive	Equipped	Failure	Failures	Completion September 2006		
				Difference initial plan vs temporary revised plan		Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled	Productive	Equipped	Failure
No	District	Buildings	Total Qty	Total Qty	Total Qty										
1	Gnommalath	Gnommalath Hospital (september)	1	0	1	1	1	0	0	0	0				
2	Gnommalath	Khed Phit Health Center (september)	1	0	1	1	1	0	0	0	0				
3	Gnommalath	Nadou Health Center (september)	1	0	1	1	1	0	0	0	0				
4	Gnommalath	Nasok Health Center (september)	1	0	1	1	1	0	0	0	0				
5	Kamkeuth	Kaeng Deng Health Center (september)	1	0	1	0	1	1	1	0	0	0.00	1		
SUB TOTAL Health Infrastructure			5	0	5	4	5	1	1	0	0	0.00	1	0	0
GRAND TOTAL			236	0	236	162	170	84	74	66	10	11.90	1	0	0

### ○ Irrigation Systems

Progress with the contract for the construction of the extension area to the Pilot Village irrigation scheme for the resettlers from Ban Keng Gnao has been suspended because of the rains and the fact that the farmers are growing a wet season rainfed rice crop on the plots. The Contractor is procuring all the pipes and fittings required for the works.

The preparation of irrigated agricultural layouts is part of the resettlement village planning exercise and this has been reported on above.

Permanent irrigation agriculture cannot commence until there are transmission lines are installed to power the irrigation pumps until there is Nakai Reservoir water to pump from (apart from areas 17, 18 and 19, which will have the use of water from the Theun Duane and Houay Malai).

### ○ Electricity

The contract with EDL for the electrification of the eight houses completed at Area 16 for the Keng Gnao resettlers is continuing. Installation of the transmission lines is continuing at the VFA Sawmill. Between supervising these contracts plus that for the NTPC Nakai Residential Complex, the Senior Electrical Engineer is continuing with the preparation of design, layouts and quantity estimates for the resettlement villages. To date designs have been completed at five villages.

## 2.3.3 Livelihood

The livelihood coordination unit has been appointed early September, following the green light given by POE on 17<sup>th</sup> August 2006 when the whole approach has been presented.

The last quarter 2006 program of the coordination unit has been defined, in collaboration with the Livelihood advisor (September report mission released). The main Target for the coordination unit is to prepare Implementation Plans for each livelihood component with the relevant teams, including a 2007 technical & financial program to be finalized.

### ○ Communication

The agro-sylvo-pastoralism production systems land use planning for reallocated household area and common land management has been prepared and presented on 14th September 2006 at PAFO office in Thakhek (25 people from RMU, NTPC, PAFO and DAFO attended the meeting). The Director of PAFO endorsed the approach. The program will be presented to Resettlement Committee and Khammouane Provincial Governor shortly.

- Staffing

People need to be appointed shortly.

- Institutional strengthening

For coordination, it seems more and more important to involve deeply Province, MAF, PAFO and DAFO staff in all the programs (CD, Fisheries, Agriculture / Livestock, Forestry), if we want at the end of the implementation get a sustainable organization for all the plateau and Technical assistance, village and district.

- Land allocation

Beginning of program structuring for the Land allocation component of Coordination Unit: internal agreement between Forestry and Agriculture/Livestock land use.

### 2.2.3.1 Nakai Plateau Forestry Development Program

#### Progress Summary:

- 1) The Concession Agreement between GoL and NTPC provides the NPVFA, acting on behalf of the resettled communities, with the exclusive utilization rights to the timber and non-timber forest products within a defined resettlement area of approximately 20,000 hectares. Forest management contracts and long term forest management plans have been prepared, approved and signed by the Government of Laos and the Nakai Plateau Village Forestry Association on 2<sup>nd</sup> August 2005. This involved retyping and remapping of the better quality forest, degraded forest and protection forest zones for inclusion in the plan.
- 2) The management plan includes a calculation and provision for harvesting and sawing 6,000 cu.m. of sawlogs each year for the production of added value timber products. In the initial 3 – year period, 2006 – 2008 it was planned for activities to cover the salvage logging and clearing for housing, irrigation and farming and selling of wood products, including tendering to supply some of the timber for resettlement houses.
- 3) To implement activities NTPC has assisted the NPVFA to obtain various business licenses and commenced procurements of equipment's and services required in May 2005. Most vehicle and logging equipment purchases, office and accommodation buildings have been completed in the first half of 2006. Factory buildings are 95% completed and 90% of processing equipment supplied. Electricity and plant installation is expected to be completed before end October for startup early November 2006. Six Lao and one expatriate advisors were appointed in 2005 and a part time expatriate engaged in 2006 to assist with a larger workload than had originally been planned
- 4) In September 2005 NTPC requested the GoL to supply 33,000 cu.m. of tax free sawlogs from the project reservoir. An area of 2000 ha was indicated by GoL as potentially suitable, but this was later assessed to contain little suitable volume. In December 2005 the tax exemption was approved. NTPC then prepared a harvesting plan based initially on harvesting resettlement areas following UXO clearance operations to permit housing and irrigation development. This plan, based on GoL 100 % inventory surveys, was submitted to GoL in January 2006 to approve salvage harvesting 16,400 cu.m. of hardwood species suitable for construction and 4,900 cu.m. of softwoods (mainly pine).
- 5) The GoL approved the NPVFA, as holder of the cutting rights to undertake the harvesting of trees and sawing of timber under contract to NTPC to permit benefits to be returned to the resettled households. NTPC has undertaken to pay the operating costs of harvesting and sawing timber for project construction and to pay a NPVFA performance fee based on sawn wood volumes delivered to building contractors. Harvesting commenced in January and sawing by local sawmills in the Nakai and Lak 20 areas commenced in March.
- 6) Demonstration and training activities were commenced prior to Financial Close (FC). These included a furniture training factory, establishing a tree nursery and establishing 17 hectares of non-timber forest product plantations and 50 hectares of enrichment planting. Since Financial Close other key development activities have included :
  - Establishment of a further 25 hectares of non-timber forest products plantations
  - Forest inventories and reservoir boundary demarcation surveys

- Demonstrations of charcoal production in kilns at individual family and group level, to be linked to supply of charcoal for activated carbon production and export

### Production Statistics - September

Activity	August Result	Total to Date	Target to end August	Total 2006 Target
<b>Logging Production (cu.m.)</b>				
Log volumes harvested	-	22,113	21300	21,720
Volume hardwood harvested.	-	9,377	7,420	16,820
Volume softwood harvested.	-	12,736	3,900	4,900
Construction hardwood (21 species) harvested	-	6,620	9,820	19,820
Non-construction hardwood species harvested	-	2,757	-	-
Construction hardwood logs sawn	562	4298	9820	9,056
<b>Sawn wood Production (cu.m.)</b>				
Sawmill production	339	2,432	4,900	9,056
Sawn wood delivered to house construction	296	1482	1,550	4,526
<b>Log Sales</b>				
Log volume (pine) sold by VFA	-	5,743	3,900	4,900
Log volume (pine) sold by GoL	-	5,406	-	-
Log volume (pine) not sold by GoL		1,587		
Log volume non-construction species not sold	-	2,757	-	-
<b>Furniture Production</b>				
Units produced (tables , chairs , cupboards, door & window frames	NA	762	500	800
<b>Charcoal production</b>				
Kiln Construction - Large	Nil-	1	2	10
Kiln Construction - Medium	Nil	-	4	20
Charcoal output (tones)	Nil	3.8	6	1000
<b>Brick Production</b>				
Kiln Construction (number)	Nil	1	1	2
Brick Output (number of bricks)	Nil	74,000	30,000	80,000
<b>Plantation</b>				
Weeding – Manual (ha) 2004-05 planting	18	102	102	126
Weeding – Chemical (ha) 2004-05 planting	5	5		
Fertilizer – Thermophosphate – Trees only (ha) 2004-05-06 planting	-	44.8	50	50
Fence repairing and improvement (km)	1.8	3.9	3.5	3.5
Soil improvement trials and demonstrations Land prep, fertilizer and grass sowing (ha)	2.5	7.5	84	210
Natural regeneration demo - Re-fencing (km)	3.0	3.0	3.0	3.0
Natural regeneration demo - Weeding (ha)	-	-	35	35

(-) Values in brackets for wood volumes are adjustments after GoL final checking of log lists in July

- 7) In July NTPC and GoL agreed to the introduction of temporary regulations to strengthen the management and institutional capacity of VFA as weaknesses were appearing with the higher than originally planned workloads. The role of NTPC in management was strengthened in July with the appointment of a new General Manager and a Supervisory Board elected in August, with 50/50 VFA and GoL representation and 2 NTPC advisors. The Chairman of the Board is the Khammouane Province Deputy Governor. Measures are being introduced to strengthen forest security.
- 8) The GoL in July took over sales of any logs to be harvested from resettlement area salvage logging zones that were unsuitable as construction wood species because the GoL had not issued a quota to the VFA to cut and sell this category of tree species.

### 2.2.3.2 Nakai Plateau Agricultural and Livestock Development Program

Agriculture and Livestock team continues to focus on the transition resettlement villages in terms of livelihood restoration (9 villages incl. Keng Gnao): creation of temporary vegetable garden for each household, agriculture land clearing, fencing, mushroom production, buffalo relocation, pig and poultry shed construction, etc, in order to improve livelihood condition of the resettlers particularly to secure the familial food situation when they move to a new resettlement site.

The 2 technical Assistants have been requested:

- to propose a technical program for end 2006
- to follow up and evaluate the current rainy season cropping system
- evaluate the existing training centers
- Other urgent work to be carried out by the end of 2006.

#### ○ Transition resettlement villages

Activity	Input / Support	Output / Result	Assessment
1. Establishment of temporary vegetable garden	Provided vegetable seed and seedlings as follow: Onion: 18 kg Morning glory: 9.8 kg Long bean: 4.6 kg Coriander: 3.5 kg Cucumber: 4 kg Eggplant: 1,968 seedling Chili: 2,172 seedlings Tomatoes: 995 seedling Papaya: 1,541 seedlings Pakchoy: 0.53 kg 9,574 kg of organic fertilizer	This coming dry season crop is still grow vegetable in the temporary garden by using borehole water because an irrigation system is not constructed yet. Produced some vegetables at the three resettled villages (Sop Phene, Sop Hia and Sop Ma) as follows:  Pakchoy: 165 kg Onion: 188.9 kg Coriander: 112.3 kg Morning glory: 321.1 kg Long bean: 240.5 kg Cucumber: 354.2 kg Eggplant: 219.2 kg Spinach: 81.8 Mint: 28,7 kg	It is mainly for house consumption and the surplus product can be sold. The temporary vegetable garden is continuously grown several vegetables. At Ban Done is starting to establish the temporary vegetable garden very soon and then proceeding to Khone Kaen
2. Crop seed supply and Fruit trees distribution	Vegetable seed were distributed to transition resettlement village are mentioned above.  Fruit trees were distributed to 8 households transition resettlement village as follow:	Vegetable production were produced for house consumption and had surplus product for selling as follow:  1. Boua Ma: Morning glory: 95 kg Onion: 59 kg Coriander: 38 kg Longbean: 72 kg	Tree villages have received some household income from temporary vegetable garden as follow: 1. Boua Ma: 304,000 kip 2. Keng Gnao: 72,00 k 3. Sop On : 553,000 kip 4. Phonsavang : 72,000 kip

Activity	Input / Support	Output / Result	Assessment
	<p><b>Phonsavang (8 HH):</b> Litchi: 12 seedlings Mango: 22 seedlings</p> <p><b>Keng Gnao (8 HH):</b> Mango : 18 seedlings Lemon: 16 seedlings Litchi: 14 seedlings Jack fruit: 0 seedlings Mandarin: 11 seedlings</p>	<p>2. Phonsavang: Morning glory: 25 kg Coriander: 21 kg Onion: 16 kg</p> <p>3. Keng Gnao: Morning glory: 34kg Onion: 11 kg Mint: 16 kg Coriander: 19</p> <p>4. Sop On: Morning glory: 88 kg Onion: 52 kg Cucumber: 45 kg</p>	Follow up and on-going
3. Agriculture land clearing	<p>This activity is not implemented during the month of September because of rain and not suitable for land clearing at this moment Distributed hand saw and axe for agriculture land clearing of three villages:</p> <p><b>Sop Ma:</b> Axe: 76 units Hand saw: 19 unit</p> <p><b>Sop Hia:</b> Axe: 36 units Hand saw: 9 units</p> <p><b>Sop Phene:</b> Axe: 56 units Hand saw: 14 units</p>		Agriculture land clearing will be done again in the coming dry season 2006-07
4. Agriculture land fencing	Suggested the resettlers of Sop Phene, Sop Hia and Sop Ma to prepare the fencing post	<p>The preparation of fencing post is just completed at the three villages:</p> <p>Sop Phene: 8,681 post Sop Hia: 8,193 post Sop Ma: 10,573 post</p>	Follow up
5. Wet season crop cultivation	Take care the crop during the vegetative period such as: weed control, etc.	<p>At Sop On, the rice is grown in 67.9 ha of area and other crop (peanut and feed corn) 2.5 ha</p> <p>At Phonsavang, the rice is grown is 18.3 ha and other field crop (peanut and corn) 2.8 ha</p> <p>At Keng Gnao the rice is grown in 2.48 ha and other field crop 2.0 ha</p>	Follow up to maintain the crop during vegetative period. The rice can be harvested in the month of October, 06
6. Contour bunding	Provided the materials or agricultural tools to every resettled village for the construction of contour bunding.	The establishment of contour bunding will done after harvesting time is finished (probably from the month of November or the rice harvesting time is finished)	On-going and follow up

Activity	Input / Support	Output / Result	Assessment
7. Mushroom production	<p>Provided 4,000 bags of sawdust mushroom spores to:            Boua Ma: 400 bags (2 hh)            Sop Hia: 800 bags (3 hh)            Sop Ma; 600 bags (3 hh)            Keng Gnao: 600 bags (2 hh)            Sop Phene: 600 bags (3 hh)</p> <p>Constructed 4 mushroom houses as follow:            Keng Gnao: 2 M. houses            Sop Phene: 2 M. houses</p>	<p>Mushroom is produced by village as follow:  <b>Boua Ma:</b> 39.5 kg and earned 395,000 kip  <b>Phonsavang:</b> 17.5 kg and earned 170,000 kip  <b>Sop On:</b> 48 kg and earned 480,000 kip  <b>Keng Gnao:</b> 25.1 kg and earned 251,000 kip</p> <p>Three transition resettlement villages in the northern part (Sop Ma, Sop Hia and Sop Phene) are already promoted to grow mushrooms. We are now constructing a small mushroom production factory in order to transfer a new knowledge to the resettlers through on-the-job training approach.</p>	<p>Mushroom production is one important component of familial food security and very suitable for every household even vulnerable household. Follow up and continue to promote.</p>
8. Buffalo relocation	<p>The resettlers are undertaking themselves for the buffalo relocation and also cattle but the project provided the string for catching buffaloes and cattle and also payment for labor of buffalo relocation (10,000 kip/buffalo).</p>	<p>Sop Ma is relocated 165 buffaloes, remaining 19 buffaloes            Sop Phene is relocated 152 buffaloes, still remaining 2 buffaloes            Sop Hia is completed the relocation of livestock</p>	<p>Follow up. Actually, the livestock relocation of the resettled villages is almost completed particularly 5 villages of the southern part of resettlement site because the grazing land area of cattle is the same area of new resettlement site</p>
9. Buffalo shed	<p>The project provided the barbed wire and nail and also payment for labor but another material (e.g. wood, etc.) is carried out by resettlers themselves.</p>	<p>The construction of buffalo shed at Sop Ma is going on.  <b>Sop Phene</b> is completed one buffalo shed (50m x60m) and two buffalo sheds (40x50m)  <b>Boua Ma</b> is completed 6 buffalo shed  <b>Sop On</b> is completed 2 sheds</p>	<p>The construction of buffalo shed is going on in each village</p>
10. Poultry and pig shed	<p>Supplied the bamboo sheet wall, thatch for roofing and nail but labor is undertaken by resettlers themselves.</p>	<p>Establishment of the poultry shed of sop Ma Sop Hia and Sop Phene is completed but some villages are still going on as follow:  <b>Boua Ma:</b> 4 poultry sheds  <b>Sop On:</b> 3 poultry sheds and 3 pig sheds  <b>Ban Done:</b> 11 poultry shed and 2 pig sheds</p>	<p>On-going and follow up</p>
11. Animal Vaccination	<p>Supplied the animal vaccine to the transition resettlement villages including four (4) pre-</p>	<p>Animal were vaccinated:            Buffalo: 78 heads            Cattle: 43 heads            Pig: 52 heads</p>	<p>On-going and follow up</p>

Activity	Input / Support	Output / Result	Assessment
	resettlement villages (Nakai tai and Nakai Neua).	Poultry: 362 heads  Animal vaccination is done by Village Veterinary volunteer in collaboration with DWG technical staff	

### ○ NB-Pilot Village

During this wet season 2006, most villagers like to grow the rice in 12.1 ha of planted area and the rice will be harvested by the end of October, 06. The several vegetable is growing continuously particularly onion, cucumber, morning glory, etc and also some field crop such as: peanut, feed corn and sweet corn. The vegetable cultivation is going on throughout the wet season and now pilot village is already commenced to grow dry season vegetables. The major vegetable is grown in dry season such as: cabbage, cauliflower, broccoli, onion, lettuce, pakchoy etc.

Activity	Input / Support	Output / Result	Assessment
1. Dry crop cultivation	Vegetable were distributed to pilot village: <ul style="list-style-type: none"> <li>Cucumber: 0.47 kg</li> <li>Coriander: 22.8 kg</li> <li>M. glory: 15 kg</li> <li>Spinach: 0.06 kg</li> <li>Lettuce: 0.04 kg</li> <li>Pakchoy: 1.14 kg</li> <li>Kale: 0.1 kg</li> </ul> According to vegetable seedlings production is undertaken directly by villager themselves. They organized 6 sites for producing of such seedling. The total vegetable seedling is produced as follows: <ul style="list-style-type: none"> <li>Cabbage: 16,440 seedlings</li> <li>Cauliflower: 11,446 seedlings</li> <li>Broccoli: 10,023 seedlings</li> <li>Chili: 3,690 seedlings</li> <li>Eggplant: 811 seedlings</li> </ul>	Those vegetable seed is grown in the area 0.30 ha. Vegetable cultivation is continuously grown throughout dry season	On-going and follow up
2. Fertilizer production	Supplied raw materials to produce organic fertilizer (e.g. rice husk, animal dung, rice bran etc.)	Produced 2,740 kg of organic fertilizer by 10 households. Those fertilizer is applied into their owner vegetable garden	On-going and Follow up
3. Vegetable production	Vegetable cultivation is continuously activity to implement throughout the year and the project also supplied continuously the necessity input to villager (vegetable seed, tools, etc.). Regarding the CA, we shall reduce about 40%	During this month 9 households already started to grow the dry season vegetables and the total planted area was 2,966 m <sup>2</sup> . The production of vegetables and field crop is follow: <ul style="list-style-type: none"> <li>Coriander: 25 kg</li> <li>Morning glory: 53 kg</li> </ul>	Only 17 households earned 930,000 kip from vegetable production and field crops (banana, papaya etc.)

Activity	Input / Support	Output / Result	Assessment
	some input (fertilizer, crop seed etc.) after 4 years of resettlement period	<ul style="list-style-type: none"> <li>Bananas: 2,570 kg</li> <li>Papaya: 875 kg</li> <li>Lemon: 35 kg</li> </ul> The vegetable production is still continue to harvest	
4. Mushroom production	1,200 bags of sawdust mushroom spores were supplied to 4 households of pilot village and also 600 bags of sawdust mushroom spores were distributed to Keng Gnao and two mushroom houses were constructed for two households	Produced 121.8 kg of mushroom, 94.3 kg of which is sold and earned 943,000 kip. Mushroom production is one better source household income of the resettlers that we continuing to promote in each village.	On-going and follow up
5. Pasture development	Up to now 20 forage plots (1,600 m <sup>2</sup> /plot) has been established for 20 households	Weeding 3,200 m <sup>2</sup> of forage plot of 2 households	Follow up.
6. Animal Vaccination	The animal vaccination is carried out by pilot villager themselves under supervision of DWG technical staff	Vaccinated 102 poultries. The vaccination of buffalo and cattle is completed	On- going and Follow up

#### ○ NB-Agricultural Extension Centre (Zone I)

The major role and function of the center is to produce organic fertilizer, sawdust mushroom spore and pig, poultry to supply to the resettlement village including pilot village and also provide the crop seed and seedling and technical assistance to the resettlers.

Activity	Input / Support	Output / Result	Assessment
1. Organic Fertilizer production		Produced 8,400 kg of organic fertilizer 2,740 kg of which is produced by the villager of pilot village. Produced also 292 liter of Effective Micro-organism (EM). 2,360 kg of organic fertilizer were distributed to the transition resettlement villages. We have now 6,200 kg in the stock.	Organic fertilizer and EM production is continuously produced for supplying to the resettlement villages
2. Vegetable seed and seedlings supply	Produced some vegetable seedlings to supply to the transition village such as: Cabbage: 5,400 seedlings Cauliflower: 4,000 seedlings Broccoli: 3,500 seedlings	The vegetable seedlings were distributed to: 1. Boua Ma: Cabbage: 230 seedlings Tomato: 125 seedlings  2. Sop On: Cabbage: 720 seedlings Cauliflower: 720 seedlings Papaya: 450 seedlings Eggplant: 886 seedlings  3. Sop Hia: Chili: 428 seedlings Eggplant: 335 seedlings Papaya: 236 seedlings Tomato: 228 seedlings  4. Sop Ma: Chili: 1,320 seedlings Eggplant: 1,320 seedlings	On-going and follow up.  Vegetable seedling is now producing at the each village and then will be distributed to the resettlers.

Activity	Input / Support	Output / Result	Assessment
		Papaya: 990 seedlings Tomato: 660 seedlings  5. Sop Phene: Chili: 424 seedlings Eggplant: 313 seedlings Papaya: 315 seedlings Tomato: 107 seedlings	
3. Mushroom production	Produced 4,000 bags of sawdust mushroom spore	4,000 bag of sawdust mushroom spore were distributed to the transition villages including pilot village as follows: Keng Gnao: 600 bags Boua Ma: 400 bags Sop Ma: 600 bags Sop Hia: 600 bags Sop Phene: 600 bags Nong Boua: 1,200 bags	We are now constructing a small factory for sawdust mushroom spores production in Sop Hia in order to produce sawdust mushroom spores bag and to train the resettlers through on-the-job training approach.
4. Livestock raising	Continuing to produce the pig and poultry to supply to the resettlers. The total number of livestock in the center is follows: <ul style="list-style-type: none"> <li>Pig: 16 heads (including 11 piglets)</li> <li>Chicken: 84 heads</li> <li>Cattle: 5 heads</li> </ul> 44 chickens were vaccinated New Castle M	Hatching 40 chickens.	Follow up
5. Establishment of forage demonstration plot	Regularly continuing to maintain demonstration plot of forage in 9,760 m2.	Weeding control by hand	Follow up

○ Theun Douane-Agricultural Extension Centre (Zone II)

Activity	Input / Support	Output / Result	Assessment
1.Organic fertilizer production		Produced 50 liter of effective micro-organism liquid (EM) and 1,650 kg of organic fertilizer. Organic fertilizer were distributed to: Boua Ma: 1,250 kg Sop On: 1,625 kg Phonsavang: 750 kg	Organic fertilizer should produce more at least 2,000 kg per month to supply to vegetable garden in this dry season. We also expected the planted area of temporary vegetable garden will be expanded more than wet season.
2.Mushroom production	Produced 3,150 of sawdust mushroom spores	Supplied 1,800 bags of sawdust mushroom spores to the transition resettlement villages as follow: Boua Ma: 600 bags Sop On: 1,200 bags  The remaining will be gradually distributed to other resettlement villages	Continuing to encourage the resettlers to grow the mushroom. We will have a plan to conduct directly the training (learning by doing approach) on mushroom production for the resettlers at their owner village
3. Frog raising and breeding		From the result of our evaluation, we could conclude that the frog raising is not suitable in Nakai plateau because the climate is quite too cool during dry season and consequently the frog did not like to feed	Frog raising should be canceled
4.Fruit trees propagation		Produced 95 grafted branches of mango and 165 grafted branches of litchi. Distributed some fruit trees grafted branches to 8 HH of Phonsavang as follows: • Litchi: 12 • Mango: 22	To be distributed continuously to the resettlers in next month
5. Poultry raising		Hatching of some poultry: Chicken: 20 heads Duck: 10 heads	To be distributed to the resettlers after one month through revolving fund
6. Crop seed multiplication	Continuing to conduct demonstration plot on several crop and also crop seed multiplication	Seed multiplication is conducted in the planted area as follow: Long bean: 450 m2 Cucumber: 400 m2 Pakchoy: 172 m2	On-going and follow up

○ Nakai Neua - Fruit Trees Propagation Centre

Activity	Input / Support	Output / Result	Assessment
1. Distribution of fruit trees grafted branches	Fruit trees seedlings were distributed to Keng Gnao as follow:  Mango: 18 Litchi: 14 Lemon: 16 Jack fruit: 8 Mandarin: 11	The fruit trees seedlings already planted around the permanent houses	Follow up and to be distributed continuously to other transition resettlement villages
2. Grafted seedling production		Produced the grafted branches: • Mango: 269 • Lemon: 1,183	The grafted branches are not yet cut out from parent plants as follow: Mango: 354 Lemon: 72 Litchi: 91 Jack fruit: 28
3. Fruit trees seedlings in the nursery	We have some fruit trees grafted branches in the nursery which is ready to distribute to the resettlers as follow: Mango: 2,330 Mandarin: 2,671 Lemon: 6,769 Litchi: 1,482 Jack fruit: 201 Rose Apple : 424		To take care and Follow up
4. Organic fertilizer production	Produced 3,000 kg of organic fertilizer	Provided 3,360 kg of organic fertilizer to the transition resettlement village as follow: Sop Ma: 1,240 kg Sop Phene: 1,100 kg Sop Hia: 1,020 kg	We have now 1,380 kg of organic fertilizer in the stock to be distributed the transition villages

### 2.2.3.3 Fisheries Reservoir Program

It is schedule to start soon a feasibility study in order to propose a livelihood implementation plan focus on fisheries as it has been done for Agriculture / livestock (technical, budget and staffing) 2006-2014 and more detail scheduling for 2007. This work has to permit to install fishery team beginning of 2007 to manage a fishery implementation program.

A contract for the above study has been prepared to be signed early October 2006. Investigations on-going in GOL to select some senior Lao Government staff to participate to this study.

### 2.2.3.4 Community Development Program

○ Non-farm

Micro-credit: Village saving groups have been monitored in September in 8 villages (211 members) –

Tailor training:

- at Sop On village – group 1(training and practice – one month and started 1st -30th Sept): 4 trainees (trousers, skirts, pupil uniforms made)

- at Nongboua village – group 2(training and practice – one month and started 7th -30th Sept):  
3 trainees (2 from Nongboua village and 1 person from Bouama village)

*Exhibition shop for weaving and wicker work production on boat racing (30 Sept-1 Oct)*



Education:

- Hand over kitchen utensils for Sop on, Bouama, Phonsavang, SopMa, Sop Phene and Sop Hia
- Hand over kitchen utensils for Done village and nursery material (100 sets)
- Hand over blender and refrigerator and kitchen utensil for pilot village (Nongboua)

Rice and Food support:

Continues Monitoring and provision of rice, protein at SopOn, Phonsavang, Bouama, SopMa, Nongboua extension, Sop Phene, SopHia- Area 8, Done, Khone Kaen (9 villages – 3170 persons).

On the Job Training for Lao Women Union and Youth association (off-farm income: potentiality of village):

No	Name of village		Nongbo ua	Sop On	Bouama	Phonsa vang	Sop Hia	Sop Phene	Sop Ma	Done	Khone Kaen	total
	Date:		11 Sept	5 Sept	8 Sept	11 Sept	28 Aug	13 Sept	16 Sept	18 Sept	18 Sept	
	No.of attendant	M (F)	38 (18)	42 (20)	39 (28)	42 (28)	39 (28)	40 (23)	60 (37)	72 (57)	61 (48)	433 (287)
1	Weaving	A					11			8	1	20
		B	2		3	5		5	3		2	20
2	Tailor	A			1		1			3	1	6
		B	6	5	4	3	7	5	7	6	4	47
3	Embroidery	A					1					1
		B		4	2	1	5		1	4	3	20
4	Wicker work	A	2		6	8		8	9	3	5	41
		B										
5	Motorbike maintenance	A										
		B		1	3	1		2		2	3	12
6	Barber	A				1				1		2
		B	1	2	1				1		1	6
7	Food production	A										
		B	1				4		3	3	2	13
8	Other	A					1			8		9
		B		4	2		3	8				17
	Total	A	2		7	9	14	8	9	23	7	79
		B	10	16	15	10	19	20	15	15	15	135

Note: Other work: mulberry plant for weaving, carpenter, construction, driver and carving.

A: can do (not for trade – only do to used)

B: Need to train

No	Date	Village	No. member to debt	Old balance	Deposit	Interest	Receive from Mngt	Rec. from capital	No. Loan (person)	Loan (Month)	Admin Fees	Total Loan	Total Fund	Withdraw capital
1	23/9/06	Nongboua	14	481,000	200,000	411,000	6,000	1,498,000	2	1,400,000	1,000	8,800,000	8,898,000	
2	15/9/06	Sop On	23	498,000	422,000	153,000	9,000	1,082,000	3	1,000,000		4,072,000	4,153,000	
3	16/9/06	Bouama	16	1,618,000	105,000	5,000		1,728,000	1	1,500,000		1,500,000	1,728,000	
4	5/9/06	Nongboua kham	21	79,500	79,500	601,500	21,000	3,727,000	6	3,640,000		13,479,500	13,566,500	
5	8/9/06	Thalang	53	4342,000	7,395,000	1,810,000	35,000	25,882,000	10	12,100,000	15,000	47,666,000	61,433,000	
6	20/9/06	Nakai Neua	30	91,000	1,235,000	595,000	12,000	3,933,000	4	3,900,000	15,000	14,900,000	14,918,000	
7	4/9/06	Nakai Tai	16	87,500	87,500	69,000	21,000	692,500	2	800,000		2,704,000	2,796,500	
8	17/9/06	Phonphan pek	37	171,000	440,000	255,000	6,000	1,672,000	2	1,600,000	23,000	4,500,000	4,549,000	

Values in Kip

### ○ On-farm CD

Monitoring: income data collection at Nongboua, SopOn and Phonsavang villages early September. Monitoring for 38 HH in Nong Boua (all HH), 28 Household in Sop On (26 % of the HH) and 35 Household in Phonsavang (85 % of the HH).

Workshop on On-farm income in Sop On 21/09/06 (11 attendants). Results:

- 42 HH raised buffalos (39 % of HH)
- 13 HH raised cows (12 % of HH)
- 35 HH raised pigs (32 % of HH)
- 70 HH raised poultry (65 % of HH)
- 98 HH grew vegetables (91 % of HH)

Marketing support (Villagers meeting for village marketing group establishment) at Sop On village (20/09/06 – 15 attendants) Village marketing group to be established 4 groups (106 HH).

### ○ ICD

Charcoal practice (SopMa)



Charcoal practice at Sop Ma Village.

Water user group: Improved Water User Group Bylaws and Regulations (Nongboua pilot village) - 19-20/9/06 - 16 attendants

New improved regulations have been established for uses with more detailed clauses being more applicable within the area.

Improved Water User Group Bylaw and Regulation  
(Nongboua pilot village)



Conduct training on Management for CD District staff and Construction Supervisors  
26-27/9/06 45 persons.

# **Social Activities**

## **Downstream Areas**

## **2.4 Downstream Areas Development Plans**

- Work continued to develop livelihood restoration activities, including establishment of village organizations, village revolving & savings funds, and demonstration farms.
- The World Bank was requested to provide approval for the hiring new downstream staff, as described in the August MPR.
- Work continued to finalize the Downstream Restoration Program documentation. It is expected that the final report will be released during October.

## **Environmental Activities**

### 3 Environmental activities

#### 3.1 General

In addition to the monitoring of the HC's construction activities reported in the Construction section of the report, Camp Followers water quality monitoring reported in section 2.1.3, and the PCR activities reported in section 2.1.1, the main activities of the Environmental Management Office in September 06 have included the following:

- Water Quality sampling (26-30 September) and analysis
- Ongoing Interim Human Elephant Conflict (HEC) Monitoring and continued contractual activities for Elephant Program Phase II.
- Contractor has been contracted to conduct Phase I of the Wildlife Management and Monitoring Programme.
- Finalization of the TOR for the Environmental Education component of the Transitional Strategy.
- Identification of the GOL and EMU activities for the wildlife hunting and trade component of the Transitional Strategy.
- Revision of the Final Report for the baseline survey for fish and aquatic species in upstream and downstream rivers (Wildlife Program Element B).

Review of the Environment Management Manual and Work Plan for the EMU

#### 3.2 Wildlife Programmes

The description of the various elements of the wildlife programme is included for reference.

##### 3.2.1 Fish Impacts in upstream and downstream river species

This programme includes the following activities:

1. Species and habitat inventory (NT, XBF)
2. Fish migration studies in NT, NPA and XBF
3. NT habitat and flow studies
4. Modification of downstream NT habitat
5. Implementation of flow adaptive management programme and related activities
6. Incorporating river protection into the management of the NNT and Corridors

The baseline survey was conducted in May 2006 by an ichthyologist and his team with support from Living Aquatic Resource Research Center. The objectives were to obtain a baseline fish and aquatic species (decapod crustaceans, turtles and amphibians) distribution and a habitat inventory in the downstream and upstream sections of the Nam Theun and Xe Bangfai, including the Nam Phao/Nam Kata catchments.

The Final Report has been submitted and reviewed by NTPC. NTPC have few substantial comments on the Final Report which should be finalized in October 2006.

No special remarks for this reporting period.

### 3.2.2 Wildlife Management and Monitoring Programme

Given overlaps in baseline survey and management activities, the Terrestrial and Wetland Programmes, which are presented separately in the CA, have been combined into one Wildlife Management and Monitoring Programme.

This programme includes the following activities:

1. to identify pre-impoundment species and habitat inventory
2. to collect information on the distribution and movements of wildlife on the Nakai Plateau, and interactions between species;
3. to develop an impoundment and post-impoundment wildlife management and monitoring plan; and
4. to identify appropriate GOL agencies and train those to take over implementation of activities in the plan one year post Commercial Operating Date.

The programme shall be conducted in two phases:

1. Phase I includes (i) the pre-impoundment species and habitat inventories with the objective to collect information on distribution and movements on the Nakai Plateau, and interactions between species, (ii) development of a post-impoundment species management program; and
2. Phase II includes training the appropriate GOL agency to implement the management plan.

Contractor has been contracted to conduct Phase I and the baseline survey activities commenced on 30 September 2005.

The Inception Report, including management recommendation, is schedule for submission on 15 November 2006 and the Baseline Survey and Wildlife Management and Monitoring Plan, are schedule for submission in July 2007.

### 3.2.3 Asian Elephant Program

This programme includes the following activities:

1. Pre-impoundment inventory and survey of habitats, distribution, movements.
2. Implementation of a pre-Reservoir impoundment elephant management programme.
3. Post-Reservoir impoundment monitoring of movements and distribution.
4. Training of local authorities in conflict response and emergency response.
5. Establishment and implementation of an elephant conflict response team.
6. Development of a transitional strategy for reservoir impoundment.
7. Implementation of a reservoir impoundment elephant strategy.
8. Implementation of post impoundment elephant programme.

Phase I of the Elephant Program was conducted by Wildlife Conservation Society (WCS) and includes items 1, 4 and 5 above. The draft Final Report for Phase I was submitted on 31 May 2006. A population of 142 (95% CI=97,207) individuals has been estimated based on the line transect and dung decay data. A review of the Final Report has identified shortfalls. Given delays in the DNA analysis, the Final Report will not be finalized until January 2007. However, WCS shall submit an interim Final Report in November 2006.

WCS are the likely consultant to conducted Phase II. Objectives of Phase II include develop and implement a pre- and post-inundation elephant management plan. Management activities will include the continuation of HEC monitoring and training villagers in passive and active crop protection measures.

A contract for Phase II had been reviewed by WCS and a financial proposal submitted. However, discussions with WCS during September 2006 resulted in slight modifications to the TOR. Crop protection methods will be synchronized with the livelihood development activities for the Resettlers and Phase II will continue until COD. A revised financial proposal is expected from WCS based on TOR modifications. Contractual activities are still ongoing.

Between the end of Phase I and commencement of Phase II, HEC monitoring is continuing to assess the spatial and temporal distribution of HEC on the Nakai Plateau and surrounding areas. During July to August 2006, 13 HEC incidents were recorded on the Nakai Plateau with 3 and 10 HEC incidents in July and August respectively. WCS followed up on a report of a human injury resulting from an elephant near Ban Thalang. WCS confirmed that the injury was a result of an accident and no elephants were involved.

### **3.2.4 Transitional Strategy for Reservoir Impoundment**

This programme includes the following activities:

1. Development of a transitional strategy for reservoir impoundment.
2. Training of local authorities in wildlife emergency response.
3. Establishment and implementation of an emergency response team.
4. Public awareness programme.
5. Prevention and prohibition of wildlife trade.

The requirement to provide recommendations on the transitional strategy has been included in the Wildlife Management and Monitoring Programme. Initial recommendations are scheduled to be submitted with the Inception Report in November 2006.

To instill environmental awareness in the Nakai Plateau population, including Resettlers, and reduce the exploitative approaches to wildlife, especially during the transitional phase when animal may be vulnerable, an environmental education program will be implemented. The education program will be developed by NTPC with GOL providing the education. Given the working relationship between WCS, District staff and villagers during the Elephant Program, WCS are the likely consultant to develop the educational curriculum and train GOL to provide the education. Environmental education shall be completed before wet season 2007. The TOR has been finalized. Contractual activities are currently ongoing.

The EMU have identified in their Environmental Management Manual the need for GOL to be responsible for control and enforcement of wildlife protection and prevention of wildlife trade. EMU activities will include (i) assess capacity of GOL enforcement agencies; (ii) assist GOL with capacity building; (iii) spot checks to confirm effectiveness of GOL enforcement programs; and (iv) identification of additional measures to improve hunting control (e.g. village level regulations).

### **3.2.5 Adaptive Management Programmes**

An Adaptive Management approach will be implemented for the following programmes:

1. Wildlife Programme (all components)
2. Riparian release downstream of the Nakai Dam
3. Water release in the Nam Kathang
4. Water release from the regulating pond to the downstream channel

No special remarks for this reporting period.

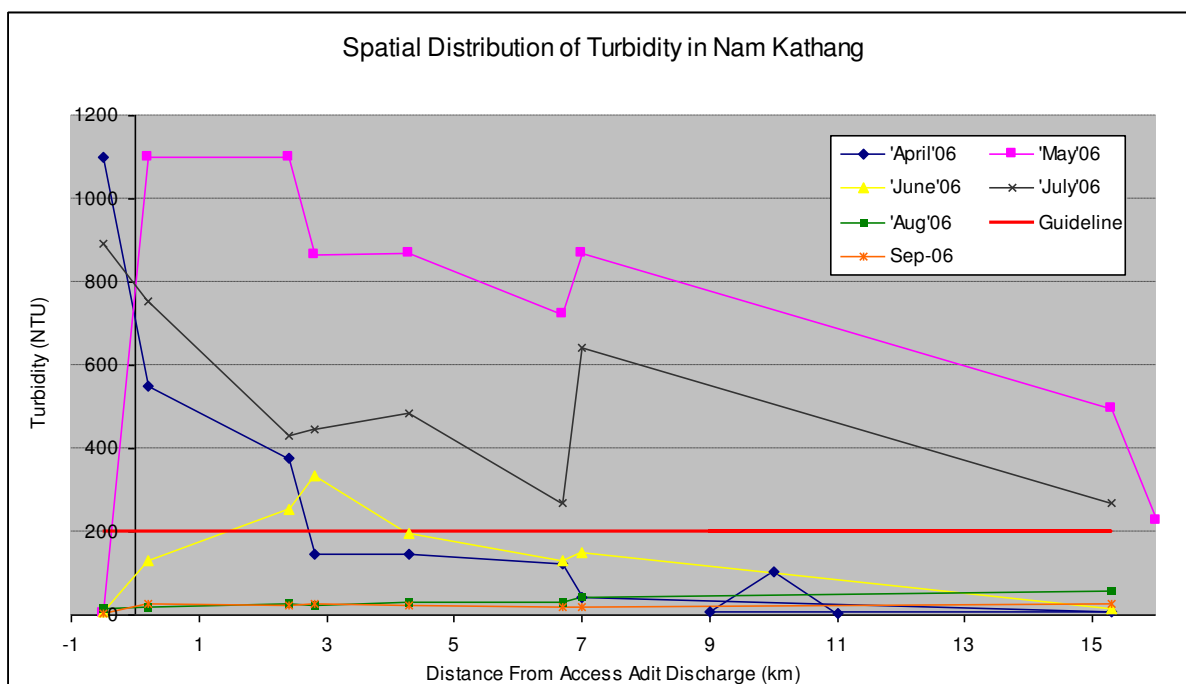
### 3.3 Water Quality Monitoring and Assessment Programme

During August 2006, the WQMAP monitored 27 parameters at twelve<sup>1</sup> surface water sampling sites. These are located upstream and downstream of construction areas on the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai. Given the potential for Project increases in sediment load, the spatial distribution of turbidity in the Nam Kathang was monitored.

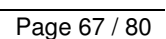
#### September 2006 Field Observations

Sample collection and field analysis was conducted during 26-30 September 2006. Laboratory analyses will be reported in October 2006. The major field observations and measurements are as follows:

- The turbidity in the Nam Kathang had continued to remain within the Project Guideline which reflects the commencement of dry season and the reduction in rainfall and surface runoff from cleared construction areas.
- Turbidity levels are within the Project guideline for the entire lengthen of the upper Nam Kathang from upstream of the Power House to Ban Gnommalat.
- Discharge from the Access Adit Platform 415 sedimentation basins was 11.8 NTU.
- Discharge from the Power House sedimentation basins was 14.1 NTU.
- The turbidity of the discharges from the construction areas on the Nakai Plateau where higher than the previous month. The increase has resulted from heavy rain just prior to sampling. The measured levels provide an indication of the high sediment mobilization during sporadic rain events. The turbidity of the discharges directed down the Nakai escarpment from Saddle Dam 12b, Headrace Channel and Intake Structure were 522.0, 420.0 and 492.0 NTU respectively.



<sup>1</sup> SW13 is located on a seasonal water body and therefore monitoring only in wet season. SW10 is located on the Nam Pan which is no longer included in the WQMAP.



### August 2006 Water Quality Results

The laboratory analytical results for August 2006 are presented in the tables below<sup>2</sup>. As a screening procedure, the results have been compared with Project guidelines. Values highlighted in yellow represent exceedences. Comparison of measured values with guidelines is intended as an initial screening step to assist in data interpretation. Exceedences are then considered on a site-specific basis to assess whether a measured value poses an environmental or human health risk. The significant project-related exceedences are discussed below.

In summary, there was heavy rainfall in the Project area prior to and during sampling and this is reflected in the elevation of a few key parameters:

#### Nam Theun

- With the exception of elevated fecal coliform downstream of Ban Thalung Bridge (SW2) and Nakai Dam (SW3), the water quality of the Nam Theun can still be considered as good with no other exceedences of the Project guidelines.

Elevated fecal coliform downstream of the Ban Thalung Bridge (SW2) and Nakai Dam (SW3) indicates that run-off from the catchment is contaminated by either human or animal excreta. The elevated levels measured reflect the poor sanitation infrastructure in communities and possible inputs from their livestock. However, inputs from the construction camps cannot be ruled out especially when EMO inspectors still observe construction workers using surrounding areas as a toilet instead of the facilities provided. Fecal coliform are indicators the bacteria and pathogen load in the water which could pose a risk to human health. Communities should continue with the practice of boiling surface water prior to consumption.

#### Nam Kathang

- There has been a significant improvement in the water quality when compared to the previous month. However, Project activities still appear to be impacting the water quality of the Nam Kathang with elevated TSS, iron and fecal coliform either downstream of the Power house (SW5) or Regulating Dam (SW9).

The exceedence of TSS at SW9 is likely to be a result of surface runoff from the cleared construction areas. From an environmental health perspective, a high sediment load would have a negative effect on the primary productivity and could subsequently impact fish production. Although some fish species may be adapted to wet season elevations in suspended solids, prolonged exposure may have several sub-lethal effects (siltation of spawning grounds, irritation of gills, induced stress, loss of food or ability to feed, etc.) resulting in a negative impact on fish productivity. From a human perspective, elevated sediment load may make the water unpalatable.

Coupled with the increase in suspended solids, total iron exceeds the Project Guideline at all sites downstream of the Power House. For total iron, concentrations of 1-3 mg/l can be acceptable for people to drink but the taste and appearance will usually be affected above this level.

Fecal coliforms exceed the Project guideline downstream of the Regulating Dam and RNT (SW9). The source of this elevation is likely to be effluent from RNT WWTP and construction workers still using the surrounding areas as a toilet, although the contribution from communities and their livestock cannot be ruled out.

Given that there are no construction sites or camps located on the Nam Kathang downstream of Gnommalat, elevated TSS, iron and fecal coliforms at SW14 in the lower Nam Kathang is not deemed to be Project-related.

#### Nam Gnom

- Water quality continues to be good with few significant exceedences of the Project guidelines. TSS exceeds the Project guidelines at both sites on the Nam Gnom, including the upstream control (SW11), with a slight increasing downstream trend. Iron exceeds the Project guideline at SW12 and indicates that runoff from cleared agricultural areas and, more likely, the Downstream Channel construction area is impacting the Nam Kathang.

Fecal coliform exceeds the Project guideline at both the upstream control site (SW11) and SW12. Given that there are no construction camps located along the Nam Gnom upstream of SW11, the source of this elevation is likely to be resulting from the community of Ban That and its poor sanitation facilities and livestock rather than Project-related.

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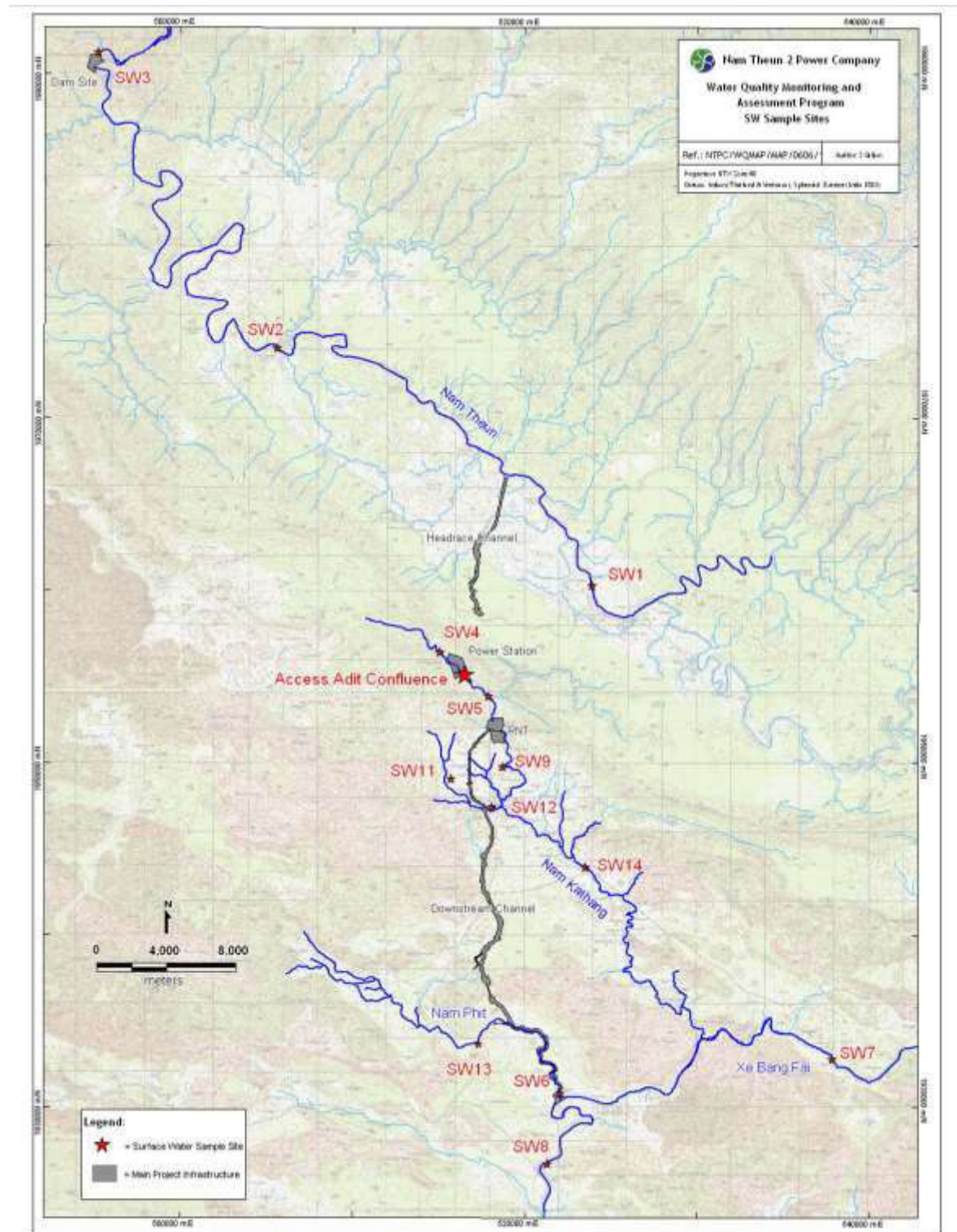
<sup>2</sup> Water quality analysis data are presented one month late due to the time taken for the analyses.

### Nam Phit

- The water quality in the Nam Phit can still be considered as good with no exceedences of the Project guideline

### Xe Bangfai

- Water quality in the Xe Bangfai continues to remain good with only two exceedence of the Project guideline at SW7. Both iron and fecal coliform exceed their respective guideline at the upstream control site (SW7) and therefore not deemed to be Project related. There is no evidence that construction activities are impacting the water quality of the Xe Bangfai.



**Table 4.3:** August 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.

Parameter	Unit	Project Guidelines		Nam Theun		
				SW 1	SW 2	SW 3
Sampling Date				24/08/06	24/08/06	25/08/06
Sampling Time				10.50 h	12.00 h	11.07 h
Water Depth	(m)			9.2	14.5	*
Sampling Method				grab	grab	grab
Air Temperature	(°C)			25.4	25.1	26.7
Cloud Coverage				65	100	80
Water Temperature	(°C)			23.6	23.7	24
pH		6.0-8.0		7.79	7.64	7.1
DO	(mg/L)	> 5.0		7.48	7.09	8.28
% DO Saturation	(%)			94	89.4	104.9
Conductivity	(µS/cm)	< 350 or <750 *		18.3	17.9	18.4
Turbidity	(NTU)	< 200		22.7	9.32	14.5
Total suspended solids	(mg/L)	< 40 or <80*		26.1	11.9	16.9
Alkalinity	(mg/L)	- <sup>11</sup>	36.4	12.8	12.8	12.4
Ammonia-nitrogen	(mg/L)	< 0.5		0.092	0.153	0.132
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		0.092	0.092	0.092
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>
Kjeldahl nitrogen(TKN)	(mg/L)	- <sup>11</sup>	1.030	ND <sup>2</sup>	ND <sup>2</sup>	ND <sup>2</sup>
Potassium (K)	(mg/L)	- <sup>11</sup>	1.06	0.426	0.505	0.493
Sodium (Na)	(mg/L)	300		0.855	1.02	0.845
Manganese (Mn)	(mg/L)	< 0.5		0.03	0.022	0.029
Total iron (Fe)	(mg/L)	< 1.0		0.812	0.642	0.779
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca )	(mg/L)	50		1.5	1.7	1.8
Magnesium (Mg)	(mg/L)	< 15		0.54	0.54	0.54
Silica (SiO <sub>2</sub> )	(mg/L)	- <sup>11</sup>	10.3	4.5	4.69	4.93
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	(mg/L)	< 500		0.62	0.52	0.62
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		0.67	0.48	0.67
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>5</sup>	ND <sup>5</sup>	ND <sup>5</sup>
Arsenic (As)	(mg/L)	< 0.05		ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>
BOD	(mg/L)	< 15		0.8	0.5	0.9
COD	(mg/L)	< 40		21.4	21.4	21.4
Total phosphorus	(mg/L)	< 0.2		0.017	0.013	0.02
Faecal Coliform	(C/100mL)	150		112	161	194

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean

Parameters which exceed the Project trigger.

\* 350 µS/cm for Nam Theun; 750 µS/cm for lowlands rivers

\* 40 mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bang Fai in wet season

**Table 4.3:** August 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.

Parameter	Unit	WQ Guidelines	River- Specific Guideline	Nam Kathang				Nam Gnom	
				SW 4	SW5	SW 9	SW 14	SW 11	SW 12
Sampling Date				23/08/06	23/08/06	23/08/06	22/08/06	23/08/06	23/08/06
Sampling Time				09.13 h	10.11 h	11.49 h	11.25 h	10.56 h	12.33 h
Water Depth	(m)			0.5	0.8	1	1.3	0.5	1.2
Sampling Method				grab	grab	grab	grab	grab	grab
Air Temperature	(°C)			26.1	27.4	28.8	29.4	28.8	26.8
Cloud Coverage				100	75	100	100	100	100
Water Temperature	(°C)			24.3	25.6	25.8	24.9	25.4	25.8
pH		6.0-8.0		7.16	7.18	7.1	7.37	7.14	7.3
DO	(mg/L)	> 5.0		8.2	7.73	7.79	7.72	8.24	7.85
% DO Saturation	(%)			98.5	97.2	97.8	95.6	102.5	98.2
Conductivity	(µS/cm)	< 350 or <750 *		95.6	108.3	56.4	173.4	225	227
Turbidity	(NTU)	< 200		14.1	29	42.4	85.3	62.1	69.2
Total suspended solids	(mg/L)	< 40 or <80*		13.4	31.2	50.2	109	103	114
Alkalinity	(mg/L)	- <sup>11</sup>	133.8	53.1	53.6	30.9	95.2	133	129
Ammonia-nitrogen	(mg/L)	< 0.5		0.12	0.082	0.152	0.16	0.158	0.094
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		0.065	0.103	0.044	0.229	0.337	0.336
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		0.006	0.018	0.006	0.012	0.018	0.012
Kjeldahl nitrogen(TKN)	(mg/L)	- <sup>11</sup>	1.089	ND <sup>2</sup>	ND <sup>2</sup>	ND <sup>2</sup>	0.22	ND <sup>2</sup>	ND <sup>2</sup>
Potassium (K)	(mg/L)	- <sup>11</sup>	1.56	0.788	0.865	0.557	0.488	0.352	0.327
Sodium (Na)	(mg/L)	300		3.64	4.48	2.44	1.33	0.758	0.733
Manganese (Mn)	(mg/L)	< 0.5		0.018	0.047	0.039	0.055	0.084	0.076
Total iron (Fe)	(mg/L)	< 1.0		0.384	1	1.14	2.2	0.979	2.53
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca )	(mg/L)	50		10.3	11.9	6.86	27	36.7	36.5
Magnesium (Mg)	(mg/L)	< 15		2.19	2.14	1.29	1.92	2.09	2.39
Silica (SiO <sub>2</sub> )	(mg/L)	- <sup>11</sup>	18.6	16.3	14.4	8.25	6.26	5.12	5.12
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	(mg/L)	< 500		3.14	5.2	0.62	0.99	1.55	0.34
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		0.1	2.12	0.67	0.29	0.48	0.87
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>5</sup>	ND <sup>5</sup>	ND <sup>5</sup>	ND <sup>5</sup>	ND <sup>5</sup>	ND <sup>5</sup>
Arsenic (As)	(mg/L)	< 0.05		ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>
BOD	(mg/L)	< 15		0.6	0.5	0.6	0.6	0.7	0.6
COD	(mg/L)	< 40		21.4	3.06	9.18	21.4	3.06	6.12
Total phosphorus	(mg/L)	< 0.2		0.03	0.01	0.02	0.017	ND <sup>5</sup>	0.047
Faecal Coliform	(C/100mL)	150		89	143	158	390	161	167

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean

Parameters which exceed the Project trigger.

\* 350 µS/cm for Nam Theun; 750 µS/cm for lowlands rivers

\* 40 mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bang Fai in wet season

**Table 4.3 (Cont.):** August 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.


Parameter	Unit	WQ Guidelines	River- Specific Guideline	Nam Phit		River- Specific Guideline	Xe Bangfai	
				SW13	SW 6		SW 7	SW 8
Sampling Date				22/08/06	22/08/06		22/08/06	22/08/06
Sampling Time				12.00 h	13.25 h		10.12 h	14.00 h
Water Depth	(m)			3.9	6.8		8.3	11.2
Sampling Method				grab	grab		grab	grab
Air Temperature	(°C)			28.7	27.3		25.8	26.4
Cloud coverage				90	60		100	70
Water Temperature	(°C)			27.5	26.8		24.6	25.3
pH		6.0-8.0		7.41	7.43		7.35	7.45
DO	(mg/L)	> 5.0		6.06	5.52		7.33	6.74
% DO Saturation	(%)			80.3	71.1		90.3	85.4
Conductivity	(µS/cm)	< 350 or <750 *		235	212		232	209
Turbidity	(NTU)	< 200		10.01	9.61		28.6	25.8
Total suspended solids	(mg/L)	< 40 or <80 <sup>1</sup>		5.2	9.9		35.3	37.9
Alkalinity	(mg/L)	- <sup>11</sup>	252.6	124	111	200.6	127	116
Ammonia-nitrogen (NH <sub>3</sub> -N)	(mg/L)	< 0.5		0.096	0.13		0.132	0.112
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		0.122	0.129		0.292	0.263
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		0.006	0.006		0.006	ND <sup>1</sup>
Kjeldahl nitrogen(TKN)	(mg/L)	- <sup>11</sup>	0.688	ND <sup>2</sup>	ND <sup>2</sup>	0.559	ND <sup>2</sup>	ND <sup>2</sup>
Potassium (K)	(mg/L)	- <sup>11</sup>	0.60	0.184	0.251	0.68	0.364	0.471
Sodium (Na)	(mg/L)	300		0.241	0.206		1.14	0.908
Manganese (Mn)	(mg/L)	< 0.5		ND <sup>3</sup>	0.022		0.036	0.024
Total iron (Fe)	(mg/L)	< 1.0		0.175	0.492		1.05	0.872
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	0.012		ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca )	(mg/L)	50		33.7	31.1		36	34.8
Magnesium (Mg)	(mg/L)	< 15		3.72	3.26		2.62	2.86
Silica (SiO <sub>2</sub> )	(mg/L)	- <sup>11</sup>	9.0	2.99	2.61	10.5	6.3	5.31
Sulphate (SO <sub>4</sub> <sup>2-</sup> )	(mg/L)	< 500		2.3	2.95		2.77	1.64
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		0.1	0.29		0.29	0.48
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>5</sup>	ND <sup>5</sup>		ND <sup>5</sup>	ND <sup>5</sup>
Arsenic (As)	(mg/L)	< 0.05		ND <sup>6</sup>	ND <sup>6</sup>		ND <sup>6</sup>	ND <sup>6</sup>
BOD	(mg/L)	< 15		0.6	0.8		0.5	0.5
COD	(mg/L)	< 40		21.4	21.4		21.4	18.4
Total phosphorus	(mg/L)	< 0.2		0.013	0.02		0.03	0.013
Faecal Coliform	(C/100mL)	150		51	45		184	87

<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)

<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)

<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)

 Parameters which exceed the Project trigger.

<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)

<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)

<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)

<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)

\* 350 µS/cm for Nam Theun; 750 µS/cm for lowlands rivers

<sup>1</sup> 40 mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bang Fai in wet season

### **3.4 Environment Management Unit (EMU) Technical Assistance (TA)**

No change from previous report.

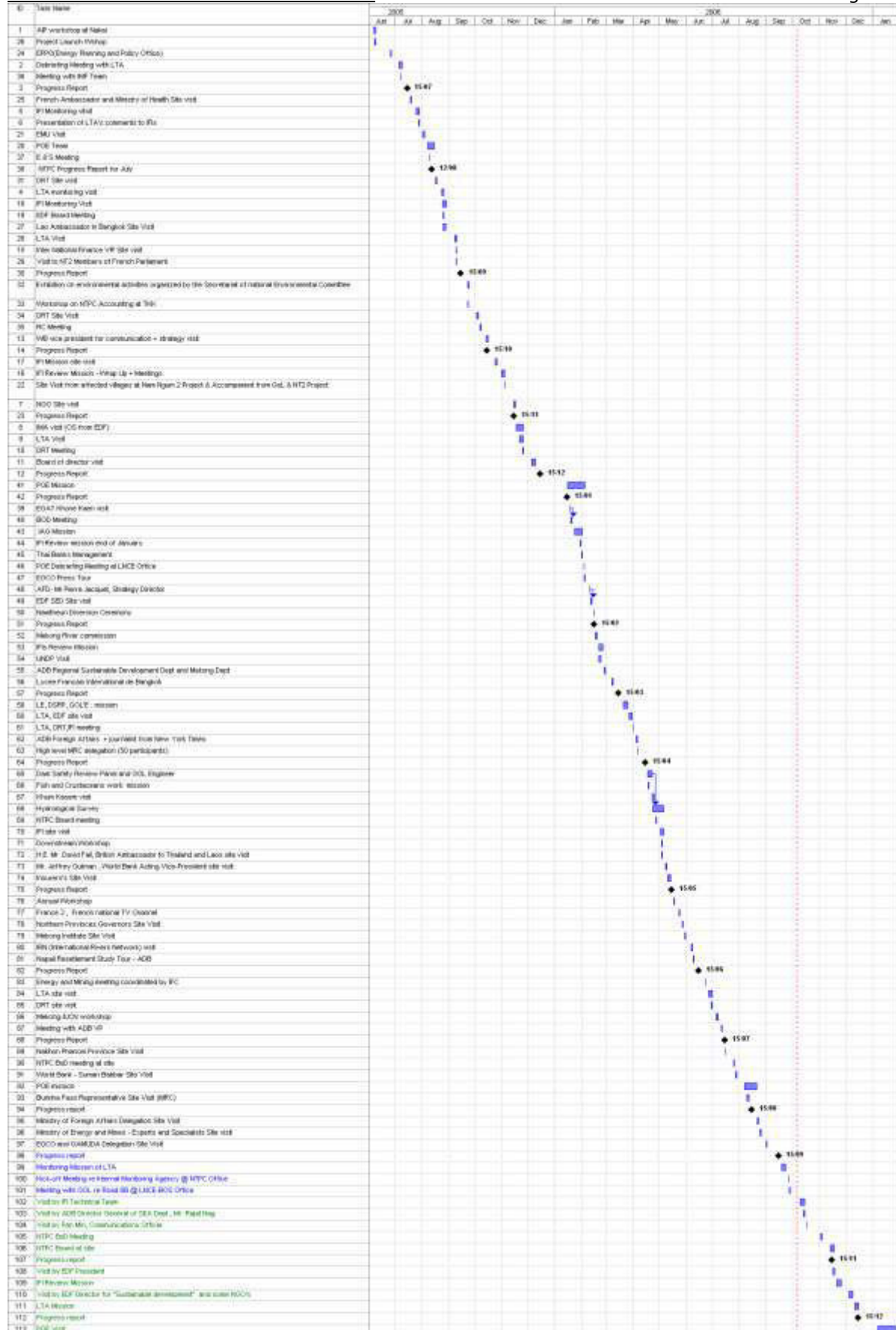
### **3.5 EMO's activities linked to construction**

The environmental activities linked to construction works are part of the Construction Progress Report (Part B of NTPC's Monthly Progress Report).

## **Internal, External Monitoring**

## 4 Internal and External Monitoring

Schedule of visits since Financial Close: Visits of the month in blue - Next scheduled visit in green.



## **GOL Related Activities**

## **5 GOL related activities**

### **5.1 Watershed Management Protection Authority (WMPA)**

The WMPA held their annual Board of Directors meeting on 29 September 2006 as scheduled. The Board of Directors had some comments and recommended some minor changes to their upcoming annual workplan prior to approval. The WMPA is updating this workplan and expects to have Board Approval of the updated workplan in the first part of October. Once Board Approval is received on this updated workplan and budget, they will be sent for approval and endorsement from the Independent Monitoring Agency (IMA) for the WMPA. After the IMA endorsement then the official request is sent to NPTC for WMPA to qualify for their annual payment. NTPC expects receipt of the endorsed documentation from WMPA in October and consequently expects to pay to the WMPA within 30 days of receipt.

The main issues addressed at the Board Meeting of the WMPA are:

- Review annual work plan and budget for upcoming year
- Review Audited Financial Statements from 1 July 2005 to 31 August 2006
- Agreed to hold next Board Meeting before end of 2006
- Agreed to change the beginning of the Fiscal Year to 1 July instead of 1 October (this means that the annual disbursement to WMPA from NTPC should occur in July instead of October)
- Board requested monthly reporting of financial status with brief description of activities
- Board requested full quarterly reporting of activities and financial status
- Board confirmed that WMPA management will implement POE recommendations
- Board emphasized that the management of WMPA main role is to act as central coordinator and implementation of specific duties is responsibility of Governor and District Authorities

### **5.2 Optimization of Salvage Logging on the Nakai Plateau**

The GOL will commence salvage logging operations in October 2006, once the rains stop and the ground dries enough to allow for movement of logging trucks and equipment. NTPC and GOL have agreed the following conditions for the interaction between logging truck traffic and NTPC:

- Logging trucks will not enter Oudomsouk so as not to disturb the villagers
- Logging trucks will not use the road from Oudomsouk to Gnommalat due to heavy construction activities in these areas
- Logging trucks will not use the resettlement roads
- GOL has constructed a new dirt track at the southern end of the reservoir which exits the Plateau to Road #12 so trucks can exit the Plateau without interfering with NT2 Project Activities
- An agreed amount of logging trucks will exit to Laksao using Road 8B

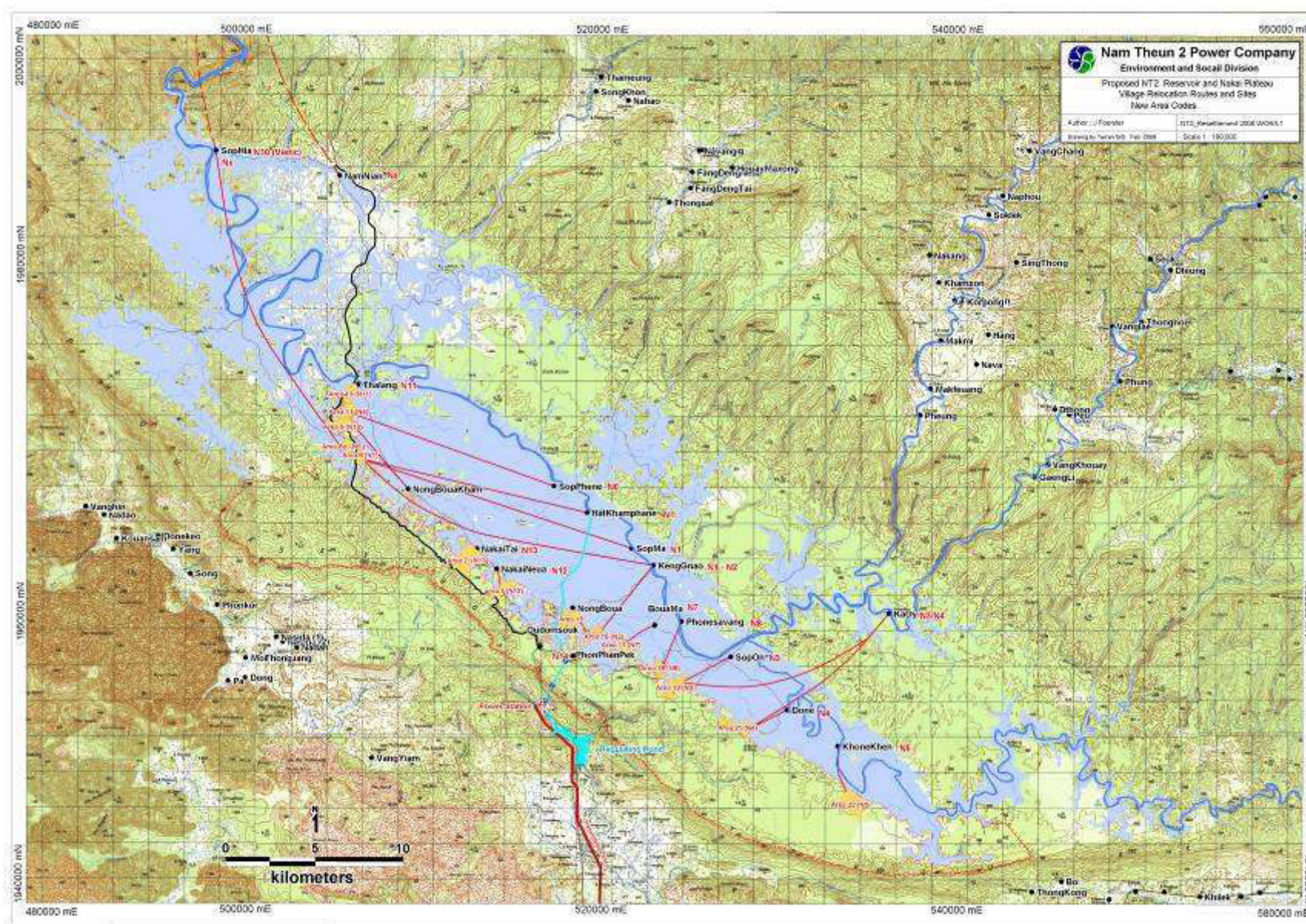
The GOL has also prepared a detailed Field Guide for the Contractors to ensure they follow guidelines on social and environmental measures related to the Salvage Logging Operations. This field guide is based on the Code of Practice as approved by the GOL in December 2005. Approximately 96 Government staff are involved in the Salvage Logging Operations, with the majority working in the field or in Oudomsouk.

### **5.3 Social issues (RMU & DWG)**

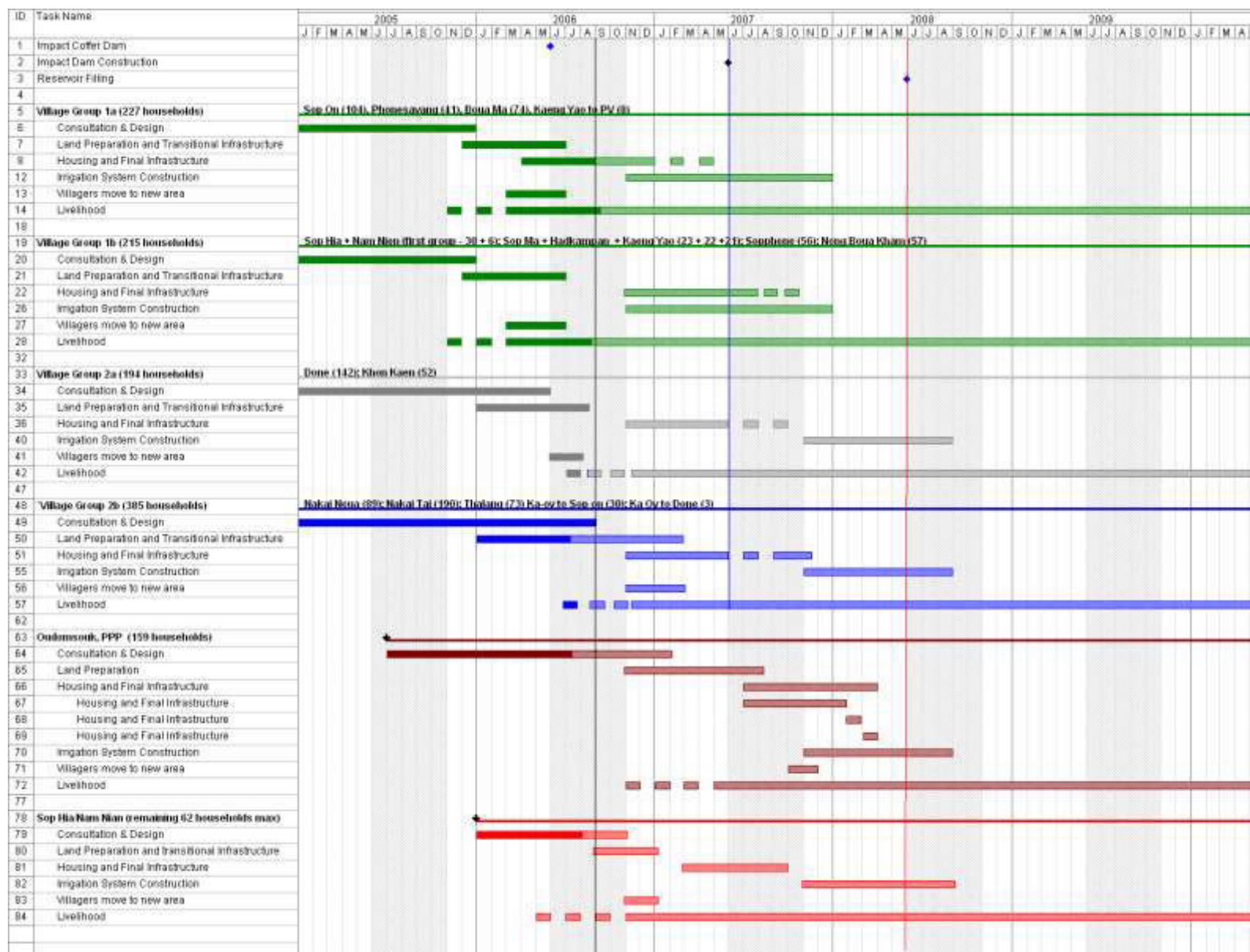
No change from previous report.

## **Annexes**

Proposed NT2 Reservoir Nakai Plateau Village Relocation Routes



## Transition Resettlement Schedule





**Nam Theun 2 Power Company Ltd.**

**Nam Theun 2 Hydro-Electric Project**

**Monthly Progress Report  
covering activity in October 2006**

**Part C : Environmental & Social Report**

## Table of Contents

<b>1</b>	<b>GENERAL OVERVIEW .....</b>	<b>5</b>
1.1	Staffing NTPC, GOL (EMU, RMU, DWG) and Partners .....	8
1.2	Unanticipated Project Impacts .....	8
1.3	Additional Plans and PIP updating .....	9
1.4	Grievance procedure .....	9
1.5	Communication .....	9
1.6	Procurement .....	9
<b>2</b>	<b>SOCIAL ACTIVITIES .....</b>	<b>11</b>
2.1	Physical Cultural Resources, Project Lands, Camp Followers .....	11
2.1.1	Physical and Cultural Surveys & Salvage .....	11
2.1.2	Project Lands .....	14
2.1.3	Camp Followers .....	17
2.2	Public Health Regional and Resettlement Programs .....	21
2.3	Nakai Plateau Resettlement .....	31
2.3.1	General .....	31
2.3.2	Infrastructure .....	34
2.3.3	Livelihood .....	42
2.2.3.1	Nakai Plateau Forestry Development Program .....	42
2.2.3.2	Nakai Plateau Agricultural and Livestock Development Program .....	43
2.2.3.3	Fisheries Reservoir Program .....	50
2.2.3.4	Community Development Program .....	50
2.4	Downstream Areas Development Plans .....	57
<b>3</b>	<b>ENVIRONMENTAL ACTIVITIES .....</b>	<b>61</b>
3.1	General .....	61
3.2	Wildlife Programs .....	61
3.2.1	Fish Impacts in upstream and downstream river species .....	61
3.2.2	Wildlife Management and Monitoring Programme .....	61
3.2.3	Asian Elephant Program .....	62
3.2.4	Transitional Strategy for Reservoir Impoundment .....	63
3.2.5	Adaptive Management Programs .....	63
3.3	Water Quality Monitoring and Assessment Program .....	64
3.4	Environment Management Unit (EMU) Technical Assistance (TA) .....	72
3.5	EMO's activities linked to construction .....	73
<b>4</b>	<b>INTERNAL AND EXTERNAL MONITORING .....</b>	<b>75</b>
<b>5</b>	<b>GOL RELATED ACTIVITIES .....</b>	<b>77</b>

<b>5.1</b>	<b>Watershed Management Protection Authority (WMPA).....</b>	<b>77</b>
<b>5.2</b>	<b>Optimization of Salvage Logging on the Nakai Plateau .....</b>	<b>77</b>
<b>5.3</b>	<b>Social issues (RMU &amp; DWG) .....</b>	<b>77</b>

## **General Overview**

# 1 General Overview

## ***Project lands:***

- Implementation of the livelihood restoration programs continued. Mechanical clearing for land to be used in horticulture program in Gnommalat was completed. Infrastructure development related to frog and pig raising commenced.
- Preparations for handover of additional lands to the HC related to LPA 18 and LPA 26a were finalized. Additional land related to LPA 18 was handed over on 16 October, while additional land related to LPA 26a is expected to be handed over to the HC by 15 November.
- Two additional staff joined the Project Lands team to assist with livelihood development activities.
- Land reallocation for 27 PAPs who lost all of their productive land in Gnommalat continued. Mechanical clearing of stumps and other debris began and is expected to be complete by early November.

## ***Public Health:***

- Construction work in all remaining infrastructure buildings is in progress (details below).
- Boreholes for GMLT District Hospital and Kengdaeng, Khedphit, Nasok and Nadou Health Centers are scheduled for first two weeks of November.
- Ambulance for Khammouane Provincial Hospital has arrived and final paper work is being completed in Vientiane
- Medical equipment has been shipped from supplier in India due to arrive end of November
- Number of training courses were held during the month:
  - Emergency medicine training continues for Khamkeut in Vientiane – completion December 2006.
  - A day training program was conducted for staff for health checks and survey in Sop On Village
  - Peer education training on STI was conducted for bar owners in Nakai
  - STI treatment training for private pharmacies in Nakai and GMLT
  - Nutrition (soya milk production) training in six sites in GMLT, two sites in Mahaxai and three sites in Khamkeut.
  - Emergency medical care/referral system training program organized through Provincial Hospital for the four District Hospital staff
- HIV/AIDS awareness program was conducted during boat racing festival in Thakhek and Khamkeut, and Okphansa festival in GMLT.
- Suspected typhoid outbreak in GMLT and Nakai was notified by districts to HPMU team and immediate advice for managing the outbreak was given to Provincial Health Officer in a specially organized meeting (details below)
- All HPMU technical staff attended a conference on 'District Health Systems' organized by Belgian Technical Cooperation as continue medical training
- HPMU staff provided variable levels of supervision and training to health center staff in different locations in conducting monthly Maternal and Child Health clinics
- Health checks and survey conducted in Sop On Village on October 2006
- Gender update meeting of health activity held with gender specialist on October 2006
- Traditional Medical Research team visited GMLT and Nakai Districts for experimentally growing Artemisinin annua and identifying other medicinal plants for livelihood purposes. Project jointly

conducted under the supervision of Agriculture, VFA and Project lands and coordinated by HPMU.

- Routine monthly meetings were held in the province and the four districts
- Routine visits to the resettlement villages continued and population health monitored

### ***Nakai Plateau resettlement***

#### ***Infrastructure:***

- Extra topographic survey and mapping: The field work for the contract for the extra survey required at Area 13 for the Ban Thalang irrigated agriculture area was completed and a draft contour map has been submitted. A small contract for extra survey at Oudomsouk was signed and another for extra survey at Areas 1 and 2 will be signed in November.
- UXO search and clearance: The contractor has maintained good progress during the month and completed area 7 and has started work at Area 15. From November 2005 to date PCL have found and destroyed 1,688 UXO items, including 895 bomblets. There is an ongoing contract for UXO community awareness and on-call roving response teams with the same contractor. By the end of September the roving unit have found and disposed of further 1,367 UXO items including 1,192 bomblets. The communications channels between villagers and the response team continue to work very well, with any finds of suspicious items in community areas being quickly reported.
- Timber houses: The construction of timber houses in Area 16 (Pilot Village) for 8 families resettling from Ban Keng Gnao is completed. The contractors awarded the timber houses construction contracts at areas 17 Bouama, 18 Phonsavang and 19 Sop On have continued with the construction works and 220 houses are under construction. The contractor for the northern villages of Sop Ma and Sop Hia has been given notice to start work on 30 October. The two contracts for the northern villages of Nong Boua Kham and Sop Phene have not yet started due to necessary additional preparation works on the site (site clearance, access etc.) and VFA timber supply problems
- Roads and tracks: The contract was awarded for the construction of the access roads and tracks in the southern areas of Ban Done and Khone Khen. Road construction progress was good on the Southern Resettlement Road and northern resettlement area access roads and tracks.
- Irrigation: The contract for the construction of the irrigation area extension at the Pilot Village for the Keng Gnao resettlers will restart in November. A Variation Order was prepared for extra roadworks.
- Villages Layout: The preparation of preliminary resettlement village and agricultural layouts for the VG2 villages is continuing by NTPC personnel in consultation with villagers.
- Community Buildings: The preparation of bidding documents for the construction of community buildings is complete and bidding procedures will commence in November.

Domestic Water Supply and Sanitation: The progress of the borehole drilling program during the month has been very satisfactory with a total of 29 new productive wells completed in 3 villages of Ban Done, Sop On and Sop Ma. To date, 103 deep productive boreholes have been successfully drilled and developed on a total of 113 tentatives. All included, the total failure rate has dropped down to 8% and is expected to be further reduced according to the now comprehensive knowledge by the drilling crews of the soil situation in the majority of the resettlement areas. Sixty six (66) wells are equipped with water lifting devices.

Electricity: The electrification of the 8 new houses at the Pilot Village is completed. The design of the resettlement village electrification systems is underway and complete for five villages

#### ***Livelihood Plans:***

- The agro-sylvo-pastoralism production systems land use planning for reallocated household area and common land management has been presented on 5th October 2006 at Khammouane Provincial Governor.
- Second mission of livelihood advisor (report finalized).

Forestry:

- Production at 3 sawmill improved but achievement of sawn wood production target difficult.

Agriculture / Livestock:

- Agriculture and Livestock team continues to focus on the transition resettlement villages in terms of livelihood restoration.
- The 2 technical Assistants have released the Extension center assessment and technical program for end 2006. A pilot village assessment is on-going.

Fisheries:

- A contract for the Implementation plan of Nakai Plateau reservoir management and fisheries has been signed early October 2006 with a consultant. Investigations on-going in GOL to select some senior Lao Government staff to participate to this study.

Community Development:

- Activities on going

**Downstream Program:**

- Work continued to develop livelihood restoration activities, including establishment of village organizations, village revolving and savings funds, and demonstration farms within the selected pilot villages.
- NTPC and the GOL held meetings to discuss how flood mitigation strategies within the Downstream Program (mini-polders & water gate rehabilitation) may relate to the GOL's preliminary plans for large scale flood protection for the entire lower Xe Bangfai.
- The World Bank issued a non-objection letter for the hiring additional downstream consultants, as described in the August and September monthly progress reports. Subsequently, work commenced to finalize employment contracts, with the expectation that most staff will start work no later than 1 December 2006.
- The final version of the Downstream Restoration Program documentation was prepared and is expected to be released during early November.

**Environment:**

- Water Quality sampling (16-23 October 2006) and analysis.
- Ongoing Interim Human Elephant Conflict (HEC) Monitoring and continued contractual activities for Elephant Program Phase II.
- Commencement of baseline survey activity under the Wildlife Management and Monitoring Program.
- Submission of the bid documents to WCS for the environmental education component of the Transitional Strategy.
- Identification of the GOL and EMU activities for the wildlife hunting and trade component of the Transitional Strategy.
- Finalization of the Revision of the report for the baseline survey for fish and aquatic species in upstream and downstream rivers (Wildlife Program Element B).
- Review of the 1<sup>st</sup> Quarterly Progress Report, Environment Management Manual and Work Plan for the EMU.

**Monitoring:**

- IFIs mission from 9 to 13 October 2006

## 1.1 Staffing NTPC, GOL (EMU, RMU, DWG) and Partners

### ○ NTPC E&SD Staffing

Legend:

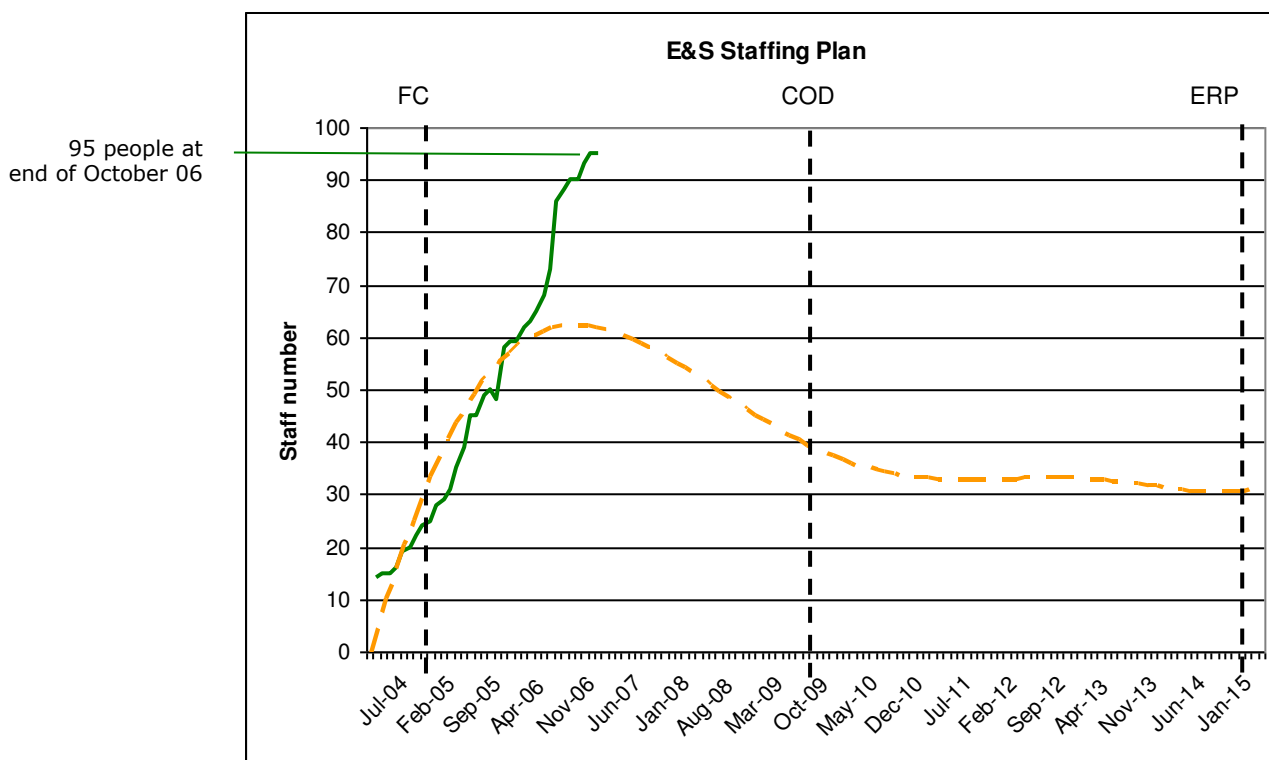
Scheduled staffing plan

Actual staff recruitment

FC = Financial Close

COD = Commercial Operation Date

ERP = End of Resettlement Period



In addition to NTPC staff, individual consultants are working full/part time with NTPC teams

The construction of the Nakai Residential Complex in Oudomsouk for use by the NTPC E&S team is on-going (complex of 54 rooms/studios/apartments and 6 villas).

### ○ EMU Staffing

No change from previous report.

### ○ RMU and DWG Staffing

No change from previous report.

### ○ Partners

No change from previous report.

## 1.2 Unanticipated Project Impacts

No change from previous report.

### 1.3 Additional Plans and PIP updating

- PIP / AIP

No change from previous report.

- Additional Plans

No change from previous report.

### 1.4 Grievance procedure

Village grievance committees were organized and trained in five new resettlement villages on the Nakai Plateau, including Sophia, Sop Phene, Nakai Tai, Thalang, Nakai Neua. To date, 11 out of 15 villages in the resettlement area have had the VGCs established. Four villages remain to be organized on the Nakai Plateau (Khone Kaen, Oudomsouk, Phonphanpek, Ban Done)

No new claims were received during the month of October on the Nakai Plateau. However, work was done to follow up on four claims received prior to October.

Work continued to develop District and Village Grievance Committees in the Xe Bangfai, Xaibouli, and Kaysone Districts. This included the distribution of regulations, entitlements, and grievance procedure posters.

Nine new claims were received in Gnommalat, but detailed information is not yet available regarding these claims. Work continued to process claims received prior to October 2006.

### 1.5 Communication

No change from previous report.

### 1.6 Procurement

In October, procurement activities have been mainly, but not only focusing on:

- the procurement process for the construction of the wooden houses for the resettled people of Village Group 2,
- the procurement process for the implementation of the downstream programme,
- the procurement process for the construction of the community buildings of Village Group 2,
- the procurement process for the supply and installation of several types of goods for the Nakai Residential complex,
- the procurement process for the construction of access roads and tracks to and within two southern VG2a resettlement areas (21 & 22),
- the procurement process for the supply of horticulture machinery and equipment,
- the procurement process for the Independent Monitoring Agency – Resettlement Nakai Plateau (on behalf of the Government of Lao PDR)
- the procurement process for the development and update of the PIP,

## **Social Activities**

**Physical Cultural Resources, Project Lands,  
Camp Followers**

## 2 Social Activities

### 2.1 Physical Cultural Resources, Project Lands, Camp Followers

#### 2.1.1 Physical and Cultural Surveys & Salvage

Based on the findings of the baseline PCR survey and the impact assessment advice provided by the HC, PCR were separated into four PCR plans: (i) movable PCR; (ii) PCR within construction areas; (iii) PCR within the Reservoir; and (iv) PCR along the Xe Bangfai.

##### **Movable PCR Plan**

To date, the Institute of Cultural Research (IoCR) has implemented this plan which consisted of a series of consultations and management measures. Management measures included (i) securing PCR (Buddha images) in situ; (ii) relocating PCR to the security of the temple; and (iii) improving security and awareness at the temples to help prevent theft.

No special remarks for this reporting period.

##### **PCR within Construction Areas Plan**

To date, the Department of Museums and Archaeology (DMA)/IoCR has implemented this plan which consisted of a series of consultations and management measures. Management measures included (i) appeasement ceremonies; (ii) relocation of PCR (cemeteries and stupas); and (iii) redesign of the Project to avoid impacts from construction.

Activities during October 2006 include:

- The DMA has finalized the report for the Archaeological Salvage of Land Parcel 1a (Pha Phen). An interactive database of archeological items identified during the excavations is being put together and is expected to be finalized in November 2006.
- The IoCR has finalized its report presenting the consultation and appeasement ceremonies at Ban Phachoumkong for two stupa sites located within the alignment of the 500 kV Transmission Line.

##### **PCR within the Reservoir Plan**

To date, IoCR has completed consultation for all resettlement villages and completed management measures for almost all VG1 PCR sites. Activities included (i) appeasement of spirit sites (ii) identification of new cemetery sites and UXO clearance prior to use; (iii) an appeasement ceremony for old cemetery sites; and (iv) ceremonies for the old temple sites prior to relocation of Buddha images.

Activities during October 2006 include:

- The plan for providing management measures for VG2 PCR sites is being developed. Villages still requiring management measures include (i) Thalang; (ii) Nakai Tai; (iii) Nakai Neua; and (iv) Ka Oy. Activities will be implemented by IoCR and are scheduled to commence in November 2006.
- UXO clearing activities for the new cemetery sites for VG1 are now complete.

##### **PCR along the Xe Bangfai Plan**

The plan for PCR along the Xe Bangfai will be implemented in coordination with the Downstream Program. One historic site will require an archaeological salvage. Twelve temples located on the banks were surveyed to prioritize monitoring effort and to identify any requirement for pre-operations management measures (relocation of infrastructure or bank protection).

Activities during October 2006 include:

- On 30 October 2006, the DMA commenced archaeological salvage activities for the historic kiln site which is located on the banks of the Xe Bangfai. Activities will consist of (i) consultation with Ban Mahaxai and Pova Neua; (ii) survey and map both banks to assess the number and distribution of the kilns; (iii) conduct an archaeological investigation of three of the best specimen kilns; and (iv) archaeological salvage of two kilns for transportation back to Vientiane and display in the National Museum, Vientiane.

### **Chance Find PCR**

In addition to baseline PCR, there is potential for additional PCR (chance find PCR) to be identified during construction. DMA and IoCR are providing ongoing technical assistance to NTPC to deal with these chance find PCR as and when they are discovered.

Activities during October 2006 include:

- During 9-13 October 2006, the DMA conducted a field investigation at the inlet portal of the Downstream Tunnel. The field investigation was in response to the HC's identification of chance find PCR items approximately 100m from the tunnel portal. The PCR items appeared to be two fragments from either arrowheads or spearheads. DMA opened two 4 m x 4 m test-pits which were excavated to a depth of approximately 3 m. The soil was archaeologically sterile and there was no evidence of human occupation or use as a cemetery. The two weapons can be attributed to tools of hunters. Based on the excavations no further investigation was required and DMA advised that construction activities could recommence.

### **PCR Monitoring**

On 26 October 2006, the monthly PCR monitoring was undertaken by the EMO. The following table presents the villages and their PCR included in the PCR monitoring.

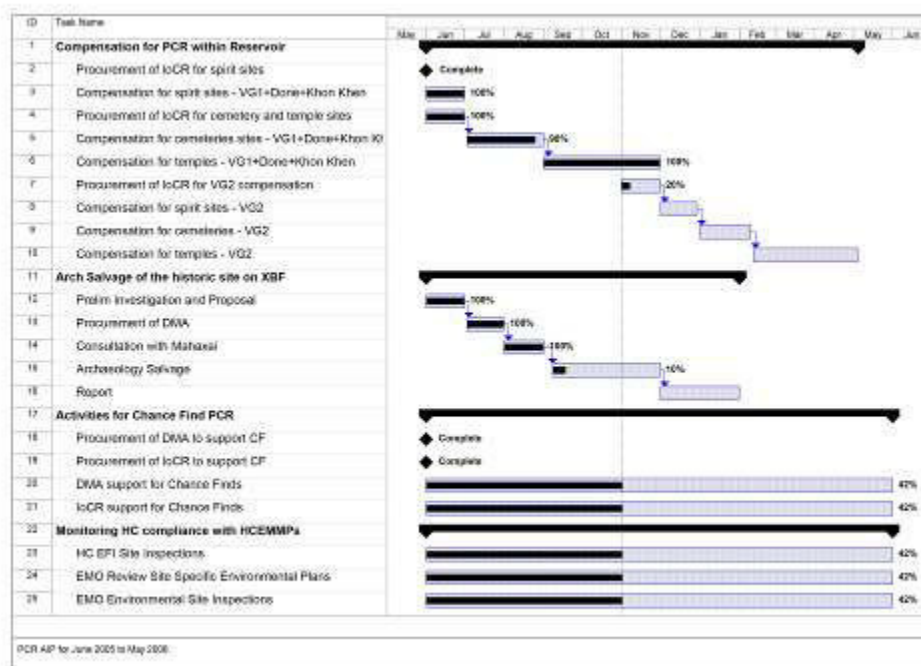
<b>Village</b>	<b>PCR ID</b>	<b>PCR Type</b>	<b>Issue</b>
Oudom	PCR/IN/3/1	Temple	No issue
	PCR/ADJ/3/1	Former French army camp	No issue
	PCR/ADJ/3/2	Former Lao army camp	No issue
Nam Phao	PCR/IN/3/2	Cemetery	No issue

### **Other Activities**

#### **PCR Training**

DMA has finalized the report on the September 2006 PCR training provided to EMO Inspector, HC/CC Inspector, and UXO Clearance personnel. The training was in response to World Bank concerns of the limited number of archaeological items located. The training focused on (i) Lao Laws and the trainees' responsibilities under the law; (ii) PCR recognition; (iii) PCR types in the Project area; and (iv) securing and documenting a PCR find.

In addition to the September 2006 training, on 31 October DMA provided PCR training to the vegetation and UXO clearing personnel of the CC UXO clearance teams. The training mainly focused on (i) Lao Laws and responsibilities under the law and (ii) PCR recognition

**PCR Schedule:**

*The two fragments of spearheads or arrowheads identified during construction activities at the inlet portal of the Downstream Channel tunnel.*



*DMA providing training in PCR recognition for the CC UXO clearing teams*

## 2.1.2 Project Lands

### Main events in October:

- Implementation of the livelihood restoration programs continued. Mechanical clearing for land to be used in horticulture program in Gnommalat was completed. Infrastructure development related to frog and pig raising commenced.
- Preparations for handover of additional lands to the HC related to LPA 18 and LPA 26a were finalized. Additional land related to LPA 18 was handed over on 16 October, while additional land related to LPA 26a is expected to be handed over to the HC by 15 November.
- Two additional staff joined the Project Lands team to assist with livelihood development activities.
- Land reallocation for 27 PAPs who lost all of their productive land in Gnommalat continued. Mechanical clearing of stumps and other debris began and is expected to be complete by early November.

#### ○ Baseline Studies

The collection of baseline study data is complete.

#### ○ Meetings & Consultations

Weekly coordination meetings with the DCWG and RMU continued during the month of October.

Meetings were held with the members of the IFI technical team to discuss progress regarding Project Land activities, including compensation and livelihood development programs.

The Project Land team attended meetings with the HC to discuss irrigation facilities at the Regulating Dam and along the Downstream Channel. The Project Land team also attended a separate meeting with the HC to discuss issues related to the transmission lines.

#### ○ Compensation

NTPC received the RMU acquittal for September cash compensation payments. A total of 3,195,480 kip remained after all payments were made by the RMU to PAPs. The amount required to be provided to PAPs was slightly less than expected due to adjustments required to delays in feedback regarding updating of the baseline data. This surplus amount shall be deducted from the October RMU payment for cash compensation to be distributed to PAPs.

In addition to the RMU-processed payment, there was one payment processed through Project Lands petty cash for October. This payment was of high urgency; the allowance for moving 4 houses and one drinking water factory out of construction areas required by 16<sup>th</sup> October.

The Project Land team continued to review prices set by government for compensation. This review is done on a regular basis. The Project Land team provides comment to the government if values are believed to be incorrect. NTPC Project Lands staff also works directly with district market specialists on a regular basis. Related to this, it is important to note that for rice there prices for milled and un-milled rice are quite different.

The compensation required to be paid during October is according to the table below.

No	Req. No.	LPA #	LPA	No. PAPs	Description	Amount (kip)
1	3381	18a	SD12B, ODS	2	Replace Telephone Lines	3,376,989
2	3580	18	SD12B, ODS	24	Final Compensation for land acquisitions	52,629,565
3	3694	1a	Phou Pha Phen Quarry	9	Interim comp for PAP<10%	13,683,000
4	3694	6b	Dam Site Access Road	4	Interim compensation for PAP<10%	5,613,000
5	3591	Various	Various	400	Transitional Assistance Needy families @300,000kip/PAP	120,000,000
6	3546	18	SD12B, Oudomsouk	1	Rebuild Nursery Nakai DAFO	12,089,000
7	3546	38a	Downstream Channel	1	Rebuild Mr. Peng's House	40,027,500
8	3700	30	Tunnel Access Portal	1	Final Comp PAP<10%	3,775,000
9	3700	33	Power Station	1	Final Comp PAP<10%	4,521,000
10	3700	34	Regulating Pond	50	Final Comp PAP<10%	335,883,000
11	3700	35	Regulating Dam	25	Final Comp PAP<10%	148,144,000
12	3700	36	Residence Nam Theun	3	Final Comp PAP<10%	22,459,000
13	3700	40	HC Camp	11	Final Comp PAP<10%	162,838,000
14	3701	42	Phou Phathoung Quarry	11	Final Comp PAP<10%	243,608,500
15	3701	18	SD12B, Oudomsouk	1	Moving Assistance	7,990,000
16	3701	5a	Nakai Dam Site	1	Moving Assistance,	4,000,000
17	3701	51	Road 8B Gnommalat	6	Disturbance Allowance	900,000
18	3655	54	Transmission Line, Kaysone District	57	Final Comp PAP<10%	44,904,500
19	3657	54	Transmission Line Xe Bangfai District	24	Final Comp PAP<10%	9,423,020
20	3658	54	Transmission line Xaibouli District	89	Final Comp PAP<10%	86,243,000
			<b>Total</b>			<b>1,322,108,074</b>

This amount is expected to arrive in the dedicated RMU compensation bank account by early November, after which payment may begin.

PAP compensation required for payment in November is being compiled so that after acceptance of acquittal from October payment, the subsequent invoice may be submitted.

The Project Land team continued to calculate and provide compensation for PAPs located within the transmission line corridor in Xe Bangfai, Xaibouli, Kaysone Phomvihanh, and began working in Mahaxai and Gnommalat districts.

### **Resettlement Actions Plans (RAPs):**

During the month of October revisions were made to RAP 3 and RAP 5 and posted for IFI review on the NTPC secure website. It is expected that an update to RAP 5 will be issued in December as the design of the transmission line progresses.

### **Oudomsouk Urban Planning Resettlement Action Plan:**

Contract for construction of 5 additional wooden houses in Oudomsouk, has been awarded. The contractor mobilized a team and commenced work during the last week of October. Construction is expected to be swift due to the timber being included in the construction contract.

### **Livelihood restoration**

Livelihood restoration programs continued during October for PAPs whose livelihood is more than 10% affected by project activities. Contracts for implementation of the various programs have been completed and are currently being implemented. Developments to specific components of the livelihood restoration program during the month of October are described below.

*Rice Improvement:* The rice improvement program started in May 2006, for 146 PAPs, in Gnommalat and Mahaxai Districts, out of the 160 farmers who participated at the training at Thasano Rice Research Station between March 26<sup>th</sup> and April 4<sup>th</sup>. DCWG officers have continued to closely supervise this work. Results from the harvest from the demonstration fields were compiled during October and a full report should be prepared by the first week of November. Preliminary findings indicate promising results with yields approximately double under the currently prevailing yields.

*Fish cultivation:* Water was pumped into some fish culture ponds due to falling water levels.

*Rattan and bamboo:* A subject matter expert joined the Project Lands team in Gnommalat to assist with development and implementation of the NTFP program

*Orchid cultivation:* Implementation of the contract with the University of Laos for orchid development in Nakai and Gnommalat districts continued during the month of October, with initial activities being concentrated in Nakai District. The project aims to preserve the numerous existing species of orchids available in the Nam Theun 2 project area, as well as to assist interested farmers in understanding the possibilities for commercialization of orchid cultivation. Sample collection has been completed for Nakai.

*Vocational training:* No activity during the month of October.

*Forage and Livestock:* Forage plots benefited from light rain showers in late October. Assessment of the performance of the different varieties of forage species has indicated that the soil conditions are less favorable than expected. Fertilizer has been applied to the forage seedlings along with some watering. The response to fertilizer application was apparent within 2 weeks. Water supply is becoming more difficult to secure now as the dry season commences. Hand dug wells are being dug deeper to yield additional water.

*Frog & pig raising, mushroom cultivation:* Activities in association with the Non-Formal Education Development Centre of Laos continued for mushrooms cultivation, pig and frog raising. 10 PAPs have been selected and confirmed for mushroom activities, 18 PAPs for pig activities, and 5 PAPs for frog raising activities. PAPs were from Ban Kobong, Sangkeo, Thongmang, Lao, Gnommalat Tai. Construction of infrastructure commenced and will be functional by mid-November, which will then allow the full training program to begin.

*Horticulture:* Preparations for the horticulture portion of the livelihood restoration program continued in Nakai, Gnommalat and Mahaxai districts. In mid-October a new person joined the NTPC Project Land team to assist with the horticulture program.

*Replacement land:* A land area of approximately 44 ha was identified near Gnommalat earlier this year for redistribution to PAPs which have lost their entire productive land holdings. Land allocation for the 27 PAPs was agreed to and documents were signed by all parties in May. Mechanical

removal of stumps and other large debris began during the month of October. Following clearing, topographic surveys will be conducted. Clearing activities and land distribution was completed for the 2.2 ha plot of replacement land near the right bank of the downstream channel in Gnommalat.

- **Handover of lands to Head Contractor**

*Access to land in LPA 18*

Four houses determined to be obstacles in LPA 18 were dismantled and moved by the designated site access date, 16<sup>th</sup> October.

*Access to land in LPA 26a*

Preparations for handing over additional land for construction of the intake structure / headrace channel were finalized. The land was occupied by the Dok Mai Pek Drinking Water Factory. The factory could not be dismantled by the 31<sup>st</sup> October due to the owner's difficulty in locating a new site to which the dismantled factory could be moved. Relocation is expected to be complete by 15<sup>th</sup> November.

- **Other**

*Community Infrastructure*

Further planning was done to determine the number and location of required improved water sources. A combination of deep boreholes with hand pumps and concrete-lined shallow wells will be employed.

The Downstream Channel profile near the main Thathod irrigation canal intersection was surveyed to determine differences in elevation between Downstream Channel features, ground levels adjacent to the channel and the headworks of the Thathod irrigation scheme. Information from this survey will be used to determine the viability of several options for rehabilitation of the Thathod irrigation scheme

The Project Land team completed a field visit with the HC on October 21st to the Ban Sangkeo elementary school to review issues regarding improper drainage caused by spoil disposal DT1. The HC will submit corrective plans for NTPC review. It is expected that work to improve drainage conditions will be undertaken during the month of November.

*Ethnic minority specialist*

During the month of October the Project Land team continued to receive the assistance of an ethnic minority specialist to assist with communication with Makong minority groups in the Gnommalat region, specifically Ban Sangkeo, Thongmang, Gnommalat Neua, Gnommalat Tai and Ban Laonangam.

*Safety issues*

The Project Land team continued to work closely with the NTPC Safety Consultant during October.

Guards continued to be assigned to LPAs 33, 35, 38a.

*EM1 Work Camp on DT1*

Construction of the EM1 work camp and storage facility on spoil disposal DT1 was suspended during October due to the HC's incomplete submittal of environmental and social planning documentation.

## **2.1.3 Camp Followers**

- **Population Management: Monitoring of labor and population movement:**

This activity is placed under direct control of RMU since January 2006.

- **Human Trafficking Control**

This activity is placed under direct control of RMU since January 2006.

- **Infrastructure Development**

No changes from previous report.

## ○ Public Health

### STIs and its control:

No changes from previous report.

### Water Quality monitoring of domestic water supply:

Since NTPC work started in the project area, the number of restaurants has been increasing. The table below shows the latest available data we have. The quality of water supply in the restaurants has been a priority for health program as the water used for washing hands and food items like vegetables and other items and dirty dish washing is all done by the water obtained from shallow wells behind each restaurants. These shallow wells are often contaminated by the toilets which are situated rather close to the wells, again behind the restaurants and other contaminated water seeping or flowing into the wells.

Two main initiatives have been put in place:

1. Tap water for hand washing facility in each restaurant
2. Chlorination of the water used from shallow well for cleaning purposes

Common practice has been to wash hand in a common basin kept at the entrance of the restaurant and water changed periodically, a practice totally unhygienic. A major education and awareness campaign preceded this program in the districts and now people understand the significance of this program.

The tap water for washing hands is encouraged by the HPMU in each restaurant and half of the cost, with a maximum of 200,000 Kip is reimbursed (Camp followers budget). A number of restaurants have complied and District Health Offices are encouraging the remaining restaurants to follow the suit. See Table below.

### **Hand Washing Facilities by Districts:**

No	District	Total No of restaurants	Using tapped basin for washing hands	Oct 06 Activity	Remarks
1	Mahaxai	6	6	5	Camp followers budget
2	Gnommalat	30	25	5	
3	Nakai	16	5	0	
4	Khamkeut	15	5	0	
<b>Total</b>		<b>67</b>	<b>31</b>	<b>10</b>	

The **chlorination** of the shallow wells is the next step. The district health officers responsible for environmental health are encouraging all restaurants to chlorinate water at regular intervals and this is also done in a participatory manner. The cost of chlorination is shared by the restaurant and the project to make water used for washing and cleaning kitchen items safe and hygienic.

### **Chlorination of Shallow Well Water by Districts:**

No	District	Total No of restaurants	Chlorinating Water in Restaurants, Up to Oct 06	Chlorinating Water in Households	Chlorinating Water in Households
1	Mahaxai	6		2	15 restaurants in the last few months and 7 restaurants in Oct 06. 2 HHs in Oct 2006
2	Gnommalat	30	22		
3	Nakai	16	2		
4	Khamkeut	15			
<b>Total</b>		<b>67</b>	<b>24</b>	<b>2</b>	

At present water is chlorinated at the storage point and not the well itself.

At present chlorine is purchased from Vientiane and this is expensive, cumbersome and time consuming. The Provincial Health plans to install a machine on the premises to produce chlorine locally. This will enable prompt supply and ease the distribution, at the same time making the program cost efficient. The purchase of the machine has been approved under the Camp Followers budget.

### Water Supply

Under water supply budget, the water supply for a number of health centers and the new District Hospital in Gnommalat are planned. Following table summarizes the numbers and progress to date.

**Number of Bore Well Water Supply by Districts**

No.	District	Bore Wells	Sites
1	Mahaxai	1	1. Nadou Health Center – under construction
2	Gnommalat	3	1. District Hospital 2. Nasok Health Center 3. Khetphid Health Center
3	Nakai	***	1. Many for each resettlement village under the infrastructure development plan.
4	Khamkeut	1	1. Kaeng Deng Health Center - completed

\*\*\* Detailed progress of infrastructure plans for Nakai (resettlement plans) from Infrastructure team

### Monitoring of the quality of water from the shallow wells

Monitoring of water from shallow wells is carried out at monthly intervals by the E&S's Environment Division. Sentinel sites have been selected in Nakai and Gnommalat for this purpose. (5 from Nakai and 10 from GMLT)

#### ○ Traffic Safety and Regulations

Development of regulations / Review and strengthening of regulations: No changes from previous report.

Road Safety: No changes from previous report.

#### ○ Social Security and capacity building for local agencies

Support and technical assistance for District Police Offices:

Establish inter-sectoral Task Force on Population management and security: No changes from previous report.

# **Social Activities**

## **Health Programs**

## 2.2 Public Health Regional and Resettlement Programs

Following major activities were undertaken during October 2006:

- Construction work in all remaining infrastructure buildings is in progress (details below).
- Boreholes for GMLT District Hospital and Kengdaeng, Khedphit, Nasok and Nadou Health Centers are scheduled for first two weeks of November.
- Ambulance for Khammouane Provincial Hospital has arrived and final paper work in being completed in Vientiane
- Medical equipment has been shipped from supplier in India due to arrive end of November
- Number of training courses were held during the month:
  - Emergency medicine training continues for Khamkeut in Vientiane – completion December 2006.
  - A day training program was conducted for staff for health checks and survey in Sop On Village
  - Peer education training on STI was conducted for bar owners in Nakai
  - STI treatment training for private pharmacies in Nakai and GMLT
  - Nutrition (soya milk production) training in six sites in GMLT, two sites in Mahaxai and three sites in Khamkeut.
  - Emergency medical care/referral system training program organized through Provincial Hospital for the four District Hospital staff
- HIV/AIDS awareness program was conducted during boat racing festival in Thakhek and Khamkeut, and Okphansa festival in GMLT.
- Suspected typhoid outbreak in GMLT and Nakai was notified by districts to HPMU team and immediate advise for managing the outbreak was given to Provincial Health Officer in a specially organized meeting (details below)
- All HPMU technical staff attended a conference on 'District Health Systems' organized by Belgian Technical Cooperation as continue medical training
- HPMU staff provided variable levels of supervision and training to health center staff in different locations in conducting monthly Maternal and Child Health clinics
- Health checks and survey conducted in Sop On Village on 9-12 October 2006
- Gender update meeting of health activity held with gender specialist on 18 October 2006
- Traditional Medical Research team visited GMLT and Nakai Districts for experimentally growing Artemisinin annua and identifying other medicinal plants for livelihood purposes. Project jointly conducted under the supervision of Agriculture, VFA and Project lands and coordinated by HPMU.
- Routine monthly meetings were held in the province and the four districts
- Routine visits to the resettlement villages continued and population health monitored

Abbreviations used in this section:

DCD	District Community Development
DH	District Hospital
DHO	District Health Office
HC	Health Center
HPMD	Health Properties Management Division
HPMU	Health Program Management Unit
ICHC	Integrated Community Health Center
IFMT	Institut Francophone pour la Medecine Tropicale
MCH	Maternal and Child Health
MOH	Ministry of Health
NCCAB	National Committee for Control of AIDS Bureau
ORPP	Outbreak Response Preparedness Plan
PH	Provincial Hospital
PHO	Provincial Health Office
TMRC	Traditional Medicine Research Center

UNPFA United Nations Population Fund  
 VHC Village Health Committee  
 VHV Village Health Volunteers  
 WHO World Health Organization

Public Health Infrastructure & Equipment, vehicles			
Buildings	Monthly Progress	Progress to date	
Consultancy services for preparation of bidding document		100%	Delayed consultancy with Ministry of Health leading to delayed start infrastructure programs
Khammouane Provincial Hospital		100%	Only refurbishment of emergency ward. The balance according to hospital needs is transferred to medical equipment and ambulance
District Hospital	15%	65%	Refurbishment works in Nakai, Mahaxai and Khamkeut hospitals have been completed in July 2006.  Second half of renovation works of the roof for the Khamkeut District Hospital restarted.  GMLT District Hospital new construction started in October and likely to be completed first week of January 2007
Health Center	10%	60%	Refurbishment work for Nadou and Kengdaeng Health Centers have been completed in July 2006. Construction for Khetphid and Nasok HCs started and likely to finish by the end of December 2006. Contract for Nongbouakham Integrated Community Health Center (IHC) - in Resettlement Health Program - new construction has been delayed. (Note: Two additional IHCs belonging to health program are under Infrastructure budget) Boreholes in Kengdaeng and Nadou HCs are under construction.
Infrastructure maintenance			Most of the infrastructure maintenance will be required after 2008 onwards.

Medical & Other Equipment	Monthly Progress	Progress to date	
<b>Medical and Lab Equipment</b>			
Consultancy for preparation of bidding document		100%	Delayed consultancy with Ministry of Health leading to delayed procurement program
Medical Equipment (KMN Provincial Hospital, 4 District Hospitals and 6 Health Centers)	3%		Lot II items have been distributed to 4 district hospitals (DHs)
			Lot I, III and IV have been shipped to Laos by supplier. Expected to arrive end of November 2006 for 4 DHs and KMN PH. X-Ray machine will be shipped to arrive in January 2007 in line with the completion of GMLT DH
		80%	In addition, some biochemistry and laboratory equipment is on order as well. Further supply of medical equipment will be assessed according to need after completion of the construction work.
Ambulance Equipment and other sur-charges		90%	All ambulances have been installed with the emergency equipment. Provincial hospital ambulance equipment awaits arrival of the ambulance.
STIs Program	2%		Develop STI services at provincial and district levels, including introductory workshops and drug revolving funds for STI Program. (This item originally was budgeted under medical equipment hence in this section)
<b>Non-Medical Equipment</b>			
Photocopier	0%	100%	One for each DHO and the Khammouane PHO
Computers & printers			Two sets to each district health office and two sets to Khammouane Provincial Health Office. One printer for PHO in September 2006 Internet cards for e-mail and internet services were provided to all four districts and the province
Audio-visual equipment (television and DVD player)			One set of television and DVD player to district health offices and health centers for health education program. Additional BCC equipment will be provided in 2006-07
Fridge, water cooler, LCD projector, fax and other items			One set to each district health office and district hospital and a fridge to Khammouane Provincial Health Office. Two fax machines for Nakai and Mahaxai DHOs in September 2006
Hospital beds (Khamkeut)			30 steel beds with mattresses to Khamkeut District Hospital
Hospital furniture (KMN Provincial Hospital, 4 District Hospitals and 6 HCs)			Hospital furniture list is being compiled and the furniture will be ordered soon.
Bed Nets, including impregnation	0%	30%	2,875 nets for 21 villages of Mahaxai, 3,011 nets for 35 villages of Gnommalat, 3,234 nets for 15 villages of Nakai and 2,364 nets for 15 villages of Khamkeut. Nets will be supplied regularly during the life of the project. Vector control measures/equipment will be provided according to need. Total: 11,500 bednets and 22,710 tablets of Supatab
Other package non-medical equipment			Other package of non-medical equipment will be provided according to the need after completion of refurbishment and new construction work
Road safety communication			This money will be spent in conjunction with overall road safety program in NTPC project areas.
<b>Vehicles</b>			
Motorbikes	0%	70%	12 motorbikes (6 from project and 6 donated by NTPC) distributed to DHOs and HCs. Plans of replacement mid project. Remaining 30% of funds are for replacement of bikes during the life of the project.
4WD Pickups	0%	80%	Four 4WD pickups procured and distributed one each to Nakai, Mahaxai, Gnommalat Districts and one to Khammouane Provincial Health Office. Vehicle use policy has been developed in conjunction with the GOL for exclusive use of health work.

Medical & Other Equipment	Monthly Progress	Progress to date	
Ambulances	25%	-19%	Two ambulances have been handed over to Khamkeut and Gnommalat Districts. The third ambulance arrived and was handed over to Nakai district on 9 <sup>th</sup> August. Ambulance for Khammouane Provincial Hospital has arrived and final paper work in being completed in Vientiane

Public Health Program - including awareness programmes			
Supplies - Drugs, kits, forms and manuals.	Progress during the month	Progress to date	
<b>Drug and Medical Supply</b>			
KMN Provincial Hospital		38%	Drug revolving fund for emergency is ongoing and is supervised regularly.
District Hospital		83%	Drug revolving fund for four districts is ongoing and is supervised regularly
Health Center		79%	Drug revolving fund for four health centers is ongoing and is supervised regularly
Community level (Village Drug Revolving Fund)		41%	Drug revolving fund for 68 villages is ongoing and is supervised regularly.
Community level (TBA kits)		67%	Traditional Birth Attendant kits to 96 trained TBAs is ongoing and is supervised regularly
<b>Office and Vehicle Operating cost</b>			Operating cost have been transferred to 4 DHs/DHOs and KMN PH/PHO 2 time per year, including health centers.
KMN PH/PHO			Progress in percentage will be more realistically calculated at quarterly intervals
DHs/DHOs			Progress in percentage will be more realistically calculated at quarterly intervals
HCS			Progress in percentage will be more realistically calculated at quarterly intervals
<b>Others (training materials, printing forms, etc. ...)</b>			Including BCC materials Obstetric registers in print 2007 calendar as health education materials – under preparation Health checks and survey forms
Health Education and Awareness Program	Progress during the month	Progress to date	
STIs including HIV/AIDS	10%		Apart from regular health education program in health facilities, special health education and awareness activities are organized on special events such as World AIDS Day and boat racing festival.
			Substantial numbers of people from the community attend these public events - 43 public event sessions were held in four districts and in Thakhek until October 2006.
			Preparation for World AIDS Day for NTPC and related staff is in progress
			PCCA is organizing secondary school awareness program in Thakhek for the forthcoming World AIDS Day (WAD). They will also organize awareness and education program on STIs for service women in Thakhek.
			DCCAs are organizing special WAD programs in their respective districts.
			Introductory Workshop; Orientation Workshop; Preliminary interview and medical checks up of service women and setting up STI services in four districts
			Peer education training program – bar owners in Nakai on 19-20/10/06 and STI treatment for private pharmacies in Nakai and GMLT on 17-18/10/06 and 19-20/10/06 respectively.
			Peer education training program – High School student

Public Health Program - including awareness programmes			
			plans for the end of 2006.
			HIV/AIDS awareness program was conducted during boat racing festival in Thakhek and Khamkeut, and Okphansa festival in GMLT on 5-7/10/06.
			To date: 105 sessions and 21,038 participants
Operating cost for PCCA/DCCA	2%		PCCA and DCCAs are responsible for carrying out education and awareness activities in the area of STIs including HIV/AIDS. Their capacity is limited but slowly improving. It is important to support them in this program for sustainability.
Relocation/medicinal plants			Initial work was carried out. Further studies will be carried out in conjunction with National Traditional Medicinal Research Center after resettle population move into their permanent housing.  Traditional Medical Research team visited GMLT and Nakai Districts for experimentally growing Artemisinin annua and identifying other medicinal plants for livelihood purposes. Project jointly conducted under the supervision of Agriculture, VFA and Project lands and coordinated by HPMU.
Consultancy fees (Road safety, PHC, psychosocial, etc.)			This money will be spent in conjunction with overall road safety program in NTPC project areas.

Strengthening Human Resource in Public Health			
Supervision and Monitoring	Progress during the month	Progress to date	
Incentive			Incentive were distributed two times to provincial, district and health center in all project target areas, while only one time were provided to village health workers since they were trained in the past few months. Discussions are being held to find ways to link these incentives in future to performance. The third incentive program plans for the end of 2006.
Field visits for supervision and support			<p>Resettlement Health Program - bi-weekly visits to all resettlement sites for review of environmental and health situations, including emergency care for any patients.</p> <p>Regional Health Program - through integrated outreach program consisting of health center, district health and HPMU staff visiting health centers and villages.</p>
Integrated Outreach Program			<p>Integrated outreach work consist of more comprehensive health education and awareness on a number of health topics such as maternal and child health, STIs including HIV/AIDS, malaria, diarrhea, respiratory infections, hygiene and sanitation, road safety</p> <p>To date: 301 sessions and 16,723 participants</p>
Strengthening Health Service Delivery	10%		<p>Regular review of service delivery to district hospitals and health centers by district health staff.</p> <p>Emergency medical care/referral system training program organized through Provincial Hospital for the four District Hospital staff</p> <p>Emergency obstetric care referral system is also developed and will be reviewed quarterly</p> <p>Maternal and Child Health service is being organized at monthly intervals for resettled populations. This will be followed by all health centers in their respective villages.</p> <p>HPMU staff provided variable levels of supervision and training to health center staff in different locations in conducting monthly Maternal and Child Health clinics (cumulative number of monthly MCH clinics held = 28)</p>

Training	Progress during the month	Progress to date	
Community level	%		<p>Seven TBA training sessions (96 participants), seven VHV training sessions (101 participants) and seven VHC training sessions (66 participants). Periodical training and refresher program will continue throughout the life of the project.</p> <p><a href="#">Soya milk production training for five villages in Nakai on 13-14 September 2006.</a></p> <p><a href="#">STIs training program for private pharmacies in Khamkeut on 13-14 Sep 2006.</a></p> <p><a href="#">To date: 24 sessions and 344 participants</a></p>
Health Center, District and Provincial levels	%		<p>Five training sessions including three TOT (MCH, STI, TBA and peer educator) (102 participants)</p> <p>Training sessions for all level of health workers will be repeated at periodical intervals depending on the subject matter.</p> <p>Laboratory services training is planned for June-July 2006</p> <p>STI Program - Peer educator training in 4 districts</p> <p>Emergency medical care/referral system training program organized through Provincial Hospital for the four District Hospital staff.</p> <p><a href="#">To date: Ten sessions and 158 participants</a></p>
Long Term	%		<p>Two long term training session, namely emergency medicine and ICHC of three months (9 participants) and one month (two participants) respectively. Another 3-month course for Khamkeut District .....</p> <p>Long term training for X-Ray and Ultrasound in Vientiane for Gnommalat and Khamkeut District Hospitals during July to September 2006 is completed.</p> <p>One-month training on Maternal and Child Health in Vientiane for Kengdaeng Health Center staff will be completed on 5<sup>th</sup> October 2006.</p> <p>Emergency medicine training continue for Khamkeut in Vientiane – completion December 2006</p> <p><a href="#">To date: Five sessions and 16 participants</a></p>
Study Tours		90%	<p>All district hospital and health center staff were taken for study tours to Integrated Community Health Center (ICHC) in Vangvieng and Taleo (59 participants)</p> <p><a href="#">To date: Three trips and 59 participants</a></p>
Workshop on how to identify psychosocial/drug abuse problems			<p>It requires different methodology to assess the situation. The focus group discussions in future will reflect on this social problem if it exists in the communities</p>
On the job training			<p>This activity is incorporated with on the job training during supervision and support.</p> <p>TOT course on peer education in Thalad</p> <p>STI training program – treatment and lab for KK, GMLT and MHX DH staff</p> <p>Biochemistry training for Khamkeut and Khammouane PH</p> <p><a href="#">To date: Six sessions and 28 participants</a></p>

Meetings	Progress during the month	Progress to date	Monthly meetings are held in each district and Khammouane Provincial Health Office. These meetings provide an opportunity for educational updates on conceptual and methodological aspect of health service delivery along with the achievements and future plan
Create Outbreak Detection and Response Preparedness Unit		100%	Implementation of the National Avian Influenza awareness program in conjunction with the provinces (Khammouane, Bolikhamxay and Savannakhet) To date: Two meetings and 35 participants
Meetings at provincial and district levels			Regular meetings at provincial and district levels To date: 75 meetings and 1,198 participants
Quarterly meeting at HC (VHVs, HCs)			The first quarterly meeting at HC was held in Kengdaeng HC, Khamkeut District (30 participants)
Health education materials and activities - design and production	2%		Support under health education program for all health facilities in the project areas. Number of IEC materials have been developed/ copied and distributed to district, health center and villages like posters, VCDs and DVDs.
Develop the procedures for the referral system			Referral system methodology re-emphasize during the emergency medicine training at Provincial Hospital on 23-26 October 2006
Zonal Health Committee Meeting (4 x per year for each ICHC; and for DH)			It will be implemented once the ICHC is in place
Adapt ICHC accounting and management system			New system will not be introduced. Instead, GOL system similar to other areas in the province will be implemented

Public Health Monitoring and Surveillance	Progress during the month	Progress to date	
Task force meeting			To be redefined as the present definition is difficult to define.
Routine data collection/HIS			Routine data collection and collation. (Note: considerable backlog to be completed)
Outbreak Response Preparedness		100%	Report published and distributed in English. Lao version with the Ministry of Health for adoption and translation
Outbreak Response Operational		10%	Translation of English report and distribution, followed by training workshops.
Scientific support			Scientific support and areas of support are being redefined. Possibility of getting assistance from additional sources.
Existing data analysis 2004		100%	Completed
Midterm survey	0%		Will be carried out in 2008-09, with planning starting in mid-2008
Special surveys	5%		Health checks and survey in Nongboua Village. English and Lao report on Nongboua health checks and survey has been completed and distributed. It has been posted also in the NTPC E&S library.  Health checks and survey conducted in Sop On Village on 9-12 October 2006. Data coding, entry and analysis are ongoing. Database for Sop On was compared with the CD team database and meeting with CD database management will be held in due course.
Monthly MCH clinics			Monthly MCH clinic for Nongboua and Sop On villages are regularized now.  The monthly MCH clinics will be extended to the regional health program. Health center staff are being trained to conduct this activity at monthly interval in all villages.  HPMU staff provided variable levels of supervision and training to health center staff in different locations in conducting monthly Maternal and Child Health clinics (cumulative number of monthly MCH clinics held = 28)

Equity Fund	Progress during the month	Progress to date	
5% of total budget			With the fast track resettlement program in operation, there has been an increasing need for emergency provision for individuals. <a href="#">To date six individuals have been referred and paid for treatment in Provincial hospital Thakhek.</a> <a href="#">To date: Eight cases were referred to Khammouane PH</a>

# **Social Activities**

## **Nakai Plateau Resettlement**

## 2.3 Nakai Plateau Resettlement

### 2.3.1 General

**Following completion of Transitional resettlement** of the first eight villages was in August – villagers continued to consolidate in their new locations. Clearing of plots and participation in the construction of new permanent houses continued throughout the month. Participation in the construction of villages based agricultural extension offices has also been good.

Rice and protein distribution programmes as described in previous reports is continuing, as are bi-weekly health checks.

The challenge now is to keep the transition resettlers busy by continuing to provide a variety of livelihood opportunities.

The arrival of two new expatriate extension workers has significantly boosted the capacity of the livelihood team to focus not only on the immediate opportunities provided by the overall plateau development, but also on the long term sustainability of agricultural livelihoods for resettlers.

Construction of village based agricultural extension and demonstration areas was completed during September, with the main centers being at new Sop Hia (Area 8a) and Sop On (Area 19).

Construction of permanent housing progressed well in Boua Ma, Phonsavang and Sop On. There are now 220 houses under construction.

At the end of September 2006, the new villages of Sop On, Phonsavang, Boua Ma, Sop Ma, Sop Hia/Nam Nian (first group), Sop Phene and Sop Ma have been established with all villagers living in their new locations. All of the 142 households of Ban Done, and all of the 52 households of Khone Khen, are engaged in the clearing of house plots, after having built and relocated to temporary houses on their new plots. Access to Khone Kaen and Ban Done remains by 4WD truck only.

#### **Transitional Livelihoods:**

Currently 100% of agricultural plots have been cleared at new Sop On, 100% at new Phonsavang, and 20% at new Boua Ma. All the agricultural plots of the 8 Keng Yao families that moved to the Pilot Village have been cleared. These plots are currently planned with upland rice.

Training and assistance in home gardens is on-going and most transition resettlers have productive gardens for home consumption and trade.

The opportunity to supply labor for work associated with UXO clearance and village construction is provided to all villages, in addition to food support in the case of transition resettlers.

There remains a full time presence of NTPC and District supervisors and community facilitators in each village.

Most NAKAI activity has now shifted focus from implementation of Transition Relocation to planning and implementation of sustainable livelihood models.

Two schedules are presented in the following pages:

The first schedule shows the phases of resettlement for the various villages listed in order of potential impact by cofferdam and main dam

The second schedule shows progress of the respective tasks associated with resettlement of the same villages.

			statistical impact in 2006 (cofferdam)		statistical impact in 2007 (part. dam)				2006				2007				2008				
number	village name	hh # (2006)	10%	1%		10%	1%	new area	New area code	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
8	Ban Hat Khamphane	23	3	3		3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed		Flood impact by dam partly built	Reservoir impounding				
9	Ban Sop Ma	23	3	3		3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed							
10	Ban Keng Gnao	20	3	3		3	3	8	N1	preparation of transitional phase	transitional phase			relocation completed							
10	Ban Keng Gnao	8	3	3		3	3	16	N2	preparation of transitional phase	transitional phase			relocation completed							
13	Ban Sop On	104	3	3		3	3	19	N3	preparation of transitional phase	transitional phase			relocation completed							
14	Ban Done	142	3	3		3	3	21	N4	preparation of transitional phase	transitional phase			relocation	completed						
15	Ban Khone Khen	52	3	3		3	3	22	N5	preparation of transitional phase	transitional phase			relocation	completed						
5	Ban Sop Phene	56	2	3		3	3	11	N6	preparation of transitional phase	transitional phase			relocation completed							
11	Bouama	74	2	3		3	3	17	N7	preparation of transitional phase	transitional phase			relocation completed							
12	Ban Phonsavang	41	1	3		3	3	18	N8	preparation of transitional phase	transitional phase			relocation completed							
1	Ban Sop Hia	34	1	2		3	3	xx	Nx	relocation of lower hh on upper part of the old village	preparation of transitional phase	transitional phase		relocation	completed						
1	Ban Sop Hia (first group)	30	1	2		3	3	8a	N9		transitional phase			relocation completed							
	Ban Nam Nian (first group)	6	0	0		3	3	8a	N9	transitional phase			relocation completed								
4	Ban Nong Boua Kham	57	1	2		1	2	9	N10	preparation of transitional phase	transitional phase			relocation completed							
3	Ban Thalang	79	0	1		1	2	13	N11		preparation of transitional phase	transitional phase		relocation	completed						
6	Ban Nakai Neua	88	0	1		1	2	1	N12		preparation of transitional phase	transitional phase		relocation	completed						
2	Ban Nam Nian	30	0	0		3	3	xx	Nx		preparation of transitional phase	transitional phase		relocation	completed						
7	Ban Nakai Tai	179	0	0		1	2	2	N13		preparation of transitional phase	transitional phase		relocation	completed						
16	Ka Oy	10	0	0		0	0	19	N3				preparation of transitional phase	transitional phase		relocation completed					
16	Ka Oy	15	0	0		0	0	21	N4				preparation of transitional phase	transitional phase		relocation completed					
17	Ban Oudomsouk / Phon Phan	103+56	0	0		0	1		N14				preparation of transitional phase	transitional phase		relocation completed					

				Transition																																
				Topo survey	Village layout design (Housing)	Village layout design (Agric.)	up Hill relocation	Access track	UXO temp area	Logging temp housig area	drill wells, hand pumps	Temporar y Schools	Temp. toilets	Building Temp. houses	Expected Commencement of Transition Resettlement	Transition Support - food, health, household goods	Target Date - full transition	UXO whole areas	Logging whole area	Road Construct ion	Stump Removal	Clear housing area	House Building	Dismantle house and transport	Water Supply	Electricity	Communit y Buildings	Agric land preparatio n	Other non-farm activities	Irrigation	Target Date - Permanent Houses Complete					
New area code	new area	village to move in this area	hh # (2006)																																	
N1	8	Ban Hat Khamphane	22				NR								May-06		T2/06							C			P	P				T4 / 06.				
N1	8	Ban Sop Ma	23				NR								May-06		T2/06							C			P	P				T4 / 06.				
N1	8	Ban Keng Gnao	21				NR								May-06		T2/06							C			P	P				T4 / 06.				
N2	16	Ban Keng Gnao	8				NR	NR		NR		NR			Mar-06		T2/06		NR	P								NR			P	T3/06				
N3	19	Ban Sop On	104				NR								Mar-06		T2/06										P	P				T4 / 06.				
N3	19	Ka Oy	30				NR										T2/07										P	P				T4 / 07.				
N4	21	Ban Done	142												Jul-06		T3/06															T1 / 07.				
N5	22	Ban Khone Khen	52												Aug-06		T3/06															T1 / 07.				
N6	11	Ban Sop Phene	56				NR								May-06		T2/06							C			P	P				T4 / 06.				
N7	17	Bouama	74				NR								Apr-06		T2/06							C			P	P				T4 / 06.				
N8	18	Ban Phonsavang	41				NR								Apr-06		T2/06							C			P	P				T4 / 06.				
N15	7	Ban Sop Hia	37						C								T4/06	C														T1 / 07.				
N9	8a	Ban Sop Hia (first group)	30												May-06		T2/06							C			P	P				T4/06				
N3	8a	Ban Nam Nian (first group)	6												May-06		T2/06							C			P	P								
N10	9	Ban Nong Boua Kham	57				NR	P		C	P	P	P	P	Nov-06		T3/06		P	P	P	P	C		P	P	P					T1 / 07.				
N11	13	Ban Thalang	73														T1/07															T1 / 07.				
N12	1	Ban Nakai Neua	89														T1/07															T1 / 07.				
N15	7	Ban Nam Nian	25				NR		C								T4/06	C														T1 / 07.				
N13	2	Ban Nakai Tai	190				NR										T1/07															T1 / 07.				
N4	21	Ka Oy	3				NR		C								T3/07	C														T4 / 07.				
N14		Ban Oudomsouk / Phon Phan Pek	103+56				NR		C								T3/07	C														T4 / 07.				
				NR		Not Relevant		P		In procurement				C		Contract signed, mobilization phase				Implementation - On going						Task completed										

### 2.3.2 Infrastructure

October was mainly dry and the three road construction contractors made improved progress during the month. Timber house construction has continued at three villages and the UXO contractor continued to make good progress.

#### ○ Topographic survey and mapping of indicative locations

The contract for the survey and mapping of an extra 237 ha near Area 13 for the Ban Thalang irrigated agriculture area was suspended in July because of the heavy rains. The contractor returned to the site in September and the field survey was completed in October and draft contour maps have been submitted. .

Consultants started the field work for a small contract for survey and mapping and the installation of Nakai FSL beacons. This contract is for the further identification of Oudomsouk houses that will be either be flooded or impacted by the Nakai Reservoir and the survey of about 15 ha at Phone Pan Peck for a possible new Oudomsouk housing area.

Another small contract will be signed in early November for another 27 ha of survey and mapping at Areas 1 and 2 for Nakai Neua and Nakai Tai. This is because there has been a small realignment of Road 8B by the HC leaving two gaps between Road 8B and the areas previously surveyed. This survey is necessary for connecting the access roads and possibly identifying some more agricultural plots. There is still no final resolution to the question of how many (ex Nam Pan) Sop Hia and Nam Nian resettlers will be resettled to the Plateau area and how many will resolve to move to Khamkheut District. These villagers have been tending to change their minds frequently. Consultations with GOL and with resettlers are on-going: it is anticipated that those resettlers whose final choice is to move to the plateau will be relocated to the previously identified Area 7.

#### ○ Finalization of village location – Village layout Design

Village Development Plans: All VG1 layouts have been completed (except for that portion of Sop Hia and Nam Nian that was previously scheduled to move to Nam Pan). The preparation of layouts for the remaining villages is underway as shown in the table below.

Name of the original villages in VG2	New village area	Village layout	Agriculture Layout
Thalang	Area 13	Complete	More topographic survey and mapping completed. Draft layout to be prepared for consultations in November
Nakai Tai	Area 2	Complete	Complete
Nakai Neua	Area1	Complete	Complete.
Done	Area 21	Complete	Complete
Khone Khen	Area 22	Complete	Complete

#### ○ UXO search and clearance

The contractor continued to make good progress during the month and completed the search and clearance at Area 7 for the Sop Hia and Nam Nian households that have chosen to move to this Nakai Plateau area. The team is now working on Area 15 agricultural area for Oudomsouk and Phone Pan Peck agricultural areas.

Since November 2005 to 17 October 2006, the contractor has UXO searched and cleared 1,052 ha of resettlement area including miscellaneous small areas such as for the VFA sawmill and log storage areas, road earthworks borrow areas, cemeteries etc. Found and destroyed have been 1,668 UXO items, including 895 bomblets.

The same contractor also has a contract for "Resettlement Area UXO Community Awareness and Emergency Response Teams." The community awareness activities continue to progress smoothly and the system of villagers preparing response forms and placing them in "drop boxes" provided is

working. Many educational materials have been prepared and distributed to the villages. An awareness workshop for village educators was undertaken in October.

The response team continued to visit villages to check on reported suspect items. To date, 1,367 UXO items, including 1,192 bomblets, have been found and destroyed by the response team.

### ○ Roads and drainage

The evaluation of the bids for the contract for the construction of access roads and tracks at the southern areas of Ban Done and Ban Khone Kaen was completed and the contract was awarded to the lowest bidder.

The design of access roads is underway at: Oudomsouk Urban Area B for Oudomsouk PAPs that will be affected by Nakai Reservoir inundation; Nakai Tai and Nakai Neua.

There are three ongoing road construction contracts and progress generally improved during the month with the drier conditions.

#### Southern Access roads to and within villages:

There has been only little progress and completion is about 83% for the construction of access roads to and within the new villages of Bouama (area 17), Phonsavang (area 18) and Sop On (area 19).

#### Southern Resettlement Road:

Progress was improved on the contract for the construction of the Southern Resettlement Road, 11.765 km long. The construction is now about 49% complete.

#### Northern Access roads to and within villages:

The contractor has continued work on the construction of access roads to and within the new villages of Sop Ma (area 8), Vietic Sop Hia (area 8a), Nong Boua Kham (area 9) and Sop Phene (area 11) and has made good progress with embankment fill and track grading. It is estimated the works are about 79% complete.

A contract Variation Order was signed for the contractor to undertake similar works for the access tracks for the village housing area only at the nearby Area 13 for Ban Thalang.

### ○ House Construction

Contracts for the construction of timber houses for VG1 resettlers have been awarded but only four companies have commenced construction. The problem is with the delivery of sawn construction wood. It is expected that the situation will improve during November, but not to an extent where the two remaining contractors can be given notice to proceed and this will be delayed further. The delays are due to:

- original surveys by GOL overestimated the volume of construction hardwood species available;
- VFA sawmill equipment still in procurement;
- Restrictions on transporting logs to/from other sawmills (traffic management concerns)
- Complicated and time consuming procedures (tax exemption, permissions etc.)

Other contracts are planned to start as follows:

<i>Areas and Villages concerned</i>	<i>Contract No.</i>		<i>Start Date</i>
Area 17 for Bouama Area 16 for Keng Gnao	C604	Area 16	20 March 06
		Area 17	19 May 06
Area 18 for Phonsavang	C605		16 May 06
Area 19 for Sop On	C606		21 April 06
Area 8 for Sop Ma / Hat Khamphane Area 8A for Sop Hia	C607	Area 8a	30 October 06
		Area 8	30 October 06
Area 9 for Nong Boua Kham	C608		deferred until timber supply secured
Area 11 for Sop Phene	C609		deferred until timber supply secured

The eight houses for Keng Gnao resettlers at Area 16 are complete. All the three Contractors (at Area 19 (Sop On), 18 (Phonsavang) and 17 (Bouama)) have completed the construction of the work camps and progress with foundations and the concrete piers and continue their progress on the structural timber parts of the buildings. The three Contractors are now working on the following number of houses: Bouama, 74; Phonsavang 42; Sop On 104.



New House in Pilot Village (Keng Gnao resettlers)

Houses under construction in new Sop On



### ○ Community Buildings

Each resettlement village will have a primary and nursery school, village office and meeting hall, market, warehouse and a rice mill and workshop. There will also be two clinics, four seed processing and agricultural storage facilities and four organic fertilizer facilities located at various villages. The sizes of most of the buildings will vary according to village size.

The preparation of bidding documents for the VG1 and some of the VG2a (schools and health centers) buildings is complete and the bidding procedures will commence in November.

### ○ Domestic Water Supply and Sanitation

As always and previously reported, resettlement village water supplies is a combination of:

- Rainwater collected from house roofs, via guttering and down-pipes to a 2,000 liters capacity tank; and
- Deep machine drilled boreholes equipped with VLOM (Village Level Oriented maintenance) hand pumps.

Toilet/bathrooms are and will be installed at every house and in some selected community buildings. The construction of the VG1 resettlers' rainwater collection facilities and toilet/bathrooms is included with the housing construction contract. The construction of these toilets/bathrooms is now completed for the 8 new Keng Gnao resettlers families in Ban Nong Boua Pilot Village.

The same constraints than the ones met for the houses construction prevail for the toilet/bathrooms construction.

#### Boreholes with hand pumps:

The recapitulative progression for October 2006 and the summary of the actual performance vs initial and temporary revised 4<sup>th</sup> update plan (based on the continuous reconciliation of the data on resettlers' population) is included in the following pages. This following summary includes the boreholes drilled for the benefit of Project Affected Persons (PAPs) by the construction of the Nam Theun 2 infrastructure (ref. Table 1 "Project lands") as well as those under the health infrastructure rehabilitation plan (ref. Table 3).

The drilling performance has been consequently improved this month with the return of the dry season and therefore the betterment of the access to the drilling sites in the villages. Twenty nine (29) successful boreholes have been completed in the 3 villages of Ban Sop On area 19 (9 BHs), Ban Done area 21 (14 BHs) and Ban Sop Ma area 8 (8 BHs). It is noteworthy to mention that there has been no borehole abandoned during this month partly due to favorable soil conditions and the now comprehensive knowledge by the drilling crews of the soil situation in the majority of the resettlement areas.

As of the end of this reporting period, an actual total of 103 deep boreholes are successfully completed out of 113 drilled since the beginning of the operations in December 2005 with the Champasack Provincial Nam Saat drilling team.

At present the main constraint remains the hand pumps installation. Only 66 boreholes are equipped now and therefore in use. The supply process of imported Afridev VLOM deep well hand pumps is long-time engaged and the equipment is not yet delivered to Laos. The required costs based on the Unicef SD proforma have been transferred in August. Due to administrative and complicated procedures, it is foreseen, according to information provided by UNICEF Vientiane office, that the delivery will be done around the end of November 2006.

A tentative schedule of interventions for the next coming 4 month is also included in the following pages. This schedule is based on the actual situation on the field. As earlier mentioned in precedent report, the on-going contract with Champasack Nam Saat is to be completed at the end of February 2007. It is expected that January and February 2007 period will be mainly utilized for the complete and proper installation of the hand pumps

Another contract to cover the remaining VG2b, VG3 and VG4 is planned to be established from February 2007 immediately after the completion of the current contract.

**ENVIRONMENTAL AND SOCIAL DIVISION****NTPC - Construction of machine drilled boreholes for domestic water supply****CONTRACTOR:**

Provincial Public Health Department

Champasack Province

Environmental and Water supply Section

**RECAPITULATIVE MONITORING DRILLING PERFORMANCE****SITUATION ON MONTH OF: OCTOBER 2006**

RECAPITULATIVE TABLE No 1: "Project Lands"						Balance vs plan		Total Completion					Completion October 2006		
			Initial plan - Dec 2005		Temporary Revised 4th Plan	Productive	Equipped	Total BHs drilled	Productive	Equipped	Failures	Failures			
			Option average coverage 8 Houses/BH	Difference initial plan vs temporary revised 4th plan	Option average coverage 8 Houses/BH	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled	Productive	Equipped	Failure
No	New Area	Villages	Total Qty	Total Qty	Total Qty										
1	ODS New Urban area A (Oudomsouk May)	Oudomsouk SD12B PAPs	9	1	10	1	1	9	9	9	0	0.00			
2	ODS New Urban area C (Primary School)	Oudomsouk SD12B PAPs	1	0	1	0	0	1	1	1	0	0.00			
3	ODS	Oudomsouk SD12B PAPs - ODS old areas 8, 7 and market	5	0	5	0	0	5	5	5	0	0.00			
4	PPP	Pon Pan Pek - Intake PAPs	5	0	5	0	0	5	5	5	0	0.00			
5	NRC	NRC Oudomsouk	0	1	1	0	1	1	1	0	0	0.00			
6	GML	New 8 Houses GML	0	1	1	1	1	0	0	0	0				
7	GML	GML Horticulture Demonstration Center	0	1	1	1	1	0	0	0	0				
8	GML	Gnommalath Tay	0	1	1	1	1	0	0	0	0				
9	GML	Gnommalath Neua	0	1	1	1	1	0	0	0	0				
10	GML	Ban Lao Naa Ngam	0	1	1	1	1	0	0	0	0				
11	GML	Ban Phone Lath Khouey	0	1	1	1	1	0	0	0	0				
12	GML	Ban Tongmang	0	1	1	1	1	0	0	0	0				
13	GML	Ban Sangkeo	0	1	1	1	1	0	0	0	0				
14	xxx	Others - ESTIMATE QUANTITY - To be finalized and adjusted during implementation period as per demand.	22	0	22	22	22	0	0	0	0				
SUB TOTAL Project lands			42	10	52	31	32	21	21	20	0	0.00	0	0	0

RECAPITULATIVE TABLE No 2: "Nakai Plateau resettlement"																
			Initial plan - Dec 2005		Temporary Revised 4th Plan	Balance vs plan		Total Completion						Completion October 2006		
			Option average coverage 8 Houses/BH	Difference initial plan vs temporary revised 4th plan	Option average coverage 8 Houses/BH	Productive	Equipped	Total BHs drilled	Productive	Equipped	Failure	Failures				
						Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled		Productive	Equipped	Failure
No	New Area	Villages	Total Qty	Total Qty	Total Qty											
1	16	Ban Nongboua, Keng Nyao (PV)	7	0	7	2	2	5	5	5	0	0.00				
2	17	Ban Bouama	11	1	12	4	5	12	8	7	4	33.33				
3	18	Ban Phonsavang	8	-1	7	0	0	8	7	7	1	12.50				
4	19	Ban Sop On	17	2	19	0	8	19	19	11	0	0.00	8			
5	8	Ban Sop Ma, Hatkhamphan, Keng Nyao	11	0	11	0	7	11	11	4	0	0.00	7			
6	8a	Ban Sop Hia Vietic	7	0	7	2	4	8	5	3	3	37.50				
7	9	Ban Nong Boua Kham	10	1	11	11	11	0	0	0	0					
8	11	Ban Sop Phene (incl. additional 2 BHs for temporary relocation)	9	2	11	9	10	2	2	1	0	0.00				
9	21	Ban Done	22	0	22	0	14	23	22	8	1	4.35	14			
10	22	Ban Khon Kaen	8	1	9	7	9	3	2	0	1	33.33				
11	1	Ban Nakai Tay	27	0	27	27	27	0	0	0	0					
12	2	Ban Nakai Neua	14	-1	13	13	13	0	0	0	0					
13	13	Ban Thalang	12	0	12	12	12	0	0	0	0					
14	7	Ban Sop Hia/ Nam Nian	11	-6	5	5	5	0	0	0	0					
15	KK	Ban Sop Hia/ Nam Nian	0	7	7	7	7	0	0	0	0					
16	xxx	Oudomsouk	15	-1	14	14	14	0	0	0	0					
17	PPP	Ban Pon pan Pek	0	2	2	2	2	0	0	0	0					
SUB TOTAL Resettlement villages			189	7	196	115	150	91	81	46	10	10.99	29	0	0	

RECAPITULATIVE TABLE No 3: " HEALTH INFRASTRUCTURE"																	
			Initial plan - Dec 2005		Temporary Revised 4th Plan	Balance vs plan		Total Completion						Completion October 2006			
				Difference initial plan vs temporary revised 4th plan		Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	Cumul to date	% of total drilled	Productive	equipped	Failure		
No.	District	Buildings	Total Qty	Total Qty	Total Qty												
1	Gnommalath	Gnommalath Hospital	1	0	1	1	1	0	0	0	0						
2	Gnommalath	Khed Phit Health Center	1	0	1	1	1	0	0	0	0						
3	Gnommalath	Nadou Health Center	1	0	1	1	1	0	0	0	0						
4	Gnommalath	Nasok Health Center	1	0	1	1	1	0	0	0	0						
5	Kamkeuth	Kaeng Deng Health Center (september)	1	0	1	0	1	1	1	0	0	0.00					
SUB TOTAL Health Infrastructure			5	0	5	4	5	1	1	0	0	0.00	0	0	0		
GRAND TOTAL			236	17	253	150	187	113	103	66	10	8.85	29	0	0		

Construction of machine drilled boreholes for domestic water supply in:

- 1) Resettlement Villages New Areas - Nakai District, Khammouane Province
- 2) Health Centers and District Hospitals - Gnommalath Dist., Khammouane Prov. and Khamkeuth Dist., Bolikhamsay Prov.
- 3) Project Land areas - Nakai and Gnommalath Districts, Khammouane Province

#### INDICATIVE GENERIC TENTATIVE SCHEDULE OF IMPLEMENTATION

#### DRILLING BOREHOLES OF MINIMUM 30 METERS AND MAXIMUM 60 METERS DEPTH

		General Data			Tentative schedule					
New Area	Name of Village/Health Center/Hospital	Maximum Qty required (cov. 1/8HHs)	Qty already completed on date	Maximum Qty completion balance on date	Nov. C675 2 rigs	Dec. C675 2 rigs	Jan. C675 1 rig	Feb. C675	Diff. perform. And plan vs Max. Qty required on date	Remarks
1- Resettlement areas										
16	Ban Nong Boua (PV)	7	5	2	2				0	
17	Ban Bouama	12	8	4		2			-2	Further sites selection needed. Balance 2 BHs possibly completed under other contract.
18	Ban Phonesavang	7	7	0					0	Maximum Qtys target completed on date
19	Ban Sop On	19	19	0					0	Maximum Qtys target completed on date
8	Ban Sop Ma/ Hatkhampan/Keng Nyao	11	11	0					0	Maximum Qtys target completed on date
8a	Ban Sophia Vietic	7	5	2	2				0	
9	Ban Nong Boua Kham	11	0	11		2	5		-4	Balance 4 BHs possibly completed under other contract.
11	Ban Sop Phene (incl. additional 2 BHs for temporary relocation)	11	2	9	2	7			0	Additional 2 BHs due to temporary relocation
21	Ban Done	22	22	0					0	Maximum Qtys target completed on date
22	Ban Khon Kaen	9	2	7	7				0	
	SUB TOTAL 1 PHASE 1	116	81	35	13	11	5	0	-6	
xxx	Oudomsouk	14	0	14					-14	Not planned before 2nd half of 2007
	Pon Pan Pek	2	0	2					-2	Not planned before 2nd half of 2007
2	Ban Nakai Tai	27	0	27					-27	Contract not yet issued
1	Ban Nakai Neua	13	0	13					-13	Contract not yet issued
13	Ban Thalang	12	0	12					-12	Contract not yet issued
7	Ban Sop Hia/Nam Nian	5	0	5					-5	Contract not yet issued
xxx	Ban Sop Hia/Nam Nian	7	0	7					-7	To define
	SUB TOTAL 2 PHASE 2	80	0	80	0	0	0	0	-80	
Total 1 resettlement areas		196	81	115	13	11	5	0	-86	
2- Health Centers and District Hospitals										
GML	Gnommalath Hospital	1	0	1	1				0	To be completed before December 06
GML	Khed Phit Health Center	1	0	1	1				0	To be completed before December 06
GML	Nadou Health Center	1	0	1	1				0	To be completed before December 06
GML	Nasok Health Center	1	0	1	1				0	To be completed before December 06
KK	Kaeng Deng Health Center	1	1	0					0	
Total 2 Health Infrastructure		5	1	4	4	0	0	0	0	

		General Data			Tentative schedule					
New Area	Name of Village/Health Center/Hospital	Maximum Qty required (cov. 1/8HHs)	Qty already completed on date	Maximum Qty completion balance on date	Nov. C675 2 rigs	Dec. C675 2 rigs	Jan. C675 1 rig	Feb. C675	Diff. perform. And plan vs Max. Qty required on date	Remarks
3- Project lands										
	Oudomsouk May - Area A - SD12B	10	9	1	1				0	
	Oudomsouk Primary school - SD12B	1	1	0					0	Maximum Qtys target completed on date
	Oudomsouk old village - SD12B	5	5	0					0	Maximum Qtys target completed on date
	Pon Pan Pek intake PAPs	5	5	0					0	Maximum Qtys target completed on date
	NRC (Nakai)	1	1	0					0	Maximum Qtys target completed on date
GML	New 8 Houses (GML)	1	0	1	1				0	
GML	Gnommalath horticulture demonstration center	1	0	1		1			0	
GML	Gnommalath Tay	1	0	1		1			0	
GML	Gnommalath Neua	1	0	1		1			0	
GML	Ban Lao NaaNgam	1	0	1		1			0	
GML	Ban Phonlathkhoeuy	1	0	1		1			0	
GML	Ban Tongmang	1	0	1		1			0	
GML	Ban Sangkeo	1	0	1		1			0	
	Others - To be finalized and adjusted during implementation period	22	0	22					-22	Location and Quantities Not included in schedule - Locations and required quantities to be finalized on a case by case basis according to demand
Total 3 Project lands		52	21	31	2	7	0	0	-22	
GRAND TOTAL PLANNED		253	103	150	19	18	5	0	-108	

Update 31.10.2006

Expected maximum remaining implementation period for contract C675

### ○ Irrigation Systems

Progress with the contract for the construction of the extension area to the Pilot Village irrigation scheme for the resettlers from Ban Keng Gnao has been suspended because of the rains and the fact that the farmers are growing a wet season rainfed rice crop on the plots. The Contractor is procuring all the pipes and fittings required for the works. Works will restart in early November. A Variation Order for this contract has been signed for some extra roadworks within the Pilot Village and at Oudomsouk Urban Area A

The preparation of irrigated agricultural layouts is part of the resettlement village planning exercise and this has been reported on above.

Permanent irrigation agriculture cannot commence until there are transmission lines are installed to power the irrigation pumps until there is Nakai Reservoir water to pump from (apart from areas 17, 18 and 19, which will have the use of water from the Theun Duane and Houay Malai).

### ○ Electricity

The contract with EDL for the electrification of the eight houses completed at Area 16 for the Keng Gnao resettlers is complete.

Installation of the transmission lines is continuing at the VFA Sawmill. Between supervising these contracts plus that for the NTPC Nakai Residential Complex, the Senior Electrical Engineer is continuing with the preparation of design, layouts and quantity estimates for the resettlement villages. To date designs have been completed at five villages.

### 2.3.3 Livelihood

Second mission of Livelihood Advisor (02 to 14<sup>th</sup> October 2006) – October mission's report released.

Recently appointed TA are starting internal training on Agro forestry approach.

#### ○ Communication

The agro-sylvo-pastoralism production systems land use planning for reallocated household area and common land management has been presented on 5<sup>th</sup> October 2006 to Khammouane Provincial Governor in Thakhek and the approach has been endorsed.

All documentation is available in English and Lao.

IFIs field mission on 9<sup>th</sup> October.

#### ○ Staffing

No change from previous report.

#### ○ Institutional strengthening

No change from previous report.

#### ○ Land allocation

Methodology and organization of land allocation program (0.66+3+5 ha) has been finalized early October.

### 2.2.3.1 Nakai Plateau Forestry Development Program

#### **Logging**

The logging operation of Village Forestry Association was carried out by Nakai Transportation Association. The logging operation followed the procedures guidance and area allocated for VFA. The total volume of logging operation of about 762,989 m<sup>3</sup> is approved by PAFO, this approved volume was based on the survey in and around of the area of the new village settlement area, agriculture land, construction area, new road construction and other project area.

#### **Sawn timber**

The provision of timber to the supply of wood for housing construction for new resettlement NT2 project of 3 villages Ban Phonsavang, Ban Sop On, Ban Bouama from May to October 2006 are summarized as following:

- Total volume timber delivery at construction site 1,623 m<sup>3</sup>
- The sawn timber are not suitable for the required specification and not meet the construction need
- The sawn timber do not follow the target set, both in the volume and time requirement

#### **Charcoal& Brick making**

4 new Charcoal kilns have been made for 4 Villages:

- Ban Bouama
- Ban Sop Phene
- Ban SopMa
- Ban Sophia

#### **Furniture**

On-going.

#### **Silviculture (Plantation, Nursery, Enrichment)**

- Collecting seeds from Eleusin weeds 207 kg
- Maintenance fencing for Plantation and Enrichment Areas
- Monitoring patrolling and fire guard

Audit:

NTPC and Auditing company joined to carry out financial auditing of VFA is ongoing. A report is expected in November

### 2.2.3.2 Nakai Plateau Agricultural and Livestock Development Program

Agriculture and Livestock team continues to focus on the transition resettlement villages in terms of livelihood restoration (9 villages incl. Keng Gnao): creation of temporary vegetable garden for each household, agriculture land clearing, fencing, mushroom production, buffalo relocation, pig and poultry shed construction, etc, in order to improve livelihood condition of the resettlers particularly to secure the familial food situation when they move to a new resettlement site.

The 2 technical Assistants have finalized:

- a technical program for end 2006
- evaluation of the existing training centers

A Pilot village assessment is on-going.

Meeting carried out with infrastructure team about irrigation (report done). This program has to be reviewed on the way to develop the market garden cropping system with a survey of all the possibilities for water management (approach confirmed by October IFIs mission).

#### ○ Transition resettlement villages

Activity	Input / Support	Output / Result	Assessment
1. Establishment of temporary vegetable garden	<p>Provided continuously vegetable seed and seedlings as follow:</p> <p><b>SEED:</b>  Onion: 20.2 kg  Morning glory: 16.2 kg  Long bean: 2.2 kg  Coriander: 14.5 kg  Cucumber: 1 kg  Pakchoy: 1.2 kg  Squash: 1.3 kg  Pumpkin: 0.5 kg</p> <p><b>SEEDLING:</b>  Cabbage: 1,753 seedling  Cauliflower: 1,246 seedling  Broccoli: 360 seedlings  Eggplant: 1,056 seedling  Chili: 1,305 seedlings  Tomatoes: 135 seedling  Papaya: 811 seedlings  Spring onion: 3,000 seedlings  Provided 6,709 kg of Bio-fertilizer and 34 liter of Bio-Extract liquid for pest control</p>	<p>This coming dry season crop is continuously grow vegetable in the temporary garden by using borehole water because an irrigation system is not constructed yet.</p> <p>The temporary vegetable garden is already started at Ban Done and completed for 25 households in 628 m2 of area but this activity is on-going.</p> <p>Produced some vegetables at the three resettled villages (Sop Phene, Sop Hia and Sop Ma) as follows:</p> <p>Pakchoy: 166.2 kg  Onion: 174.7 kg  Coriander: 151.2 kg  Morning glory: 264.8 kg  Long bean: 134.6 kg  Cucumber: 82.7 kg</p> <p>Another several vegetables is not identified the production due to too small production for house consumption only</p>	<p>It is mainly for house consumption and the surplus product can be sold. The temporary vegetable garden is continuously grown several vegetable. The temporary vegetable garden is starting very soon at Khone Kaen.</p>
2. Crop seed supply and Fruit trees distribution	<p>Vegetable seed were distributed to transition resettlement village are mentioned above.</p> <p>185 litchi seedling trees were distributed to 40 households of Boua Ma village.</p>	<p>Vegetable production were produced for house consumption and only Boua Ma had surplus product for selling as follow:</p> <p><b>Boua Ma:</b>  Morning glory: 113.6 kg  Onion: 33 kg</p>	<p>Tree villages have received some household income from temporary vegetable garden as follow:</p> <p>1. Boua Ma: 125,000 kip</p> <p>Follow up and on-going</p>

Activity	Input / Support	Output / Result	Assessment
		<p>Coriander: 46 kg Longbean: 28 kg</p> <p>Phonsavang, Sop On and Keng Gnao villagers are busy with the rice harvesting. Otherwise, they grown vegetable only for consumption</p>	
3. Agriculture land clearing	<p>This activity is not implemented during the month of October but will be conducted at the beginning of 2007.</p> <p>Distributed agricultural tools for 147 households of Ban Done and 52 households of Khone Kaen villages. The agricultural tools were distributed as follow:</p> <p>Hoe: 398 units Spade: 199 units Siem (small spade): 199 Hay Fork: 199 units Knives: 398 units Crowbar: 199 units Watering can: 199 units</p>	The agricultural tool is mainly used for agriculture activity (land clearing, vegetable garden, etc.) and other purposes.	Setting up the implementation plan and follow up.
4. Agriculture land fencing	The resettlers of Sop Phene, Sop Hia and Sop Ma is completed the preparation of fencing post	At sop On, the fencing post is already fixed and now waiting for barbed wire and another two villages is also proceeding to fixing the fencing post.	Follow up
5. Wet season crop cultivation	Most of wet season crop are harvested particularly upland rice that has been grown in Keng Gnao, Phonsavang and Sop On	<p>At Sop On, the rice is grown in 67.9 ha of area and the rice yield is 1.2 t/ha</p> <p>At Phonsavang, the rice is grown is 18.3 ha and the production is 23,792 kg (1.3 t/ha)</p> <p>At Keng Gnao the rice is grown in 2.48 ha and the total production is 3,170 kg (1.2 t/ha)</p>	This average yield of three resettlement villages is normal production of upland rice in new soil of Nakai plateau
6. Contour bunding	Completed to provide the materials or agricultural tools to every resettled village for the construction of contour bunding.	The establishment of contour bunding will be done after harvesting time is finished (probably from the month of November or the rice harvesting time is finished) but this activity have to fit to a new approach of agriculture program	On-going and follow up
7. Mushroom production	Provided 3,300 bags of sawdust mushroom spores to the resettled village as follow:	<p>Mushroom is produced by village as follow:</p> <p><b>Boua Ma:</b> 77 kg and earned 445,000 kip</p>	Mushroom production is one important component of familial food security and very

Activity	Input / Support	Output / Result	Assessment
	<p><b>Boua Ma:</b> 1,600 bags (8 hh)  <b>Sop Hia:</b> 400 bags (2 hh)  <b>Sop Ma:</b> 400 bags (2 hh)  <b>Sop On:</b> 500 bags (2 hh)  <b>Sop Phene:</b> 400 bags (2 hh)</p> <p>Constructed 1 mushroom house for one household at Sop On</p>	<p><b>Phonsavang:</b> 43 kg and earned 310,000 kip  <b>Sop On:</b> 63 kg and earned 440,000 kip  <b>Sop Ma:</b> 25 kg  <b>Sop Phene:</b> 15 kg  <b>Sop Hia:</b> 15 kg  <b>Keng Gnao:</b> 21 kg and earned 167,000 kip</p> <p>Three transition resettlement villages in the northern part (Sop Ma, Sop Hia and Sop Phene) are already promoted to grow mushroom as mentioned last month report. We are completed the construction of a small mushroom production factory in order to transfer a new knowledge to the resettlers through on-the-job training approach. Up to date, we already trained 4 households of Sop Hia</p>	<p>suitable for every household even vulnerable household. Follow up and continue to promote.</p>
8. Buffalo relocation	The resettlers is undertaken themselves for the buffalo relocation and also cattle but the project provided the string for catching buffaloes and cattle and also payment for labor of buffalo relocation (10,000 kip/buffalo).	<p>Sop Ma has relocated 129 buffaloes, remaining 39 buffaloes  Sop Phene is relocated 135 buffaloes, still remaining 19 buffaloes  Sop Hia is completed the relocation of livestock but still remain 54 heads of "Khouay Hae". Those buffalo stay at the forest all the time and difficult to get them for vaccination and registration.</p>	Follow up. Actually, the livestock relocation of the resettled villages is almost completed particularly 5 villages of the southern part of resettlement site because the grazing land area of cattle is the same area of new resettlement site
9. Buffalo shed	The project provided the barbed wire and nail and also payment for labor but another material (e.g. wood, etc.) is carried out by resettlers themselves.	The construction of animal shed is already stopped due to limitation of budget but up to date we completed some buffalo shed during the transition resettlement period as follow: Buffalo shed: 10	Follow up
10. Poultry and pig shed	Supplied the bamboo sheet wall, thatch for roofing and nail but labor is undertaken by resettlers themselves.	Establishment of the poultry shed and pig shed is also stopped but there is completed some of them during the transition resettlement period as follow: Pig shed: 132 Poultry shed: 298	Follow up
11. Animal Vaccination	Supplied the animal vaccine to the resettled	Animal were vaccinated during the month of October	On-going and follow up

Activity	Input / Support	Output / Result	Assessment
	villages including four (4) pre-resettlement villages (Nakai tai, Nakai Neua, Thalang, Nong Boua Kham).	as follow: Buffalo: 69 heads Cattle: 14 heads Poultry: 147 heads  Animal vaccination is done by Village Veterinary Volunteer (VTV) in collaboration with DWG technical staff	

### ○ NB-Pilot Village

The vegetable cultivation is going on throughout the year and now pilot village is already commenced to grow dry season vegetables. The major vegetable is grown in dry season such as: cabbage, cauliflower, broccoli, onion, lettuce, pakchoy etc.

Activity	Input / Support	Output / Result	Assessment
1. Dry season crop cultivation	<p>Vegetable were distributed to pilot village:</p> <ul style="list-style-type: none"> <li>Cucumber: 0.4 kg</li> <li>Coriander: 12.5 kg</li> <li>M. glory: 9 kg</li> <li>Spinach: 0.08 kg</li> <li>Lettuce: 0.1 kg</li> <li>Pakchoy: 0.69 kg</li> <li>Kale: 0.06 kg</li> <li>Onion: 12 kg</li> <li>Cabbage: 0.01 kg</li> <li>Cauliflower: 0.02 kg</li> <li>Broccoli: 0.02 kg</li> <li>Chili: 0.05 kg</li> <li>Eggplant: 0.05 kg</li> <li>Pumpkin: 0.01 kg</li> </ul> <p>According to vegetable seedlings production is undertaken directly by villager themselves. They organized 6 sites for producing of such seedling. The total vegetable seedling is produced for 2<sup>nd</sup> round as follows:</p> <ul style="list-style-type: none"> <li>Cabbage: 4,480 seedlings</li> <li>Cauliflower: 681 seedlings</li> <li>Broccoli: 564 seedlings</li> <li>Chili: 1,837 seedlings</li> <li>Eggplant: 458 seedlings</li> </ul>	Those vegetable seed and seedlings is grown in the area 1.4 ha and 0.35 ha of which is grown cabbage and also 0.23 ha of which is grown cauliflower respectively.	On-going and follow up
2. Bio-Fertilizer production	Supplied raw materials to produce organic fertilizer (e.g. rice husk, animal dung, rice bran etc.)	Produced 1,780 kg of Bio-fertilizer by 10 households. Those fertilizer is applied into their owner vegetable garden	On-going and Follow up
3. Vegetable production	Vegetable cultivation is continuously activity to	During this month 24 households already started to	24 households earned 1,356,000 kip from

Activity	Input / Support	Output / Result	Assessment
	implement throughout the year and the project also supplied continuously the necessity input to villager (vegetable seed, tools, etc.). Regarding the CA, we shall reduce about 20% some input (fertilizer, crop seed etc.) after 4 years of resettlement period. Otherwise, we should do it from the beginning of the year 2007.	grow the dry season vegetables and the total planted area was 1.4 ha. The production of vegetables and field crop is follow: <ul style="list-style-type: none"> <li>• Coriander: 40.5 kg</li> <li>• Morning glory: 82.5 kg</li> <li>• Pak Choy: 37.8 kg</li> <li>• Cucumber: 237.6 kg</li> <li>• Spinach: 12 kg</li> </ul> The vegetable production is still continue to harvest	vegetable production and field crops (e.g. banana, papaya etc.)
4. Mushroom production	Only 500 bags of sawdust mushroom spores were supplied to one household of pilot village.	Produced 76.5 kg of mushroom, 38.5 kg of which is sold and earned 385,000 kip. Mushroom production is one better source household income of the pilot villager that we should also continue to promote in each resettlement village.	On-going and follow up
5. Livestock raising	Up to now 20 forage plots (1,600 m <sup>2</sup> /plot) has been established for 20 households	Livestock is a one source income of pilot villager particularly buffalo. Up to date, at pilot village has some livestock as follow: <ul style="list-style-type: none"> <li>• Buffalo: 192 heads</li> <li>• Cattle: 55 heads</li> <li>• Poultry: 264 heads</li> </ul>	Follow up.
6. Animal Vaccination	The animal vaccination is carried out by pilot villager themselves by using the animal vaccine revolving fund under supervision of DWG technical staff.	Vaccinated 68 poultries. The vaccination of buffalo and cattle is completed	On- going and Follow up



Vegetable garden (pakchoy) of a resettlers farmer at Pilot village



Cattle of a resettlers at pilot village

### ○ NB-Agricultural Extension Centre (Zone I)

The major role and function of the center is to produce Bio-fertilizer, sawdust mushroom spore and pig, poultry to supply to the resettlement village including pilot village and also provide the crop seed and seedling and technical assistance to the resettlers.

Activity	Input / Support	Output / Result	Assessment
1. Bio-Fertilizer production		Produced 7,540 kg of organic fertilizer 1,780 kg of which is produced by the villager of pilot village. Produced also 210 liter of Effective Micro-organism (EM). 2,640 kg of organic fertilizer were distributed to the transition resettlement villages. We have now 3,400 kg in the stock.	Bio-fertilizer and EM production is continuously produced for supplying to the resettlement villages in order to improve to soil fertility and increasing of the crop yield. On the other hand, it is to avoid the use of any agro-chemical.
2. Vegetable seed and seedlings supply	Produced some vegetable seedlings to supply to the transition village such as: Cabbage: 2,650 seedlings Cauliflower: 50 seedlings Broccoli: 200 seedlings Papaya: 130 seedlings	The vegetable seedlings were distributed to: 1. NB-Pilot village: Cabbage: 2,650 seedlings Broccoli: 200 seedlings Papaya: 30 seedlings  2. Khone Kaen: Cauliflower: 50 seedlings Papaya: 100 seedlings	On-going and follow up.  Vegetable seedling is now producing at the each village and then will be distributed to the resettlers.
3. Mushroom production	Produced 4,000 bags of sawdust mushroom spore	3,800 bag of sawdust mushroom spore were distributed to the transition villages including pilot village as follows:  Sop On: 500 bags Boua Ma: 1,600 bags Sop Ma: 400 bags Sop Hia: 400 bags Sop Phene: 400 bags Nong Boua: 500 bags	On-going and follow up
4. Livestock raising	Continuing to produce the pig and poultry to supply to the resettlers. The total number of livestock in the center is follows: <ul style="list-style-type: none"> <li>Pig: 16 heads (including 11 piglets)</li> <li>Chicken: 93 heads</li> <li>Cattle: 5 heads</li> </ul> 38 chickens were vaccinated New Castle M	Hatching 16 chickens.	Follow up

○ Theun Douan-Agricultural Extension Centre (Zone II)

Activity	Input / Support	Output / Result	Assessment
1.Bio-fertilizer production		Produced 50 liter of effective micro-organism liquid (EM) and 2,000 kg of Bio-fertilizer.  Bio-fertilizer were distributed to: Boua Ma: 1,125 kg Sop On: 650 kg Phonsavang: 500 kg	Bio-fertilizer should produce more at least 2,000 kg per month to supply to vegetable garden in this dry season. Up to date, The temporary vegetable garden area is expanded at 3,545 m2 at Sop On village
2.Mushroom production	Produced 2,000 bags of sawdust mushroom spores	Supplied 2,300 bags of sawdust mushroom spores to the transition resettlement villages as follow: Boua Ma: 600 bags Sop On: 800 bags Phonsavang: 600 bags Ban Done: 300 bags	Still continuing to encourage the resettlers to grow the mushroom. We will have a plan to conduct directly the training (learning by doing approach) on mushroom production for the resettlers at their owner village as same as we doing now at Sop Hia village.
3.Fruit trees propagation		Produced 220 pruning of pomelo. Distributed 185 fruit trees grafted branches of Litchi to 40 HH of Boua Ma	To be distributed continuously to the resettlers in next month
5. Poultry raising		We have now some livestock in the center: Chicken: 92 heads Duck: 63 heads Pig: 4 heads	Poultry to be distributed to the resettlers after one month through revolving fund
6. Crop seed multiplication	Continuing to conduct demonstration plot on several crop and also crop seed multiplication	Seed multiplication is conducted in the planted area as follow: Long bean: 300 m2 Cucumber: 800 m2 Pakchoy: 80 m2 Onion: 1,350 m2 Lettuce: 96 m2	On-going and follow up
Activity	Input / Support	Output / Result	Assessment

### ○ Nakai Neua - Fruit Trees Propagation Centre

Activity	Input / Support	Output / Result	Assessment
1. Distribution of fruit trees grafted branches	2,773 seedlings of rattan were distributed to VFA for reforestation.		Follow up and to be distributed continuously to other transition resettlement villages particularly the interested resettlers
2. Grafted seedling production		Produced the grafted branches: <ul style="list-style-type: none"> <li>• Mango: 380</li> <li>• Lemon: 30</li> <li>• Mandarin: 170</li> </ul>	The grafted branches are not yet cut out from parent plants as follow: Mango: 344 Lemon: 1,880 Litchi: 414 Jack fruit: 116
3. Fruit trees seedlings in the nursery	We have some fruit trees grafted branches in the nursery which is ready to distribute to the resettlers as follow: Mango: 2,397 Mandarin: 170 Lemon: 6,864 Litchi: 1,575 Jack fruit: 201 Rose Apple : 422 Pomelo : 2,652		To take care and Follow up
4. Bio-fertilizer production	Produced 1,080 kg of Bio-fertilizer	Provided 187 kg of Bio-fertilizer to the transition resettlement village as follow: Sop Ma: 93 kg Sop Phene: 45 kg Sop Hia: 47 kg	We have now 600 kg of organic fertilizer in the stock to be distributed the transition villages

#### 2.2.3.3 Fisheries Reservoir Program

A contract for the Implementation plan of Nakai Plateau reservoir management and fisheries has been signed early October 2006 with a consultant. Investigations on-going in GOL to select some senior Lao Government staff to participate to this study.

Meeting on 14th October with RMU and DG of DLF/MAF about the Fisheries development and reservoir management implementation plan and to find out one appropriate staff from the Ministry to work with the above Consultant. The wrap up meeting has been done with NTPC on 14/10/06 at NTPC/VTE Office and identified the appropriate staff and team.

#### 2.2.3.4 Community Development Program

Main CD activities were concentrated to final census of already relocated villages (VG1 and some VG2).

During October, villagers were continuously provided with rice and protein.

Off farm activities were introduced, basic information gathered to come up with detailed support plan, especially Vulnerable households.

Village layouts consultations with Thalang and Nakai Tai & Neua were organized, but yet to finalize. Village grouping policy of the GoL made CD Team to carry many rounds of consultations with the resettlers.

Gender specialist came to monitor Gender Mainstreaming activities with the team established. Study tour organized for the Mainstreaming team.

October is the start of new year education season, teaching equipment and tools were provided to schools in new villages. Children at the ages between 2 to 5 years old were encouraged to put in the nurseries, so as their parent can be facilitated to work with Project activities.

Strengthening of VRC/ Lao Front and LWU are regular activities to be further developed to take more responsibilities towards new ways of living and to be able to participate actively with Project activities.

### ○ Non-farm

**Micro-credit:** Village saving groups have been monitored in October in 8 villages (216 members) – Attachment SG table.

Study tour to Downstream program - Xaibouli (Hadxhamhieng and Beungxe village) and Nongbok (Navang Neua village) on 24-25th Oct 06 - Saving group and Agriculture activities (crop plan, pig farm, fish pond, fish on paddy rice), weaving group, and wicker work).

### **Education:**

- Hand over manual book (Lao language, mathematic, etc.)

No.	Village	No. of student (girl)	No. of manual book	For teacher: guide book & (score collection book)
1	Bouama	59 students (28 girls)	62 sets	6 sets (2 sets)
2	Phonsavang	41 students (20 girls)	44 sets	6 sets (2 sets)
3	Sop On	159 students (66 girls)	164 sets	12 sets (5 sets)
4	Done	181 students (89 girls)	186 sets	12 sets (6 sets)
5	Khone Kaen	44 students (21 girls)	47 sets	6 sets (2 sets)
6	Sop Ma	64 students (41 girls)	68 sets	6 sets (2 sets)
7	Sop Phene	46 students (23 girls)	48 sets	6 sets (2 sets)
8	Sop Hia – Area 8	45 students (12 girls)	53 sets	9 sets (2 sets)

Number of student in primary school (village relocation) on year 2006-2007

No.	Village	1 <sup>st</sup> Class student(girl)	2 <sup>nd</sup> class student(girl)	3 <sup>rd</sup> class student(girl)	4 <sup>th</sup> class student(girl)	5 <sup>th</sup> class student(girl)
1	Sop Ma	41(31)	11(5)	13 (5)		
2	Sop Hia – Area 8	27(8)	9(3)	9 (1)	4(1)	
3	Sop Phene	26(10)	14(10)	6 (3)		
4	Khone Kaen	15(8)	23(11)	6 (2)		
5	Done	76(36)	30(13)	31 (19)	26(10)	18(11)
6	Sop On	29(13)	32(11)	23(10)	27(14)	48(18)
7	Phonsavang	25(13)	8 (4)	8 (3)		
8	Bouama	29(17)	14(4)	16(7)		
9	Nongboua	18(7)	14(9)	21(13)	23(12)	

- Hand over kitchen utensils for Khone Kaen village and nursery material (60 sets)
- Food support to children in nursery (village relocation)

Village	Sop Ma	Sop Hia – Area 8	Sop Phene	Bouama	Phonsavang	Sop On	Nongboua	Done	
No. of child	56 (21)	27 (16)	37 (16)	68 (31)	35 (15)	72 (36)	38 (20)	96 (53)	

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### **Rice and Food support:**

Continues Monitoring and provision of rice, protein at SopOn, Phonsavang, Bouama, SopMa, Nongboua extension, Sop Phene, SopHia- Area 8, Done, Khone Kaen (9 villages – 2796 persons= 44,190 kg including for Bouama labor cost for 5 days work 918.8 kg).

**LNF committee and Grievance committee**

- To improvement LNF Committee at Sop Hia – Area 8, Sop Phene, Nakai Tai and Nakai Neua,
- Training for grievance committee on role and duties at Thalang, Sop Phene, Sop Hia Area 8, Nakai Neua and Nakai Tai

**Gender**

- Gender Mainstreaming Team – study tour on 4-7 October at Lao Women Union Center (Phonthan – Vientiane capital), 19 attendants (5 men)
- 12th Oct 06 Gender mainstreaming team work shop on gender mean, suggestion for setting staff regulations - Infrastructure and DCD team(district community development) 28 attendants (23 men).
- Gender mainstreaming team training on TOT for GMT member on 19th Oct 06 – sex statistic for separation, 7 targets to monitor, using form for analyze. 29 attendants (14 men).

**Vulnerable Household**

- To monitor vulnerable potentiality at village relocation as follow:

Village	No.of Vulnerable	Poultry	Pig raising	Cow & buffalo	Crop	Small business	Mush-room	Wicker work	Upland rice
Sop Phene	9 HH	8 HH	2 HH (1 HH: Agri support)	3 HH	9 HH	1 HH		3 HH	
Sop Ma	7 HH	5 HH		5 HH	7 HH			1 HH	
Nongboua	8 HH	3 HH		6 HH	2 HH		7 HH	1 HH	2 HH
Done	6 HH	3 HH	1 HH	1 HH	2 HH		1 HH	2 HH	
Khone Kaen	5 HH	3 HH	1 HH	2 HH	4 HH			2 HH	

- Economy data collection -100% of Household at Nongboua pilot village and 25% of HH at Phonsavang and Sop on.
- To improvement Nongboua marketing group - 2 persons selection and trained on rule & responsibility of marketing.

○ ICD

No	Activities / Locations	Dates	Participants	Outputs/ Results
1.	Conduct workshop on 10 villages census at District level.	18/10/06	RMU: 3pers DWG: 2pers SRO: 4pers	All understand and agree with the meeting: - Nongbouakham( 57 HH's, 58 houses and 300 peoples) - Bouama( 74 HH's, 74 houses and 353 peoples) - Phonsavang( 41 HH's, 41 houses and 212 peoples) - Sop On & Ka Oy to Sop On(135 HH's, 136 houses and 608 peoples) - Ban Don & Ka Oy to Ban Done (147 HH's, 151 houses and 801 peoples) - Khone Kaen (52 HH's, 54 houses and 260 peoples) - Nongboua Pilot Village(13 HH's, 13 houses and 60 peoples) - SopMa(67 HH's, 68 houses and 308 peoples) - Sop Phene(57 HH's, 57 houses and 239 peoples) - Sop Hia Area 8a(36 HH's, 36 houses and 192 peoples)
2.	Ban Thalang Village Layout Consultation.	21/10/06	DWG: 1 per SRO: 4 pers Villagers: 73 pers (40 women & 1 monk)	All understand and agree with consultation
3.	Ban Nakai Neua Village Layout Consultation.	27/10/06	DWG: 2 pers SRO: 3 pers Villagers: 40 pers (25 women )	All understand and agree with consultation
4.	Ban Phonphanpek census data collection.	30/10/06	RMU: 1 per DWG: 1 per SRO: 3 pers Villagers: 40pers (25 women)	All understand and agree with consultation
5.	Conduct IMT (Irrigation Management Transfer) workshop at District level.	31/10/06	RMU: 2 pers DWG: 3 pers SRO: 3 pers Water User Group: 2 pers	All understand and agree with IMT Steps and Procedures

*Ban Thalang Village Layout Consultation*



*Ban Nakai Neua Village Layout Consultation*



*Ban Phonphanpek census data collection*



**Village Saving Group**

No	Date	Village	No. member to debt	Old balance	Deposit	Interest	Receive from Mngt	Rec. from capital	No. Loan (person)	Loan (Month)	Admin Fees	Total Loan	Total Fund	Withdraw capital
1	20/10/06	Nongboua	15	105,000	115,000	380,000	15,000	1,615,000	3	500,000	0	8,300,000	9,415,000	
2	15/10/06	Sop On	24	81,000	341,000	173,000	6,000	701,000	1	600,000	0	4,572,000	4,673,000	
3	28/10/06	Bouama	30	228,000	170,000	5,000		503,000	0	0	0	1,500,000	2,003,000	
4	5/10/06	Nongboua kham	26	96,000	710,000	674,000	12,000	3,022,000	4	3,000,000	0	14,745,000	14,745,000	
5	8/10/06	Thalang	48	25,000	10,416,000	2,235,000	36,000	38,212,000	7	13,000,000	0	48,908,000	71,504,000	
6	2/10/06	Nakai Neua	28	18,000	2,815,000	705,000	21,000	6,359,000	5	6,300,000	2,000	6,204,000	18,450,000	
7	4/10/06	Nakai Tai	17	92,000	450,000	114,000	11,000	1,667,000	2	1,600,000	0	3,304,000	3,367,000	
8	17/10/06	Phonphan pek	28	49,000	4,395,000	130,000	9,000	4,783,000	3	4,700,000	0	900,000	980,000	

# **Social Activities**

## **Downstream Areas**

## 2.4 Downstream Areas Development Plans

- Work continued to develop livelihood restoration activities, including establishment of village organizations, village revolving and savings funds, and demonstration farms within the selected pilot villages.
- NTPC and the GOL held meetings to discuss how flood mitigation strategies within the Downstream Program (mini-polders & water gate rehabilitation) may relate to the GOL's preliminary plans for large scale flood protection for the entire lower Xe Bangfai.
- The World Bank issued a non-objection letter for the hiring additional downstream consultants, as described in the August and September monthly progress reports. Subsequently, work commenced to finalize employment contracts, with the expectation that most staff will start work no later than 1 December 2006.
- The final version of the Downstream Restoration Program documentation was prepared and is expected to be released during early November.

The following tables summarize Downstream Program activities in the 21 pilot villages.

**Table: Summary of Downstream Activities, October 2006**

No.	Village Name	Establishment of Village Development Coordination Committee (VDCCC), Village Auditing Committee (VAC), and Advisory Village Committee (AVC)	Establishment of Saving Fund	Number of Participants of Training in Fund Management and Formulation of Business Plans		Land Clearing/Preparation Wet Season Rice		Number of HH Growing Dry Season Crops 2005/06	Number of HH Growing Fish	Number of HH Raising Pigs	Number of HH Growing Wet Season Rice, 2006	Number of HH Growing Wet Season Crops, 2006	Number of HH Introducing Mak Gnao ( <i>Jatropha curcas</i> ) for Biodiesel Production	Number of HH Involved in Trading Activities	Demonstration Farms for Sweet Corn and Chilis		Number of HH Participating in Fish Catch Monitoring***
				Project Management	Saving Fund	Number of HH	Surface Area in Rai								Number of HH	Surface Area in Rai	
1	Phathoung	+	+	10	10				3								5
2	Nongping	+	+	10	10										1	1.0	5
3	Khoksavang	+	+	10	10												5
4	Mahaxaitai	+	+	10	10				5					4			5
5	Povaneua	+	+	10	10				4		4		3				5
6	Povatai	+	+	10	10				3					6			5
7	Khamfeuang	+	+	10	10				5								5
8	Kengpe	+	+	10	10								14				5
9	Veunsananh	+	+	10	10	32	64						3	5			5
10	Hatpek	+	+	10	10								10				5
11	Sang	+	-	-	-												5
12	Yangkham	+	+	10	10						6			2	5	2.0	5
13	Hatkhamhieng	+	+	10	10					22			8				5
14	Hatxaifong	+	+	10	10												5
15	Navangneua	+	+	10	10				5	4	20			1			5
16	Veunsivilai	+	+	10	10										5	2.0	5
17	Beungxe	+	+	10	10			41	17	14	45	16	8	10	3	2.5	5
18	Beungbouathong	+	+	10	10								24		1	1.0	5
19	Nasang	+	+	10	10								15				5
20	Thaphoxai	+	+	10	10								39				5
21	Nonenakham	+	+	10	10												5
		21	21	200	200	32	64	41	42	40	75	16	124	28	15	8.5	105
*** Fish Catch Monitoring also in operation at additional 18 villages, including 5 households per village																	

**Table: Summary of Financing Activities, October 2006**

No.	Village Name	Number of HH in Saving Group	Total NTPC Funds Transferred [Kip]	Total Savings Deposited [Kip]	Savings Deposited this Month [Kip]	Total Loans Disbursed [Kip]	Total Loans Repaid [Kip]	Total Loan Interest Received [Kip]	Total Loans Outstanding but Not Yet Due [Kip]
1	Phathoung	58		3,405,000	1,320,000	1,600,000			3,400,000
2	Nongping	32		3,045,000	1,968,000	1,900,000			2,449,000
3	Khoksavang	54		1,861,000	592,000	800,000			1,400,000
4	Mahaxaitai	90	231,249,970	20,336,400	2,593,000	28,600,000	6,400,000	1,351,000	16,900,000
5	Povaneua	83	220,000,048	12,791,000	1,445,000	21,600,000	1,000,000	800,000	24,200,000
6	Povatai	55	278,400,434	43,800,000	2,761,000	31,000,000	2,800,000	2,820,000	48,390,000
7	Khamfeuang	56	118,750,045	1,696,000	655,000	750,000		41,000	2,050,000
8	Kengpe	50	108,750,048	675,000	615,000	1,640,000			
9	Veunsananh	43	143,999,982	1,643,000	455,000	1,298,000		320,000	70,530,000
10	Hatpek	13	65,999,984		235,000				
11	Sang								
12	Yangkham	174	244,000,043	23,311,000	2,435,000	7,914,000		130,000	31,112,000
13	Hatkhamhieng	102	222,999,962	29,995,000	1,705,000	2,300,000	3,800,000	862,000	76,755,000
14	Hatxaifong	49	104,999,974	2,032,000	340,000	400,000		30,000	2,400,000
15	Navangneua	121	192,500,014	26,786,500	5,016,000		2,500,000	50,000	22,547,000
16	Veunsivilai	91	114,750,046	7,095,000	2,217,000	2,347,000		176,200	7,095,000
17	Beungxe	64	249,314,490	21,484,000	2,335,000	5,307,000	500,000	2,767,000	153,800,000
18	Beungbouathong	84	131,999,967	6,386,000	2,217,000	2,064,000	100,000	258,000	6,469,000
19	Nasang	42	195,999,951	1,835,000	1,065,000	1,688,050	540,000	83,050	1,295,000
20	Thaphoxai	58	108,999,973	2,220,000	1,102,000	1,170,099		67,599	2,220,000
21	Nonenakham	33	89,999,978	1,575,000	608,000	655,250		47,250	1,575,000
		<b>1,352</b>	<b>2,822,714,909</b>	<b>211,971,900</b>	<b>31,679,000</b>	<b>113,033,399</b>	<b>17,640,000</b>	<b>9,803,099</b>	<b>474,587,000</b>

## **Environmental Activities**

### 3 Environmental activities

#### 3.1 General

In addition to the monitoring of the HC's construction activities reported in the Construction section of the report, Camp Followers water quality monitoring reported in section 2.1.3, and the PCR activities reported in section 2.1.1, activities and involvement of the Environmental Management Office in October 06 have included the following:

- Water Quality sampling (16-23 October 2006) and analysis.
- Ongoing Interim Human Elephant Conflict (HEC) Monitoring and continued contractual activities for Elephant Program Phase II.
- Commencement of baseline survey activity under the Wildlife Management and Monitoring Program.
- Submission of the bid documents to WCS for the environmental education component of the Transitional Strategy.
- Identification of the GOL and EMU activities for the wildlife hunting and trade component of the Transitional Strategy.
- Finalization of the Revision of the report for the baseline survey for fish and aquatic species in upstream and downstream rivers (Wildlife Program Element B).
- Review of the 1<sup>st</sup> Quarterly Progress Report, Environment Management Manual and Work Plan for the EMU.

#### 3.2 Wildlife Programs

The description of the various elements of the wildlife program is included for reference.

##### 3.2.1 Fish Impacts in upstream and downstream river species

This program includes the following activities:

1. Species and habitat inventory (NT, XBF)
2. Fish migration studies in NT, NPA and XBF
3. NT habitat and flow studies
4. Modification of downstream NT habitat
5. Implementation of flow adaptive management program and related activities
6. Incorporating river protection into the management of the NNT and Corridors

The baseline survey was conducted in May 2006 by an ichthyologist and his team with support from Living Aquatic Resource Research Center (LARReC). The objectives were to obtain a baseline fish and aquatic species (decapod crustaceans, turtles, and amphibians) distribution and a habitat inventory in the downstream and upstream sections of the Nam Theun and Xe Bangfai, including the Nam Phao/Nam Kata catchments.

Activities during October 2006 include:

The baseline fish/aquatic species and habitat inventory report has now been finalized.

##### 3.2.2 Wildlife Management and Monitoring Programme

Given overlaps in baseline survey and management activities, the Terrestrial and Wetland Programs, which are presented separately in the CA, have been combined into one Wildlife Management and Monitoring Program.

The program will be conducted in two phases:

1. Phase I includes (i) the pre-impoundment species and habitat inventories, (ii) development of a post-impoundment species management program, and
2. Phase II includes training the appropriate GOL agency to implement the management plan.

A company has been contracted to conduct Phase I and the baseline survey activities commenced on 30 September 2005.

Activities during October 2006 include:

- Baseline wildlife survey activities have commenced with a mammal and bird specialist, conducting an initial survey of the Nakai Plateau. A verbal debriefing included the following:
- After initial access constraints resulting from the typhoon, survey coverage was sufficient to meet expectations for the initial survey.
- The current species assemblage and habitat quality was compared to his previous surveys in the same area 10 years ago. Nam Theun tributary embayments had little habitat degradation. Some species (river lapwing, basking turtle) appear to be doing well. Other species (fish eagle), have probably not declined but this needs to be confirm during the planned additional survey. However, some species (otter) appear to be in decline but their decline is likely resulting from wildlife trade rather than through habitat degradation. No visual sighting of the White-winged duck.
- Initial recommendations were made:
  - to develop small pockets of wetland habitat in the tributary embayments prior to the inundation of the Reservoir. These wetland habitats will act as refuges for wetland species and help buffer inundation impacts.
  - although the NPA corridor area may contain species that warrant rescuing, high habitat density may render wildlife rescue unfeasible. Animal rescue may be possible in the main body of the reservoir but few species, other than rodents, appear to be present. Recommendation to have limited rescue activities for the more endangered/larger species which warrant rescue.

The Inception Report, including management recommendations, is scheduled for submission on 25 November 2006 and the Baseline Survey and Wildlife Management and Monitoring Plan, are schedule for submission in July 2007.

### 3.2.3 Asian Elephant Program

This program includes the following activities:

1. Pre-impoundment inventory and survey of habitats, distribution, movements.
2. Implementation of a pre-Reservoir impoundment elephant management program.
3. Post-Reservoir impoundment monitoring of movements and distribution.
4. Training of local authorities in conflict response and emergency response.
5. Establishment and implementation of an elephant conflict response team.
6. Development of a transitional strategy for reservoir impoundment.
7. Implementation of a reservoir impoundment elephant strategy.
8. Implementation of post impoundment elephant program.

Phase I of the Elephant Program was conducted by Wildlife Conservation Society (WCS) and includes items 1, 4 and 5 above. The draft Final Report for Phase I was submitted on 31 May 2006. A population of 142 (95% CI=97,207) individuals has been estimated based on the line transect and dung decay data. A review of the Final Report has identified shortfalls. Given delays in the DNA analysis, the Final Report will not be finalized until January 2007. However, WCS is expected to submit an interim Final Report on 11 December 2006.

WCS is the likely consultant to conducted Phase II. Objectives of Phase II include development and implementation of a pre- and post-inundation elephant management plan. Management activities will include the continuation of HEC monitoring and training villagers in passive and active crop protection measures.

Activities during October 2006 include:

- Bid documents, including a revised TOR to continue Phase II activities until COD has been forwarded to WCS in October 2006 for review. A revised financial proposal is expected from WCS in November 2006. Contractual activities are ongoing.

- Between the end of Phase I and commencement of Phase II, HEC monitoring is continuing to assess the spatial and temporal distribution of HEC on the Nakai Plateau and surrounding areas. HEC incidents were recorded and tabulated below.

Month	HEC Incidents
Jul 06	3
Aug 06	10
Sep 06	18
Oct 06	6

### 3.2.4 Transitional Strategy for Reservoir Impoundment

This program includes the following activities:

1. Development of a transitional strategy for reservoir impoundment.
2. Training of local authorities in wildlife emergency response.
3. Establishment and implementation of an emergency response team.
4. Public awareness program.
5. Prevention and prohibition of wildlife trade.

The requirement to provide recommendations on the transitional strategy has been included in the Wildlife Management and Monitoring Program.

The consultant has provided initial recommendations on the extent of activities required for the animal rescue activities. These are presented in section 3.2.2 above. All recommendations are scheduled to be submitted with the Inception Report in November 2006.

To instill environmental awareness in the Nakai Plateau population, including Resettlers, and reduce the exploitative approaches to wildlife, especially during the transitional phase when animals may be vulnerable, an environmental education program will be implemented. The education program will be developed by NTPC with GOL providing the education. Given the working relationship between WCS, District staff, and villagers during the Elephant Program, WCS is the best-positioned consultant to develop the educational curriculum and train GOL to provide the education. Environmental education is expected to be completed before wet season 2007. Bid documents have been submitted to WCS and a technical and financial proposal is expected in November 2006.

The EMU has identified in its Environmental Management Manual the need for GOL to be responsible for control and enforcement of wildlife protection and prevention of wildlife trade. EMU activities will include (i) assessment of the capacity of GOL enforcement agencies; (ii) assistance to GOL with capacity building; (iii) spot checks to confirm effectiveness of GOL enforcement programs; and (iv) identification of additional measures to improve hunting control (e.g. village level regulations).

### 3.2.5 Adaptive Management Programs

An Adaptive Management approach will be implemented for the following Programs:

1. Wildlife Program (all components)
2. Riparian release downstream of the Nakai Dam
3. Water release in the Nam Kathang
4. Water release from the regulating pond to the downstream channel

No special remarks for this reporting period.

### 3.3 Water Quality Monitoring and Assessment Program

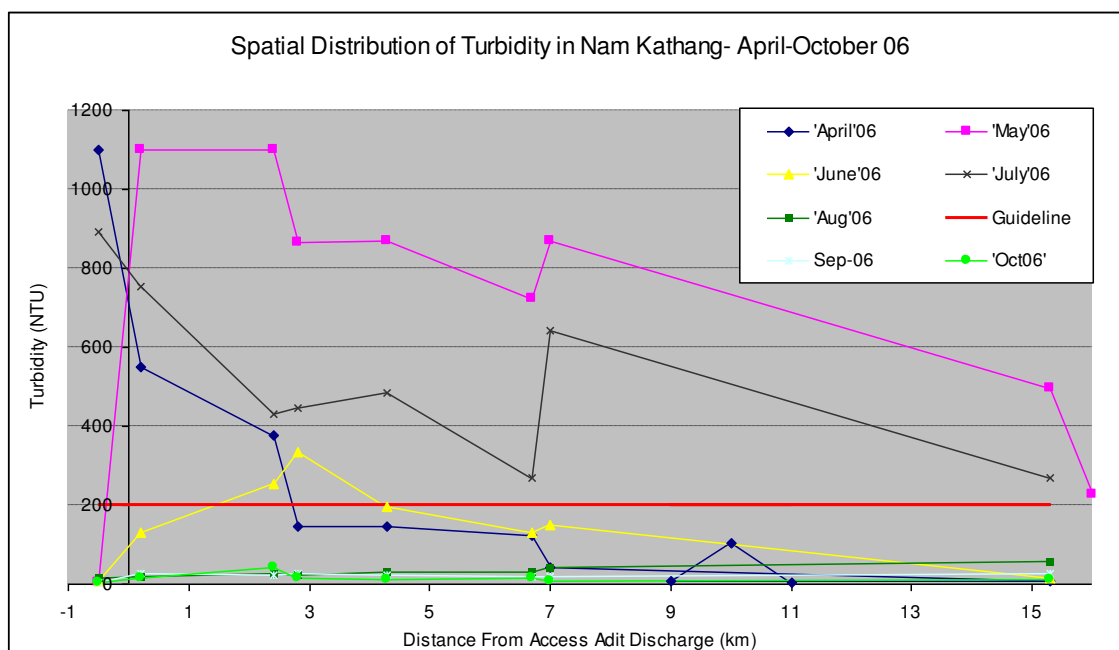
During October 2006, the WQMAP included the following monitoring:

- 27 parameters at 12<sup>1</sup> Surface Water sampling sites. These are located upstream and downstream of construction areas on the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit, and Xe Bangfai. Given the potential for Project increases in sediment load, the spatial distribution of turbidity was monitored at 7 surface water sites and at 6 construction site discharges along the Nam Kathang.
- 13 parameters at 12 Community Groundwater sampling sites. These are located in Nakai, Gnommalat, and Mahaxai District.
- 13 parameters at 15 Resettlers and Project Land Groundwater sampling site. These are new groundwater installations located on the Nakai Plateau that have been provided by NTPC.
- Faecal coliform monitored at 15 Public Health sampling sites. See section 2.1.3 (Camp Followers) for the results of the analysis.

#### October 2006 Field Observations

Sample collection and field analyses were conducted during 16-23 October 2006. Laboratory analyses will be reported in November 2006. The major field observations and measurements are as follows:

- The turbidity in the Nam Kathang continues to remain within the Project Guideline which reflects the reduction in rainfall and surface runoff from cleared construction areas during the dry season. Although high turbidity was recorded in the Power House discharge, previous months have indicated that improvements in sedimentation controls at the Access Adit and Power House have contributed to the improved water quality in the Nam Kathang.
- Turbidity levels are within the Project guideline for the entire length of the upper Nam Kathang from upstream of the Power House to Ban Gnommalat.
- There was no discharge from the Access Adit Platform 415 sedimentation basins during sampling.
- Discharge from the Power House sedimentation basins was 420 NTU.
- The turbidity of the discharge directed down the Nakai escarpment from Saddle Dam 12b was 55.8 NTU. There was no discharge from the Headrace Channel and Intake Structure construction areas during sampling.



<sup>1</sup> SW13 is located on a seasonal water body and therefore monitoring only in wet season. SW10 is located on the Nam Pan which is no longer included in the WQMAP.



Turbidity Sampling sites

### September 2006 Water Quality Results

The laboratory analytical results for September 2006 are presented in the tables below<sup>2</sup>. As a screening procedure, the results have been compared with Project guidelines. Values highlighted in yellow represent exceedences. Comparison of measured values with guidelines is intended as an initial screening step to assist in data interpretation. Exceedences are then considered on a site-specific basis to assess whether a measured value poses an environmental or human health risk. The significant project-related exceedences are discussed below.

#### Nam Theun

- The water quality in the Nam Theun continues to be good with no measured exceedences of the Project Guidelines. Results indicate that construction activities on the Nam Theun did not have a significant impact on the water quality of the Nam Theun during the sampling period.

#### Nam Kathang

- With the exception of faecal coliform, the water in the Nam Kathang can be considered good with few exceedences of the Project Guidelines.
- As with the previous month, turbidity and TSS, coupled with nitrogen-nutrients and iron, continue to remain within the Project Guidelines. These within-guideline levels reflect the reduction in rainfall, and therefore reduced sediment-laden runoff from Nakai Plateau (Saddle Dam 12b, Headrace and Intake) and Nam Kathang (Power House, Platform 3&4, Regulating Dam) construction areas, during the dry season, and the ongoing effective sediment control measures at the Power House and Access Adit.
- The slight exceedence of the Project Guideline for pH and silica at the upstream control site (SW4) are not deemed to be significant or Project-related.
- Given that no construction sites or camps are located on the Nam Kathang between SW9 and SW14, the slight exceedence of iron at SW14 is not deemed to be significant or Project-related.
- Faecal coliform continues to exceed the Project Guideline at all sampling sites downstream of the Power House (SW5-14). The source of this elevation is likely to be Project-related although the surrounding communities with poor sanitation infrastructure and their livestock may be contributing, especially for levels recorded at SW14. Faecal coliform are indicators the bacteria and pathogen load in the water which could pose a risk to human health. Communities should continue with the practice of boiling surface water prior to consumption.

#### Nam Gnom

- With the exception of faecal coliform, the water quality in the Nam Gnom continues to be considered as good with few significant exceedences of the Project Guidelines.
- Alkalinity exceeded the Project Guideline at both sites on the Nam Gnom with a slight downstream decreasing trend. Given the exceedence at the upstream control (SW11), high alkalinity is not deemed to be Project-related. High alkalinity is likely a result of increased groundwater inputs from the limestone karsts which surround the upper Nam Gnom catchment.
- Faecal coliform exceeds the Project Guideline at the upstream control site (SW11) and therefore not deemed to be Project-related. The source of this exceedence is likely the poor sanitation infrastructure and livestock of Ban That. The human health implications of elevated faecal coliform are discussed above.

#### Nam Phit

- Although heavy overnight rain appears to have resulted in some exceedences of the Project Guidelines, the water quality in the Nam Phit can still be considered as good.
- TSS exceeded the Project Guideline downstream of the Downstream Channel (SW6) and is likely a result of sediment-laden runoff from cleared construction areas for the lower Downstream Channel and access road. From an environmental health perspective, a high sediment load would have several sub-lethal effects on primary fish productivity and could subsequently impact fish production. From a human health perspective, the measured levels can make water significantly less palatable and sediment can also act as a substrate for bacteria growth and absorption of metal ions.

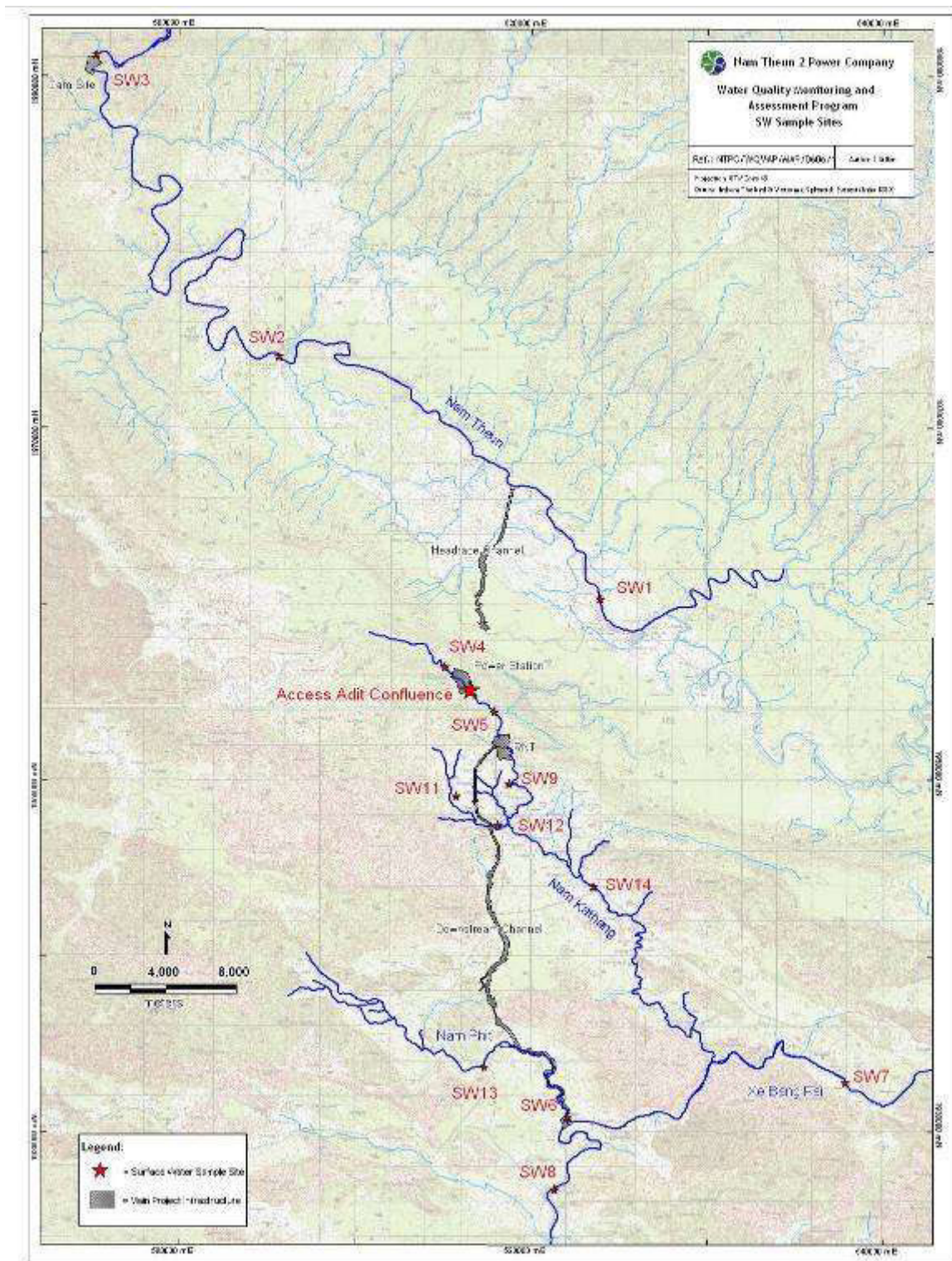
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<sup>2</sup> Water quality analysis data are presented one month late due to the time taken for the analyses.

- Iron exceeded the Project Guideline at SW6. The source of the increase is likely to be the same as TSS. For total iron, concentrations of 1-3 mg/l can be acceptable for people to drink but the taste and appearance will usually be affected above this level.
- Calcium exceeded the Project Guideline at the upstream control site (SW13) and therefore not deemed to be Project-related. The source is likely increased groundwater inputs from the limestone karsts which surround the upper Nam Phit catchment.
- Faecal coliform exceeded the Project Guideline at the upstream control site (SW13) and therefore not deemed to be Project-related. The source of this exceedence is likely communities located along Road 12. The human health implications of elevated faecal coliform are discussed above.

### **Xe Bangfai**

- Heavy rain overnight appears to have resulted in some significant exceedences of the Project Guidelines, and especially a high sediment load, in the Xe Bangfai. This is consistent with field observations of highly turbid water in the Xe Bangfai during the sampling. Given that most of the exceedences originate at the upstream control site (SW7), these increases are not deemed to be Project-related.
- TSS and turbidity exceeded the Project Guideline at both SW7 and SW8. Given the high sediment load at the upstream control (SW7), the source of these exceedences are likely runoff from cleared agricultural areas rather than Project-related, although contributions from the Downstream Channel construction through the Nam Phit likely contributed to the sediment load at SW8. The environmental and human health implications are discussed above.
- Consistent with runoff from agricultural areas, Kjeldahl-nitrogen exceeded the Project Guideline at the upstream control (SW7). Given that SW7 is upstream of any construction activities this exceedence is not deemed to be Project-related. The level decreased downstream through a combination of sedimentation of suspended organic nitrogen and some oxidation. There is no WHO human or environmental health-based guideline for TKN but rivers with TKN concentration below 1 mg/l tend to be classified as "good".
- Iron exceeded the Project Guideline at both SW7 and SW8 with a downstream-decreasing trend. Given the significant exceedence at the upstream control (SW7) the source is not deemed to be the Project. The human health implications are discussed above.
- Faecal coliform exceeded the Project Guideline at SW8 and although downstream of the Nam Phit confluence it is still not deemed to be Project-related because of within-Guideline levels at SW6. The source of this exceedence is likely communities located along Xe Bangfai.



**Table:** September<sup>3</sup> 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.

Parameter	Unit	Project Guidelines		Nam Theun		
				SW 1	SW 2	SW 3
Sampling Date				28/09/06	28/09/06	29/09/06
Sampling Time				10.00 h	11.20 h	09.56 h
Water Depth	(m)			4.0	12.0	0.5
Sampling Method				grab	grab	grab
Air Temperature	(°C)			25.6	25.7	23.2
Cloud Coverage				60	80	5
Water Temperature	(°C)			22.8	23.1	23.0
pH		6.0-8.0		6.47	6.66	6.84
DO	(mg/L)	> 5.0		7.55	7.31	7.02
% DO Saturation	(%)			93.0	90.3	91.8
Conductivity	(µS/cm)	< 350 or <750 *		21.6	20.2	21.6
Turbidity	(NTU)	< 200		12.5	13.8	25.2
Total suspended solids	(mg/L)	< 40 or <80*		23.3	34.8	20.8
Alkalinity	(mg/L)	.. <sup>11</sup>	36.4	12.0	14.8	14.8
Ammonia-nitrogen	(mg/L)	< 0.5		0.068	0.046	0.080
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		0.202	0.180	0.194
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		ND <sup>2</sup>	ND <sup>2</sup>	ND <sup>2</sup>
Kjeldahl nitrogen(TKN)	(mg/L)	.. <sup>11</sup>	1.030	ND <sup>3</sup>	ND <sup>3</sup>	0.228
Potassium (K)	(mg/L)	.. <sup>11</sup>	1.06	0.618	0.643	0.657
Sodium (Na)	(mg/L)	300		1.11	1.13	1.13
Manganese (Mn)	(mg/L)	< 0.5		0.041	0.039	0.031
Total iron (Fe)	(mg/L)	< 1.0		0.240	0.293	0.997
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca )	(mg/L)	50		2.06	0.428	2.84
Magnesium (Mg)	(mg/L)	< 15		1.66	0.428	0.520
Silica (SiO <sub>2</sub> )	(mg/L)	.. <sup>11</sup>	10.3	5.68	5.90	5.90
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	(mg/L)	< 500		3.23	2.67	2.49
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		0.19	0.19	0.77
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>
Arsenic (As)	(mg/L)	< 0.05		0.0003	0.0007	0.0003
BOD	(mg/L)	< 15		0.5	0.7	0.6
COD	(mg/L)	< 40		9.37	15.6	15.6
Total phosphorus	(mg/L)	< 0.2		0.020	0.027	0.020
Faecal Coliform	(C/100mL)	150		82	134	96

<sup>3</sup> Water quality analysis data are presented one month late due to the time taken for the analyses.

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)

<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)

<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)

<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)

<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)

<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)

<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)

<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean

Parameters which exceed the Project trigger.

<sup>350</sup> µS/cm for Nam Theun; 750 µS/cm for lowlands rivers

<sup>40</sup> mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bangfai in wet season

**Table 4.1:** September 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.

Parameter	Unit	WQ Guidelines	River- Specific Guideline	Nam Kathang				Nam Gnom	
				SW 4	SW5	SW 9	SW 14	SW 11	SW 12
Sampling Date				27/09/06	27/09/06	27/09/06	26/09/06	27/09/06	27/09/06
Sampling Time				09.25 h	10.14 h	11.30 h	11.20 h	10.51 h	12.04 h
Water Depth	(m)			0.25	1.0	1.0	0.8	1.0	0.5
Sampling Method				grab	grab	grab	grab	grab	grab
Air Temperature	(°C)			28.6	30.1	27.5	32.8	28.1	29.2
Cloud Coverage				20	10	100	90	40	100
Water Temperature	(°C)			25.2	26.4	27.5	24.7	27.2	27.9
pH		6.0-8.0		8.07	7.60	7.60	7.34	7.93	8.0
DO	(mg/L)	> 5.0		8.99	7.22	7.53	7.72	7.99	7.8
% DO Saturation	(%)			111.5	90.8	96.7	93.3	102.1	102
Conductivity	(µS/cm)	< 350 or <750 *		151.5	201	112.2	22.5	253.0	255
Turbidity	(NTU)	< 200		3.05	21.3	20.8	54.1	5.11	26.5
Total suspended solids	(mg/L)	< 40 or <80*		1.5	11.6	9.6	35.6	5.4	35.3
Alkalinity	(mg/L)	- <sup>11</sup>	133.8	72.8	86.4	50.0	120	144	141
Ammonia-nitrogen	(mg/L)	< 0.5		0.040	0.060	0.072	0.072	0.064	0.062
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		ND <sup>1</sup>	0.101	0.029	0.109	0.216	0.180
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		ND <sup>2</sup>	ND <sup>2</sup>	ND <sup>2</sup>	0.013	ND <sup>2</sup>	ND <sup>2</sup>
Kjeldahl nitrogen(TKN)	(mg/L)	- <sup>11</sup>	1.089	0.228	0.228	ND <sup>3</sup>	0.228	ND <sup>3</sup>	ND <sup>3</sup>
Potassium (K)	(mg/L)	- <sup>11</sup>	1.56	0.883	1.42	0.867	0.640	0.461	0.465
Sodium (Na)	(mg/L)	300		5.59	10.1	4.98	2.80	1.12	1.10
Manganese (Mn)	(mg/L)	< 0.5		0.036	0.048	0.036	0.052	ND <sup>3</sup>	0.049
Total iron (Fe)	(mg/L)	< 1.0		0.087	0.483	0.801	1.03	0.097	0.208
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca )	(mg/L)	50		15.5	20.9	12.0	34.1	41.4	41.3
Magnesium (Mg)	(mg/L)	< 15		3.12	3.27	1.62	1.75	1.62	1.92
Silica (SiO <sub>2</sub> )	(mg/L)	- <sup>11</sup>	18.6	18.9	16.8	10.8	9.55	8.74	7.38
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	(mg/L)	< 500		14.2	17.5	4.26	1.93	0.99	1.18
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		0.58	5.31	3.66	1.93	0.58	0.58
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>	ND <sup>6</sup>
Arsenic (As)	(mg/L)	< 0.05		ND <sup>7</sup>	0.0006	0.0013	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>
BOD	(mg/L)	< 15		ND <sup>8</sup>	ND <sup>8</sup>	0.6	1.2	0.8	1.0
COD	(mg/L)	< 40		9.37	6.25	9.37	15.6	9.37	6.25
Total phosphorus	(mg/L)	< 0.2		0.040	0.027	0.033	0.037	0.030	0.023
Faecal Coliform	(C/100mL)	150		110	164	232	276	280	126

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean<sup>11</sup> Parameters which exceed the Project trigger.<sup>11</sup> 350 µS/cm for Nam Theun; 750 µS/cm for lowlands rivers<sup>11</sup> 40 mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bangfai in wet season<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)

**Table 4.1 (Cont.):** September 2006 Surface Water Quality in the Nam Theun, Nam Kathang, Nam Gnom, Nam Phit and Xe Bangfai.

Parameter	Unit	WQ Guidelines	River- Specific Guideline	Nam Phit		River- Specific Guideline	Xe Bangfai	
				SW13	SW 6		SW 7	SW 8
Sampling Date				26/09/06	26/09/06		26/09/06	26/09/06
Sampling Time				12.00 h	13.20 h		10.15 h	14.10 h
Water Depth	(m)			0.40	4.60		8.0	5.0
Sampling Method				grab	grab		grab	grab
Air Temperature	(°C)			31.7	27.5		24.8	25.7
Cloud Coverage				95	85		10	40
Water Temperature	(°C)			25.4	25.9		24.4	25.9
pH		6.0-8.0		7.64	7.64		7.68	7.53
DO	(mg/L)	> 5.0		6.37	7.43		7.01	7.36
% DO Saturation	(%)			80.1	93.1		87.7	92.7
Conductivity	(µS/cm)	< 350 or <750 *		364	523		189.6	325
Turbidity	(NTU)	< 200		8.56	48.1		535	761
Total suspended solids	(mg/L)	< 40 or <80 <sup>11</sup>		3.9	108		567	190
Alkalinity	(mg/L)	- <sup>11</sup>	252.6	211	181	200.6	98.4	180
Ammonia-nitrogen (NH <sub>3</sub> -N)	(mg/L)	< 0.5		0.068	0.080		0.049	0.060
Nitrate-nitrogen(NO <sub>3</sub> -N)	(mg/L)	< 3.4		0.188	0.217		0.102	0.138
Nitrite-nitrogen(NO <sub>2</sub> -N)	(mg/L)	< 0.2		0.006	0.006		0.013	0.006
Kjeldahl nitrogen(TKN)	(mg/L)	- <sup>11</sup>	0.688	0.343	0.228	0.559	1.14	0.343
Potassium (K)	(mg/L)	- <sup>11</sup>	0.60	0.397	0.372	0.68	0.629	0.367
Sodium (Na)	(mg/L)	300		0.464	1.44		1.34	1.39
Manganese (Mn)	(mg/L)	< 0.5		0.023	0.079		0.387	0.114
Total iron (Fe)	(mg/L)	< 1.0		0.169	1.94		10.4	2.22
Lead (Pb)	(mg/L)	< 0.05		ND <sup>4</sup>	ND <sup>4</sup>		ND <sup>4</sup>	ND <sup>4</sup>
Calcium (Ca)	(mg/L)	50		55.7	47.3		27.5	49.6
Magnesium (Mg)	(mg/L)	< 15		5.05	3.80		3.75	3.75
Silica (SiO <sub>2</sub> )	(mg/L)	- <sup>11</sup>	9.0	7.07	8.65	10.5	6.13	8.74
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	(mg/L)	< 500		2.21	2.02		2.67	1.93
Chloride (Cl <sup>-</sup> )	(mg/L)	< 250		ND <sup>5</sup>	0.96		0.19	1.35
Total mercury (Hg)	(mg/L)	< 0.001		ND <sup>6</sup>	ND <sup>6</sup>		ND <sup>6</sup>	ND <sup>6</sup>
Arsenic (As)	(mg/L)	< 0.05		ND <sup>7</sup>	0.0008		0.0018	0.0015
BOD	(mg/L)	< 15		ND <sup>8</sup>	0.5		1.1	ND <sup>8</sup>
COD	(mg/L)	< 40		12.5	6.25		34.4	15.6
Total phosphorus	(mg/L)	< 0.2		0.023	0.023		0.020	0.013
Faecal Coliform	(C/100mL)	150		235	118		94	192

<sup>1</sup> Non-detectable (Detection limit = 0.001 mg/L)<sup>2</sup> Non-detectable (Detection limit = 0.16 mg/L)<sup>3</sup> Non-detectable (Detection limit = 0.010 mg/L)<sup>11</sup> No Project or internationally recognized guideline available therefore the river-specific guideline shall be adopted – 80<sup>th</sup> percentile of the highest seasonal mean

Parameters which exceed the Project trigger.

<sup>\*</sup> 350 µS/cm for Nam Theun; 750 µS/cm for lowlands rivers<sup>\*</sup> 40 mg/L for all rivers in all seasons with the exception of 80 mg/L for the Xe Bangfai in wet season<sup>4</sup> Non-detectable (Detection limit = 0.005 mg/L)<sup>5</sup> Non-detectable (Detection limit = 0.0002 mg/L)<sup>6</sup> Non-detectable (Detection limit = 0.0003 mg/L)<sup>7</sup> Non-detectable (Detection limit = 0.5 mg/L)

### 3.4 Environment Management Unit (EMU) Technical Assistance (TA)

Activities undertaken by the EMU and EMU TA during October 2006 are presented in the Work Plan below<sup>4</sup> and also include:

- On 12 October 2006, NTPC, EMU, and EMU TA held a monthly progress meeting. Issues discussed included (i) solid waste disposal; (ii) IMA funding; (iii) EMU staff placement within NTPC; (iv) EMU strengthening; (v) EMU vehicles; and (vi) EMU per diem rates.
- The EMU Environmental Management Manual has been reviewed by NTPC and comments have been provided to the EMU. The EMU EMM is currently under revision.
- The first Quarterly Progress Report (QPR) was submitted during October 2006. The first QPR, together with the associated Work Plan 2006-2009, is under NTPC review.
- Construction of the EMU field office is now complete and is currently being furnished. The field office has been in use and should become fully operational in November 2006.
- EMU personnel continue to accompany EMO Inspectors on joint site inspections, alternating personnel from EMU Khammouane and EMU Bolikhamxay. Details of the construction areas inspected by the EMU are provided in Part B, Section 1.2 (*Environment Protection*) of this Report.

CA Ref No.	EMU Activity (Work Plan)
NA	Translation of the EMU Environmental Monitoring Manual
03	Commence consultation with the SLMU regarding salvage logging operations and measures to maximize biomass removal.
03	Meet with RMU and VFA to discuss roles regarding lesser value biomass removal
07	Consult with the NTPC regarding establishment of adaptive management committee for the Nam Kathang
11	Request information from NTPC regarding the design specifications of the Confluence Area to confirm that appropriate stabilization or protection measures, such as rip-rap, are provided to minimize scouring.
11	Commence infield spot checks of the Confluence Area to confirm consistency of construction activities with design specifications.
13	Conduct infield spot checks of the Downstream Channel construction to confirm provisions for localized low points
18	Consult with WMPA, RMU and district authorities to assess the capacity of the GOL enforcement agencies (technical, human, financial resources) to implement hunting controls in the Resettlement Areas. Assist the GOL enforcement agencies with the development of capacity as required.
19	Consult with the NTPC regarding establishment of adaptive management committee for wildlife program
21	Conduct a GPS survey of the extent of spoil disposal areas in Gnommalat
23	Conduct investigation of vegetation clearance with respect to design standards along new road zones D and F
24	Request the NTPC to provide the results from the PCR field surveys, as well as the recommended mitigation and management measures
25	Request the NTPC to provide a copy of the Health and Safety Program.
26	Request the NTPC to provide a copy of the EIAs for quarry areas.
26	Request the NTPC to report on the progress of quarry activities.
27	Request the NTPC to provide the results of the environmental impact assessment for the final alignment of the Transmission Line
34	Request the NTPC to provide a plan to mitigate noise exceedances as reported in the NTPC Progress Report
36	Review the Landscaping and Revegetation Management Plan (Rev. A)
36	Follow-up request for the NTPC to report on progress of revegetation activities
37	Request the NTPC to report on the implementation of enforcement mechanisms for controlling vehicle speeding
37	Coordinate with GOL to strengthen capacity to enforce speed limits
39	Request the NTPC to report on the implementation of environmental training of construction workforce

CA Ref No.	EMU Activity (Work Plan)
41	Request the NTPC to provide copies of the Village Development Plans for resettled villages
41	Clarify roles and responsibilities of the EMU with the RMU with respect to Part A, Part C and Part E
44	Request that NTPC provide a progress report for environmental grievances
44	Assess the feasibility for the EMU to provide capacity building to district staff with respect to grievance management
NA	Review the Salvage Logging Code of Conduct and Technical Guidelines, and the EMP for the Salvage Logging access road to confirm the inclusion of adequate measures to avoid and minimize impacts of pollution
NA	Prepare monitoring report including observations and non-compliances for submission to the Salvage Logging Committee

### 3.5 EMO's activities linked to construction

The environmental activities linked to construction works are part of the Construction Progress Report, Part B of this Monthly Progress Report.

## **Internal, External Monitoring**

## 4 Internal and External Monitoring

Schedule of visits since Financial Close: Visits of the month in blue - Next scheduled visit in green.

ID	Task Name	Duration	Start	Finish	Jan 06												Jan 07															
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
61	Total: 337 days																															
1	AP workshop at Sakai	3 days	Mon 06/01/06	Wed 08/01/06																												
26	Project Launch Meeting	2 days	Tue 10/01/06	Wed 11/01/06																												
24	DFID/Berghs Planning and Policy (Critical)	2 days	Sat 25/01/06	Sun 26/01/06																												
2	Consulting Meeting with LSA	4 days	Tue 30/01/06	Fri 03/02/06																												
36	Meeting with IMF Team	1 day	Thu 02/02/06	Fri 03/02/06																												
3	Progress Report	0 days	Fri 15/01/06	Fri 15/01/06																												
25	French Ambassador and Ministry of Health Site Visit	2 days	Mon 18/01/06	Tue 19/01/06																												
5	IFM Monitoring Visit	4 days	Mon 20/01/06	Thu 23/01/06																												
6	Presentation of LTA's comments to IFM	1 day	Thu 23/01/06	Fri 24/01/06																												
27	DMC Visit	3 days	Mon 13/01/06	Wed 15/01/06																												
20	DOE Team	3 days	Sun 27/01/06	Tue 29/01/06																												
37	S & S Meeting	1 day	Tue 30/01/06	Tue 30/01/06																												
35	NTPC Progress Report for July	0 days	Fri 13/01/06	Fri 13/01/06																												
31	DMT Site Visit	2 days	Tue 18/01/06	Wed 19/01/06																												
4	LSA Monitoring Visit	3 days	Tue 20/01/06	Thu 23/01/06																												
18	IFM Monitoring Visit	5 days	Wed 24/01/06	Tue 29/01/06																												
19	EDF Board Meeting	1 day	Thu 25/01/06	Thu 25/01/06																												
27	Latvian Ambassador in Bangkok Site Visit	3 days	Thu 26/01/06	Sat 27/01/06																												
28	LSA Visit	1 day	Wed 27/01/06	Fri 29/01/06																												
15	Inter-Ministry Process: NP Site Visit	1 day	Fri 03/01/06	Fri 03/01/06																												
29	Visit to N2 Members at French Parliament	1 day	Fri 10/01/06	Fri 10/01/06																												
20	Progress Report	0 days	Thu 12/01/06	Thu 12/01/06																												
22	Exhibition of environmental activities organized by the Secretary of National Environmental Committee	2 days	Thu 23/01/06	Fri 24/01/06																												
33	Workshop on NTPC Accounting at THX	1 day	Thu 23/01/06	Thu 23/01/06																												
34	DMT Site Visit	2 days	Mon 14/01/06	Tue 15/01/06																												
35	RC Meeting	2 days	Thu 14/01/06	Fri 15/01/06																												
13	IFM user presented for communication + strategy visit	3 days	Fri 14/01/06	Tue 19/01/06																												
14	Progress Report	0 days	Sat 11/01/06	Sat 11/01/06																												
17	IFM Mission site visit	3 days	Mon 24/01/06	Wed 26/01/06																												
16	IFM Mission Mission - Workshop + Meetings	3 days	Mon 27/01/06	Fri 29/01/06																												
22	Site Visit from affected villages at Nam Ngum 2 Project & Accompanied from DOE & NTPC Project	1 day	Fri 01/01/06	Fri 01/01/06																												
7	BOO Site Visit	3 days	Mon 14/01/06	Wed 15/01/06																												
23	Progress Report	0 days	Tue 15/01/06	Tue 15/01/06																												
6	Min. Visit (C) from BOO	1 day	Thu 17/01/06	Fri 18/01/06																												
8	LSA Visit	5 days	Mon 21/01/06	Fri 25/01/06																												
10	DMT Meeting	1 day	Fri 24/01/06	Fri 24/01/06																												
11	Board of Director Visit	3 days	Mon 27/01/06	Fri 29/01/06																												
12	Progress Report	0 days	Thu 15/01/06	Thu 15/01/06																												
41	DOE Mission	17 days	Sun 15/01/06	Sat 03/02/06																												
42	Progress Report	0 days	Sun 15/01/06	Sun 15/01/06																												
39	Joint IFM Mission site visit	1 day	Mon 18/01/06	Wed 18/01/06																												
40	BOO Meeting	2 days	Thu 19/01/06	Fri 20/01/06																												
43	IFM Mission	3 days	Mon 23/01/06	Wed 25/01/06																												
44	IFM Mission and visit of January	1 day	Mon 20/01/06	Mon 20/01/06																												
45	The Bank Management	2 days	Tue 21/01/06	Wed 22/01/06																												
46	DOE Interviewing Meeting at LNC Office	1 day	Fri 24/01/06	Fri 24/01/06																												
47	DOE Project Tour	2 days	Fri 24/01/06	Sat 25/01/06																												
48	APD: Mr. Pierre-Jacques, Ministry of Energy	1 day	Fri 24/01/06	Fri 24/01/06																												
49	EDF D2D Site Visit	2 days	Sat 11/01/06	Sun 12/01/06																												
50	Nam Ngum Dam Construction Commission	1 day	Wed 15/01/06	Wed 15/01/06																												
51	Progress Report	0 days	Wed 16/01/06	Wed 16/01/06																												
52	Interviewing Mission	2 days	Thu 16/01/06	Sat 18/01/06																												
53	IFM Review Mission	5 days	Mon 20/01/06	Fri 24/01/06																												
54	UNEP Visit	3 days	Mon 20/01/06	Wed 22/01/06																												
55	ADB Regional Sustainable Development Dept and Mining Dept	2 days	Tue 21/01/06	Mon 27/01/06																												
56	Local French Ambassador to Bangkok	2 days	Tue 21/01/06	Wed 22/01/06																												
57	Progress Report	0 days	Wed 15/01/06	Wed 15/01/06																												
58	LSA D2D GCL's mission	5 days	Mon 20/01/06	Sat 24/01/06																												
60	LSA D2D site visit	4 days	Mon 27/01/06	Thu 30/01/06																												
61	LSA D2D meeting	1 day	Fri 30/01/06	Fri 30/01/06																												

## **GOL Related Activities**

## **5 GOL related activities**

### **5.1 Watershed Management Protection Authority (WMPA)**

The WMPA held their annual Board of Directors meeting on 29 September 2006 as scheduled. The Board of Directors had some comments and recommended some minor changes to their upcoming annual workplan prior to approval. The WMPA has updated their workplan and the Board of Directors and the Independent Monitoring Agency have endorsed the workplan and budget. NTPC expects receipt of the endorsed workplans and budgets by mid-November 2006 and upon satisfactory receipt of this documentation, NTPC will make arrangements for the annual payment to the WMPA.

The main issues addressed at the Board Meeting of the WMPA are:

- Review annual work plan and budget for upcoming year
- Review Audited Financial Statements from 1 July 2005 to 31 August 2006
- Agreed to hold next Board Meeting before end of 2006
- Agreed to change the beginning of the Fiscal Year to 1 July instead of 1 October (this means that the annual disbursement to WMPA from NTPC should occur in July instead of October)
- Board requested monthly reporting of financial status with brief description of activities
- Board requested full quarterly reporting of activities and financial status
- Board confirmed that WMPA management will implement POE recommendations
- Board emphasized that the management of WMPA main role is to act as central coordinator and implementation of specific duties is responsibility of Governor and District Authorities

### **5.2 Optimization of Salvage Logging on the Nakai Plateau**

The GOL has commenced salvage logging operations at the end of October 2006. Transport of logs off the Nakai Plateau will commence in November once the ground dries enough to allow for movement of logging trucks and equipment. The Chairman of the Salvage Logging Committee is expected to issue a decision regarding the road and traffic operating rules for the Salvage Logging Trucks in order to optimize the road use between NT2 Construction truck traffic and Salvage Logging truck traffic.

The GOL has also prepared a detailed Field Guide for the Contractors to ensure they follow guidelines on social and environmental measures related to the Salvage Logging Operations. This field guide is based on the Code of Practice as approved by the GOL in December 2005. Approximately 96 Government staff are involved in the Salvage Logging Operations, with the majority working in the field or in Oudomsouk.

### **5.3 Social issues (RMU & DWG)**

No change from previous report.

## **Annexes**

Proposed NT2 Reservoir Nakai Plateau Village Relocation Routes



## Transition Resettlement Schedule

