



Nakai Resettlers' Reality: From the Past to the Future



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ACRONYMS

ADB	Asian Development Bank
CA	Concession Agreement
CPI	Consumer Price Index
FAO	Food and Agriculture Organization of the United Nations
GOL	Government of Laos
HH	Household
HIT	Household Income Target
LECS	Lao Expenditure and Consumption Survey
LSMS	Living Standards Measurement Survey
MICS	Multiple Indicator Cluster Survey
NBCA	National Biodiversity Conservation Area
NPFDE	Nakai Plateau Forest Development Enterprise
NRO	Nakai Resettlement Office
NTFP	Non Timber Forest Products
PLUP	Participatory Land Use Planning
PM Decree	Prime Minister's Decree
PRF	Poverty Reduction Fund
QSEM	Quarterly Socio Economic Monitoring
RFA	Reservoir Fisheries Association
SEMFOP	Social and Environmental Management Framework and Operational Plan
SERF	Social and Environmental Remediation Fund
VCF	Village Credit Fund
VFA	Village Forestry Association
VFGs	Village Fisheries Groups
WB	World Bank
WMPA	Watershed Management Protection Authority

EXECUTIVE SUMMARY

Purpose of this document. The purpose of this document is to illustrate the living standards and conditions of the affected NT2 project population on the Nakai Plateau before, during and after resettlement. It further provides evidence that resettlers had reached the household income target by 2013. To build the Nam Theun Dam, 6,289 people from 17 villages were moved from their original locations along the Nam Theun River to the southern edge of the newly created reservoir on the Nakai plateau. The relocated people are referred to as Nakai resettlers and their status and entitlements are well defined in the NT2 Concession Agreement. The villages of Oudomsouk and Phonephanpek are not part of the household income target measurement due to the urban nature of their livelihoods, although some HHs have obtained resettler status.

The Household Income Target (HIT) is one of ten objectives that needs to be achieved before the Resettlement Implementation Period can be closed by the Resettlement Committee. The HIT is defined by the CA "the yearly target for the income of Resettler households, including income in cash and in kind, to be reached at the beginning of Year 5 of the Resettlement Implementation Period, being for each Resettler household in the Resettlement Area, higher than the then current National Rural Poverty Line". The measurement for the HIT is agreed by stakeholders to be consumption based and to be undertaken by early 2013.

This document is comprised of four main chapters and one annex. Chapter 1 briefly presents the resettlement process. Chapter 2 describes the reality of the resettled population prior to resettlement and explains their livelihood systems, resettlers' access to services and the previous prevalent living standards and conditions. Chapter 3 informs on resettlers' current living standards, summarises the determinants for improved livelihood production and living conditions, and highlights and explains these changes as far as possible. Finally, chapter 4 provides evidence on resettlers' enhanced income earning capacity and the achievement of the household income target with adequate support being provided by the concerned parties. Annex 1 details the resettlement package.

A multisectorial approach developed during the resettlement process. The three broad phases of resettlement started with consultation and planning and continued with physical relocation and livelihood development, with some overlapping between phases. The first pilot village (Nong Bua Sathit) was moved in 2004. Nine villages were moved to temporary houses located within their new permanent land plot before June 2006 due to safety concerns after the construction of the coffer dam. The remaining seven villages moved directly into their new dwellings in 2007/2008. The dam started filling during the 2008 wet season and the reservoir was at full supply level by November 2008. Food subsidies and food for work were provided during the transition period for clearing new lands and building new infrastructures. Compensation was provided for lost assets and entitlements to build new livelihoods. Main private and public infrastructures were built by the company through "turn-key" contracts for new houses, water supply and sanitation systems, schools, health centres, community buildings, roads and the electricity supply. For planning and managing new livelihood opportunities, the Social Development Plan and the Annual Implementation Plans were developed, capacity building organised and equipment/tools distributed. For sustainable natural resource management, a village forestry association (VFA) and village fishery groups (VFG) were created based on approved operational mechanisms and regulations to manage forests and fisheries.

The access to capital is provided by a Village Credit Fund specially created for resettlers. Each resettler is a member and owner of 4.4 million kip worth of share capital. The Participatory Land Use Planning process provided access and control over private land, stating the couple's name on each land title. Community land titles were provided for the first time in Laos for agricultural and forest land for common or individual use by resettler households.

A public health programme built two health centres and rehabilitated the district hospital on the Nakai plateau, strengthened public health services with a special focus on preventive, maternal and child health, all of which contributed significantly to lowering childhood mortality rates and the overall better health status of resettlers.

The Environment Programme created awareness on the importance of wildlife, rescued wildlife during impoundment and established an elephant programme to facilitate cohabitation between resettlers and the wild elephant herds still living in the area. Domestic water supplies are analysed periodically by NTPC's Aquatic and Environmental laboratory to ensure safe access to water for resettlers. Monitoring of fish catch and assessment of fish diversity is done on a regular basis. Studies are ongoing on the reservoir to measure greenhouse gases. All project sites have been surveyed and cleared of unexploded ordinance (UXO) to make the area safe for living and working.

Past situation of the resettlers. Nakai Plateau is marked by a long history of migrations. The Nakai District was classified as one of the poorest districts in the country. The Government declared Nakai district out of poverty on December 11 2013. All ethnic groups living in the district are classed as "indigenous peoples" by the Work Bank safeguard definition.

Livelihood systems driven by agriculture and livestock. Villagers developed diversified activities to cope with hardship and natural shocks and to make the most of limited natural resources while limiting risks. Traditionally, agriculture with a seven years shifting cultivation rotation was the primary means of subsistence, producing low yields and insufficient rice to cover annual needs. Only a few better-off households were mostly rice self-sufficient thanks to cultivated paddy fields. Rice production was complemented by hunting and gathering of Non Timber Forest Products in surrounding forests. Livestock was traditionally used to accumulate wealth, which could be liquidated when the need for cash arose, rather than an economic enterprise. Buffalo was the dominant animal category owned within the area, with an average ownership of 4.3 buffaloes per household. However, few households owned herds of more than 50 animals. Food was obtained for a family's welfare and well-being, but most households were exposed to rice deficits lasting several months.

Starting in the early 1990's, increasing demographic pressure on natural resources was observed, and the then prevailing farming system was proving to be increasingly unsustainable. The rotation period on slash and burn areas decreased and consequently productivity also decreased due to prevailing low soil fertility. The free market policy of 1986 led to widespread logging in the area. In the early 1990's, the transition from a subsistence farming system toward a market economy began. This resulted in an intensification of livestock trade and an increase of animals raised (buffaloes, pigs and poultry). Villagers began to cultivate more crops, especially vegetables for sale in the marketplace. Traditionally, fish was the main source of protein on the Plateau, but this was increasingly complemented by hunting and gathering for barter and sale. Forest products corresponded to a safety net providing both food and income. Wildlife was mostly marketed to Vietnam.

Services and infrastructure in the area were lacking or inadequate. Only logging tracks and trails allowed the Plateau populations to access towns and markets and services. The area was reputed for its remoteness, and even in the dry season it took half a day or more to travel between the Nakai District capital, Oudomsouk, and the provincial capital of Thakhek, a journey that nowadays takes just one hour by car. During the wet season, the Nakai Plateau would be virtually inaccessible. The average distance to the nearest health facility was 11 km, usually travelled by foot. It is therefore no surprise that approximately half of the communities made use of local herbalists and traditional medicine. Poor health conditions were reported for both adults and children: high mortality rates for children under five (120.5 per thousand), widespread stunting and malnutrition, remarkably high prevalence of parasite infection (59%) were reported during initial health surveys. Reasons for this fragile health status were the limited access to health care and vaccinations, use of un-boiled river water for drinking, inappropriate hygiene practices and an unbalanced diet. Back then, no water supply or sanitation facilities existed and water had to be fetched from nearby waterways, a time consuming and repetitive daily task mainly carried out by women and children. Because only few schools were operating in practice, 63% of the Nakai Plateau population lacked access to education, a situation that was of even greater concern for women, most of whom were illiterate. Electricity and communication services were not available to the vast majority of households on Nakai Plateau. Only the District capital, Oudomsouk, had limited electricity and a few telephone connections.

Living standards: a life based on subsistence, with at least 55% of household income being in-kind items such as those produced, hunted or gathered by the household. The Nakai Plateau resident's annual income (in 1998 values) was reported to be US\$100 per capita versus US\$280 per capita for Laos in 1998. In the same period, agriculture and livestock accounted for the bulk of their income (respectively 46% and 23%), while the only significant sources of cash income were wages and sales of traditional jewelry. Income from fishing (10%), NTFPs and wildlife (8%) were also important sources of livelihood. Most families lived in traditional houses made of wood and bamboo, with either thatch or wooden shingles for roofing. No electricity was available in any of the villages, although a few households owned small diesel or petrol generators.

In 2006, the means of transport were essentially walking, bicycles (one for every second HH) and motorbikes (one for every third HH). Only 9% of HHs owned a boat.

Changes and present situation of resettlers. Each of the 1,310 resettler households benefited from a resettlement package. This included community and public infrastructure, hard wood timber houses on concrete poles connected to the electricity grid, agricultural land and entitlements for free inputs (seed, fertilizer, tools), technical assistance to develop existing and new livelihood pillars, as well as employment and food subsidies to maintain living standards during the transition period. It is also noted that telecommunication services are now available and functioning in every resettlement village.

Improved access to services. Each household was provided with access to an improved water source. One groundwater hand pump per five households and a cistern, a permanent bathroom with a pour flush latrine and a septic tank was provided with every house built. All-weather road access was provided to private land, markets, health care and education facilities.

Secured access to land. Through a Participatory Land Use Planning (PLUP) process, each household received 0.66 ha of agricultural land and an extra 0.2 ha of irrigated land where possible. An additional 2,780 ha of agricultural land were formally allocated under community land titles to 14 hamlets. A total of 17,428 ha of production forests were allocated to resettler communities under a 70 year concession which was recently titled as community land. The draw down zone area is accessible for 2-4 months and turns into useful grazing land during the dry season when the reservoir recedes and fodder elsewhere on the Plateau becomes scarce. Seeking a high degree of flexibility and diversification to produce food and income, **five pillars for restoring livelihoods** were promoted and offered a great variety of livelihood activities and sources of income, such as agriculture, livestock, fishing, forestry/NTFP and off-farm employment. In 2013, the most important sources of income (mean/capita/month in 2013 values) derived from fishing with 86,000 kip, followed by cropping (45,000 kip), forests (35,000 kip) and off-farm employment (34,000 kip). Incomes differ between social classes: vulnerable households earn nearly 45% of their total income from fishing whereas wealthy households have a more diversified portfolio of incomes and earn 30% of their income from fishing and 20% from off-farm employment.

Fisheries established themselves as the prime source of income for both rich and poor and contribute significantly to resettler livelihoods. Agricultural income decreased shortly after resettlement and is now again on the rise due to the additional agricultural land allocated during 2011/12. Production patterns for livestock have changed from buffaloes to cattle and from large livestock to small livestock (pigs, chicken, ducks and goats). In the past, large livestock represented important savings, and intensification toward livestock production units has now become visible. Forestry continues to play an important role in resettler livelihoods through Non Timber Forest Products, the Village Forestry Association (VFA) and to some extent logging. The community based forest development enterprise has been set up for promoting sustainable forestry management and is serving resettlers as a source of employment, providing an annual dividend to all 6,289 shareholders. Before the project, only a few households on the Plateau had access to off-farm income. Although increasing, this type of income is more accessible to better-off households although it remains limited to small businesses, a few repair workshops and some handicraft activities such as weaving.

Improved living standards. Analysis of the seven rounds of the Living Standards Measurement Surveys (LSMS) conducted between 2006 and 2013 provides insights on the economic evolution of households and income groups. The LSMS surveys further provide information on how Nakai resettlers themselves perceive the changes. Resettled people consider themselves better off: in 2013, 87% reported their life was better than before resettlement, with 36% stating that their lives were “much better” than before resettlement. What they appreciate most: the new housing including facilities and services such as electricity (92% of respondents); infrastructure such as road access and phone coverage (70%). As a result, resettlers have access to vastly improved health care and educational facilities both in the new villages themselves and in the District Town of Oudomsouk via well maintained all-weather access roads. Child mortality for those under five decreased by a factor of two, parasite infections by a factor of three and the percentage of stunted children was reduced by 21%. 90% of all children are enrolled in primary schools in every village and 66% in secondary schools located at the district headquarters and two cluster centres - Nongbuakham in the North and Done in the South. Attending secondary schools requires travelling from the village and as a result, only 25% of children attend secondary school. Differences remain between social classes, the rich being more likely to attend school compared to the children of vulnerable families. More positively, girls are just as likely to attend school as boys and illiteracy is rapidly decreasing for both groups.

Household Income Target measurements: Income, consumption and assets are complementary indicators and reflect the evolution of livelihoods and living standards. All indicators were measured by the Living Standard Measurement Surveys which started in 2006 and covered seven surveys, the last one of which was carried out during the first quarter of 2013 (values provided below are normalised to 2013 values unless otherwise noted):

- **Consumption** is the indicator agreed by NT2 stakeholders to determine if the resettler Household Income Target is achieved. The Household Income Target is the poverty line defined by the PM decree 201, promulgated by April 2012, and is set at 180,000 kip per capita and month for rural areas in Laos. Raising the poverty line of the Lao Consumer Price Index to that of April 2013, at the time when the consumption was measured, sets the income target to 186,000 kip. The changes in consumption over time can be grouped into four main phases: before resettlement (no project impact), early resettlement (influenced by employment, food subsidies, double cropping), the transitional phase (influenced by the phasing out of food subsidies and resettlement related employment) and post resettlement (LSMS 6 with limited influence by

compensation payment, LSMS 7 reflecting with marginal influence from the above factors).

Initial baseline surveys did not measure consumption due to the subsistence character of the local economy back in 1998. References for consumption levels in rural situations of the Lao PDR are found in the Lao Expenditure and Consumption Survey III, 2002/03, and assess the mean per capita consumption levels at ~ 300,000 kip/HH/month for Central Laos (CPI adjusted to 2013).

Mean consumption at the **initial stage of resettlement** (2006-2007) was at 670,000 kip/capita/month. Resettler's consumption levels were influenced by food allocations, employment for land development and construction, as well as forestry and cropping on the old and new lands.

Consumption in the **transition phase** (2008-2009) dropped to 540,000 kip/capita/month due to the phasing out of transitional food support and employment. Consumption raised again in LSMS round 5 (2009) to 6.5 million kip/capita/year, most likely influenced by the windfall fisheries that occurred after impoundment in the reservoir. It is worthwhile to note that after 2009, the survey interval changed from a 10 month frequency to a two year interval. At the same time the methodology was adapted to reduce the interview duration from seven to two hours.

Mean consumption peaked during round 6 (1 quarter 2011) at 807,000 kip/capita/month during the post resettlement period as a consequence of large compensation payments for paddy fields, fruit trees and buffaloes. Windfall fisheries and high demands for precious timber added further to the peak consumption. Round 7 of the survey was conducted in the first quarter of 2013 and resulted in a mean consumption of **622,000 kip/capita/month**. *This value is more than three times above the poverty line, with only 3% of the resettler population below the poverty line.*

- **Income** is an important measurement and in a rural context, including both income in cash and in kind of self-produced items. As a matter of fact, incomes are regularly under-reported but remain an important reference to triangulate results between different livelihood indicators. Measuring income in a time series and by the same method, it reflects livelihood trends over time efficiently.
- **Assets** provide important evidence on material wellbeing. The survey time series 2006 -2013 indicate that all four resettler income groups have gradually built up their asset diversity and values with a certain stabilisation in 2013. The vulnerable households group experienced the greatest increase in the asset value index (5-8 fold increase). Resettlers invested in new assets such as electrical appliances (mobile phone, television, refrigerator, rice cooker,...), clothes, furniture and vehicles. The acquisition of these goods reflects the significant change in living conditions that has occurred in the resettlement villages – a combination of increased income, combined with the provision of electricity to every household and all-weather road access.
- The percentage of households with household **savings** (in the form of bank deposits, gold and jewelry), has increased from 21% in 2006 to almost 100% in 2013, including 97% of vulnerable households. This confirms the above trends of material improvements.
- **Debts**. In 2013, 25% of HH reported having contracted loans during the last 12 months with an average loan size of 200'000 kip per capita. 86% of those loans were obtained from the Village Credit Funds. Although they are not strictly enforced, the rules of the new Village Credit Funds require that loans can only be obtained for productive purposes or for emergencies and cannot exceed the amount of the capital share in the Village Fund.

Comparison with the set objectives and conclusion. Economically, the baseline and longitudinal LSMS data show that the resettlers experienced a period of rapid growth in consumption and income during the early phases of the project and an apparent peak in consumption in 2011. The increase in household income and consumption is reflected in significant growth in household savings and assets. Livelihood resources are now more evenly distributed within the resettler communities than they were before resettlement.

The mean consumption levels are three times higher than the poverty line. The consumption levels of an estimated 3% of households are currently below the poverty line which is the Household Income Target. Those three percent are mostly older or handicapped resettlers who are either supported by the project through an in-kind provision of food supplies and free medical and livelihood support.

Asset ownership and savings have been sustained at relatively high levels; vulnerable households show stable consumption rates and appear to be well buffered against changing incomes. In comparison, Nakai resettlers' mean consumption levels are significantly above results recently published by the WB for other rural upland populations in the Lao PDR (320,000 to 350,000 kip/month according to the PRF SE survey 2012).

LSMS survey data for 2013 show that 97% of all households have achieved the Household Income Target and are above the poverty line set by the Government of Laos.

As a conclusion the Household Income Target has been achieved five years after the beginning of the Resettlement Implementation Period.

Project progress reports and monitor evaluation reports indicate that provisions and entitlements as well as technical and social assistance have been provided to resettlers. Resettlers have increased access to and control over land resources, have improved access to markets and public services and have exclusive rights over fisheries and defined forest areas. A fund is provided by the company to maintain resettler and public infrastructure in the resettlement area. All of which is evidence that resettlers' living standards have materially improved compared to pre resettlement conditions.

1 INTRODUCTION

The Resettlement Implementation Period is defined in the Concession Agreement (CA) as being “the period from commencement of implementation of the Resettlement Process, and ending when the Resettlement Committee is satisfied, on advice from the Panel of Experts, that the Resettlement Objectives and Resettlement Provisions have been achieved”.

One target to be achieved before the end of the resettlement period is reaching the household income target defined in the CA as “the yearly target for the income of resettler households, including income in cash and in kind, to be reached at the beginning of year 5 of the Resettlement Implementation Period (2013), being for each resettler household in the Resettlement Area, (... above) the then current National Rural Poverty Line, multiplied by the number of persons in the household.”

This target is comprised in 1 of the 10 objectives to be achieved to close the resettlement implementation period. The objective is formulated as follows: “ensure that resettlers have their income earning capacity enhanced and achieve the Household Income Target, with adequate support being provided by the parties during the Resettlement Implementation Period”. These contractual objectives represent a significant increase over baseline income levels.

This document aims at providing a picture on the evolution of living standards of the Nakai resettlers from 1996/98 to the present, in particular by comparison of pre and post project conditions. This document reflects the resettlement process and its current achievements, focusing on livelihood production as well as changes in living standards.

This document is comprised of four main chapters and one annex. Chapter 1 briefly presents the resettlement process. Chapter 2 describes the reality of the resettled population prior to resettlement and explains the livelihood systems, resettlers' access to services and the then prevalent living standards and conditions. Chapter 3 informs on resettlers' current living standards, summarises the determinants for improved livelihood production and living conditions while highlighting and explaining the changes as far as possible. Finally, chapter 4 provides evidence on resettlers' enhanced income earning capacity and the achievement of the Household Income Target with adequate support being provided by the parties. Annex 1 details the resettlement package.

2 PROJECT AND RESETTLEMENT PROCESS, IN BRIEF

2.1 Nam Theun 2, an industrial and developmental project for poverty reduction in Laos

With a capacity of 1,070 MW, the Nam Theun 2 hydro power project, hereafter referred to NT2, is part of a 7,000 MW electricity export programme between Laos and Thailand. 95% of Nam Theun 2 power production is exported to Thailand. The remaining 5% (80 MW) represents 20% of the national consumption of Laos. The NT2 project will generate US\$2 billion of GOL revenues over the 25 year concession period. The Government has allocated this revenue to developing sectors such as education, health, rural roads, rural electrification and environmental protection programmes, thus contributing to poverty reduction in Laos¹¹.

While this project significantly contributes to the country's macro-economic development, it also pays close attention to:

- a) *“The social well-being of the local communities in the project area.”* A clear commitment has been made in the Concession Agreement: **the project supplies adequate support to ensure that resettler livelihoods are improved on a sustainable basis and that their income capacity is enhanced;**
- b) *Environmental protection: the project supports* the protection and management of the watershed: 4,000 km² of the Nakai Nam Theun National Protected Area (NTPC pays US\$1 million annually over the 30 year construction and operation period plus escalation according to a CA defined formula). The Second Social and Environmental Management Framework and Operational Plan (SEMFOP II)⁷ guides the second five-year operating period for the Watershed Management Protection Authority (WMPA). This incorporates the Watershed Access Restriction Framework that was a requirement of the CA and highlights the changing roles and responsibilities of the WMPA, which were redefined in Prime Ministerial Decree 471 of 2011. Many other environmental measures were put in place, amongst others to preserve water quality and to prevent erosion downstream.

This document focuses on the project's social and economic impacts on Nakai resettlers, who lived in hamlets located in what became the reservoir area. Oudomsouk and PhonPhanPek, with only few households affected, all project land affected households (construction related impact), the watershed and downstream areas along the Nam Theun and Xe Bang Fai rivers are not part of the scope of this document.

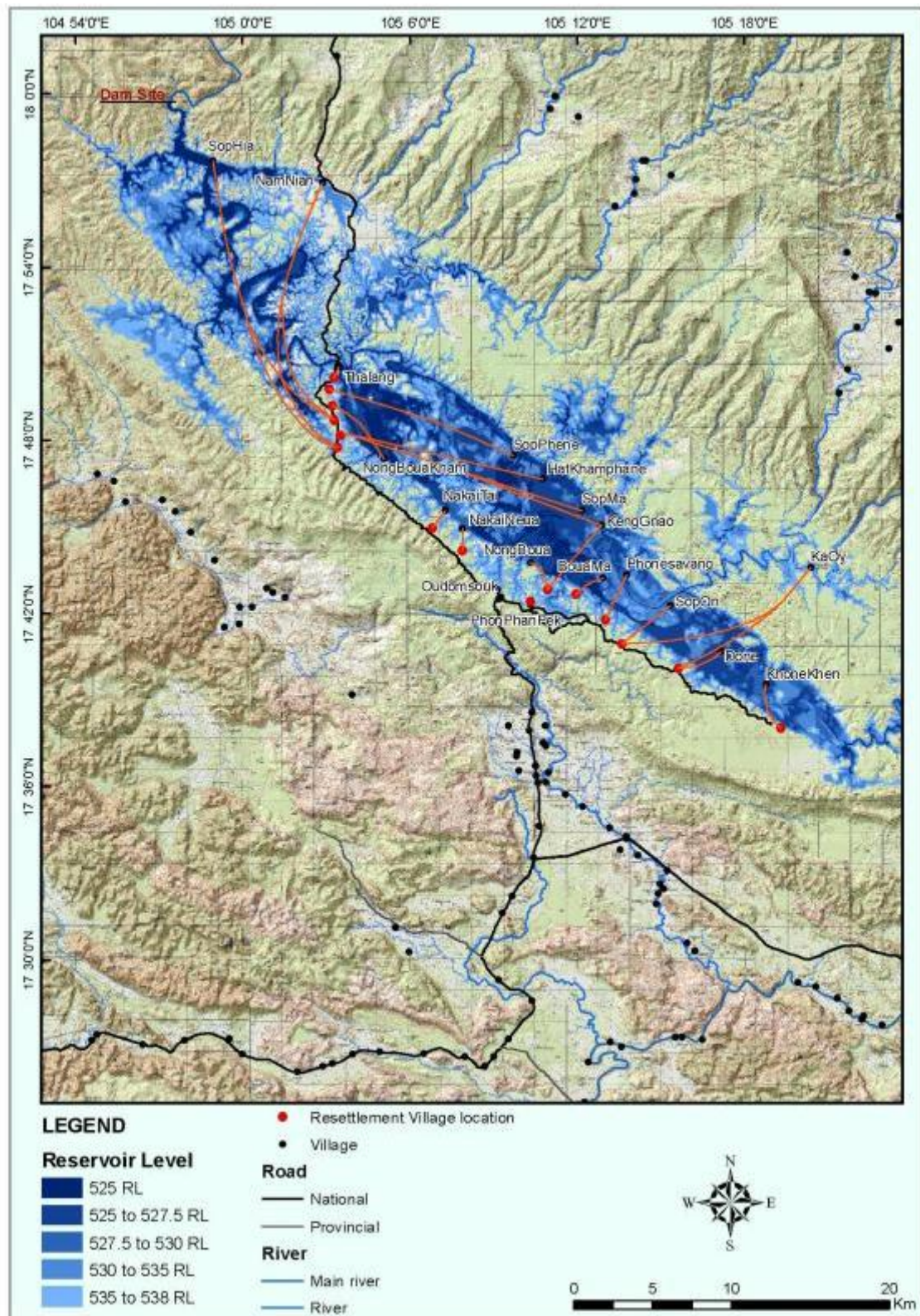


Figure 1: Location of old and new villages:

The villages moved according to the resettlers' stated preferences - to the South West bank of the reservoir, between one and three km from their original location⁴.

Box 1: Resettlement features and income objectives for resettlers

- 6 289 inhabitants belonging to 1 310 households living in 17 plateau hamlets were relocated.
- Oudomsouk, the district head quarter and Phonphanpaek which hosted a state forestry enterprise, are affected villages but only 107 and 62 households have resettler status.
- All resettlers who lived on Nakai plateau before dam construction are considered as "indigenous people" according to the World Bank criteria as outlined in Operational Directive 4.20. Special measures were foreseen from the start for ethnic minorities and vulnerable persons.
- At the beginning of the project, the average per capita income on the plateau was estimated at ~110 000 kip per month. An estimated 50% of the population in the Nakai Plateau were classified as poor (38%) or very poor (12%) in 2008¹.
- The HH income target: 186 000 kip/person/month in rural areas*¹. This corresponds to US\$ 1,490 per household per year, based on an average household size of 5.2 members¹ and exchange rate of 7800 LAK for US\$1.

2.2 A resettlement process guided by international standards for social and environmental safeguards

Nam Theun 2 is a complex project which has systematically addressed and mitigated the project's impacts on people and ecosystems in compliance with the Concession Agreement. A Social Development Plan and an Environment Assessment and Management Plan were designed aiming at responsible development in line with international environmental and social safeguard standards (World Bank and Asian Development Bank).

The resettlement process can be bundled into three (slightly overlapping) broad phases:

- I. The consultation, design and planning phase
- II. The physical relocation
- III. Livelihood development

Consultation and planning

started as early as 1996 when the first baseline studies and data gathering on farming systems, livelihood and cultural patterns were conducted. These included detailed surveys and studies on gender and ethnic minorities. The consultation and planning phase has resulted in the Social Development Plan which was formally approved by GOL early 2005.



Physical relocation started with a first pilot village in 2004. A first group of nine villages was relocated in 2006 into temporary settlements for safety reasons to protect villages from possible backwater effects generated by the coffer dam. A second group of villages was moved in the dry season of 2007/08 and all 17 villages were moved by May 2008 into their new houses.

Livelihood development began in parallel with relocation when resettlers developed their newly allocated gardens and lands. After impoundment in June 2008, new livelihood skills on reservoir fisheries were developed and existing skills in agriculture and livestock were enhanced along with the technical assistance provided by project and government staff.

^{*1}For assessing of household target, the resettlement committee and NTPC agreed to raise the poverty line of 180 000 KIP/PERSON/MONTH from the Presidential Decree 201 dated APRIL 2012. NTPC and GOL have agreed to increase this level to 186 000 KIP in 2013, to take the inflation into account.

Milestones

The Resettlement Implementation Period still continues up till now. More details on the three phases appear in the table below.

Resettlement phases	Time line	Key steps
Project identification / Consultation and design	From 1996	Start of extensive, participative, iterative and gender sensitive consultations with the resettlers.
	2000	Creation of the Nakai Nam Theun National Protected Area (4000 km ²), which is the project's watershed
	2002	First draft of the Concession Agreement
	Late 2004	Resettlement of 30 HH to pilot resettlement village of Nong Bua Sathit
	July 2005	Approval of Social Development Plan and Financial Close: Start of the project construction and implementation of SDP
Transition and Physical relocation	2005	Establishment of the Village Forestry Association (VFA)
	2005	Design of Village Development Plans, detailing village lay out and land use.
	April 2006	Resettlement of a first group of 9 villages along the portion of Nam Theun upstream of the dam site. The villagers were first relocated to temporary housing as the civil works and initial construction of the dam site around the river bed rock required immediate relocation to ensure their safety. Vulnerable households provided with food support and other resettlers employed on work for food programme to clear village areas and farm plots.
	2008	Completion of the Nakai dam wall (April 2008) Second group of villages moved directly into their new houses in the relocated villages in June 2008. All resettler HH in permanent dwelling by the end of 2008. 450 km ² Nakai reservoir close to full supply level at the end of 2008. High reservoir productivity results in good initial catches.
Livelihood Development	2008	Resettlers supplied with fishing boats and equipment in December.
	2009	New homes with electricity and community infrastructure in place. Suitably equipped schools and health centres, housing for teachers and health care workers, community buildings and water wells completed. Establishment of the Village Fishery Groups (VFG) Four Regulations on fishing developed and signed by the Khammouane Governor for each of the 16 resettled villages. Draft Fisheries Co Management Plan developed and shared with stakeholders. Food for work phased out, vulnerable HH continue to receive support. Delivery of copies of land certificates for permanent agricultural land (0.66 ha).
	2010	Village access roads completed and all villages had access to irrigation. VFA set up as Limited Liability Enterprise with 6,289 shareholders. First VFA board meeting and dividend payment for 2009 and 2010. Payment of compensation for paddy fields and fruit trees.
	2011	Participatory Land Use Planning (PLUP) and land allocation to identify additional agriculture land and to define village and VFA land boundaries. Compensation paid to resettlers for the loss of 555 buffaloes. Convert revolving funds into Village Credit Fund for all hamlets. Convert remaining community entitlements into Village Credit Share capital. First attempt of developing Village Development Plans.
	2012	Reorganise NRO to Sustainable Community Development Project for the Nakai Resettlement Area. Set up of Village Credit Fund in all hamlets. Cash replacement for provision of agriculture equipments and tools.

	2013	<p>Delivery of land community land titles for additional and forest land.</p> <p>Village Credit Fund provided with cash equivalent for provision of additional boats.</p> <p>Development of Village Development Plans detailing livelihood activities.</p> <p>Measurement of the Household Income target, five years after all villages have been relocated</p>
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A multi-sectorial approach for supporting the 1,310 Nakai resettler households: Mitigation measures and development opportunities to sustainably re-establish livelihoods, and achieve income and consumption levels higher than those existing before the project. The project has been providing a mixture of assets, technical assistance and safety nets for vulnerable people, establishing external and independent monitoring progress toward the targets and adapting the livelihood programme. Oversight groups ensured the overall integrity of the process and provided expert advice to the project. This multisectorial approach includes five pillars for restoring livelihoods – farming, fisheries, livestock, forestry as well as non-timber forest products (NTFP) and off-farm activities:

- ☞ Cash compensation for the loss of land, fruit trees and animals;
- ☞ A safety net for vulnerable people, designed to help those in genuine need yet not undermine traditional family ties or create disincentives to building new livelihoods. A safety net was provided to all concerned households during the transition period in order to help resettlers adapt to new circumstances and take the risks (such as changing agricultural practices) necessary to build a new life;
- ☞ Houses, community buildings and other village infrastructure built using available village labour and any necessary additional labour on a rice-for-work basis;
- ☞ Additional infrastructure elements built with sub-contractors, such as wells, electricity distribution, irrigation systems and special buildings;
- ☞ Participatory resource and land use management planning for (a) developing an appropriate and balanced forest and land use zoning in order to achieve sustainable and integrated resettler livelihoods and (b) for providing equitable access to forest and land resources for all resettler community members;
- ☞ Public health support programme in the resettlement area focusing on preventive, maternal and child health;
- ☞ Environment Programme, including wildlife and forest protection, water quality and greenhouse gas monitoring, and environmental education; and
- ☞ UXOs surveyed and cleaned.

3 PAST SITUATION OF RESETTLERS

The Nam Theun 2 resettlement area is located on a plateau between the Annamite mountain range which defines the border between Laos and Vietnam, and the lowland areas stretching down to the Mekong River and the border with Thailand. The plateau is part of the Nakai District of Khammouane Province, which until very recently has been within the group of poorest districts in Laos⁴. A study of Nakai reveals a **long history of movement and migration**³ driven by such internal conditions as epidemics, search for improved livelihood conditions (land, NTFP and wildlife) and external factors such as the Thai invasion and occupation of Khammouane in the early 19th century, the French period, the Japanese invasion and occupation of Laos between 1945 and 1946 and the Second Indochina War till 1975. Located along the Ho Chi Min Trail, the Nakai Plateau was heavily bombed during this War.

Indigenous people³: All ethnic groups living in the project area are classified as "indigenous peoples" by the World Bank Social Safeguard standards. The ethnic groups considered "at risk" are the Brou (39%), the Ahoe (10%) and Phong/Yooy (5%).



3.1 Diversified activities to cope with natural shocks. Making the most of limited natural resources and limiting risks³.

Traditionally, for the communities living in the Nakai Plateau, agriculture with a seven-year rotation of shifting cultivation was the primary means of subsistence. Rice cultivation was generally poor and rice deficiencies were recorded for all villages. Only a few better-off households in the wealthiest villages - mainly in Nakai Tai, Nakai Neua and Done - were able to grow paddy rice. Some households had no access to suitable land for rice cultivation. Average yields⁴ were around 0.8 tons/ha for upland and 1.5 to 2.0 tons/ha for paddy rice. An estimated 500 ha of uplands were cultivated under swidden agriculture, exposed to poor soil fertility, frequent floods and droughts while suffering from a lack of modern technology⁵.



Figure 2: Slash and burn cultivation, before resettlement

Some vegetables were grown in the proximity of the home and may have included cabbage, cucumbers, tomatoes, lettuce, beans, maize and pumpkin¹⁰.

Villagers fished in the Nam Theun and its tributaries, hunted animals for meat and gathered plant products for immediate use and storing.



Figure 3: Fishing or hunting expedition, before resettlement

Livestock has traditionally been a means to accumulate wealth, rather than a productive and economic activity, which could be liquidated when the need arose. In other words, food was obtained for the family's welfare and well-being, but without surplus.

3.2 Transition from subsistence farming to a market economy.

The Nakai population relied entirely on natural resource extraction (land, water, forest) in proximity to their villages. The high fertility rate resulted in rapid population increase. This, combined with external demands for timber and NTFP, placed increasing pressure on natural resources. With the gradual opening of the country, villagers started to seek more cash income to buy clothes, medicines and household goods.

Increased sale of livestock and forest products was the beginning of a semi-commercial livelihood system. With increased demand for food production on land close to the village soil fertility declined and shorter rotation periods were required on these swidden lands, rice productivity declined and people were increasingly relying on livestock sales to purchase rice. The open market policy introduced in 1986 resulted in serious logging raids in the area and affected the local economy and livelihoods on the Plateau. In 1990, a sharp increase of livestock trade was recorded and animal numbers raised (buffaloes, pigs and poultry) rapidly. Villagers also began to cultivate more crops, especially vegetables for sale.



Figure 4: Vegetable production before the project

Commercial hunting and collecting of NTFP increased rapidly. Products were sold to markets on the Plateau and then traded to Thakhek and Thailand. The primary market for wildlife has been Vietnam.

Living conditions became increasingly difficult on the plateau³ due to the increasing demographic pressure, shortened fallow period on swidden lands, low soil fertility combined with frequent floods and increasing external pressure on forest products.

Although arable land, forest and water provided both income and food, the access to these natural resources was not legally secured.

Land tenure: customary rights not formally recognised.

Lao ministerial decrees, as well as the constitution, which concern land titling and ownership recognised customary land use rights. In 1996, however, detailed policies and guidelines for documentation, assessment, and compensation were not yet in place for customary rights regarding land and natural resources.





Figure 5: Women cutting bamboo in the forest, before the project.

Forest products - a safety net providing food and income.

Before resettlement, forest resources, and particularly Non-Timber Forestry Products (NTFPs), played a central role in household livelihoods, especially for the villages that lived on the edge of the forest. They were the most important source of cash income (40% of overall income¹⁰) in some villages and a significant overall source of food, particularly from May to September, when most households were rice deficient. In poor families, NTFPs were often the only source of monetary income⁴. Forest products were sold or bartered to merchants in the district capital Ban Oudomsouk. The major forest plant products sold were kisi resin (wild wax, also called damar, produced mainly by the tree *Parashorea dussaudii*⁹), fragrant bark (bark of “bong” *Notaphoebe umbelliflora* trees, collected and sold to Thailand where it is used to make joss sticks and incense⁹), rattan culm, and rattan and bamboo shoots.

Water and fish.

Traditionally, fish was the main source of animal protein for families on the Plateau. Fish were caught in rivers, mainly for household consumption¹⁰ (4.2 kg fish/HH/week). Family fishing expeditions were organised and could last for several days. In these expeditions the whole family would participate contributing to low school attendance for those villages where schools had been established.

3.3 SERVICES AND INFRASTRUCTURE IN THE AREA WERE LACKING OR INADEQUATE

The Nakai Plateau communities were among the poorest in Laos, with low incomes and limited access to such services as clean water, proper medical facilities, schools and roads.

- **Basic health²:** The average distance to the nearest health facility was 11 km, usually travelled by foot⁴. Some villages were a two day walk from the nearest trained health personnel⁵. Approximately half of the communities made use of local herbalists and traditional medicine³. However, a decline in herbal doctors occurred due to a lack of successors. It seems that the introduction of medicines, even on a limited scale, has weakened peoples’ reliance on traditional healing practices. The young and educated were the first to take medicine. Not all were satisfied with hospital treatment and many complained about the costs of medicine. Delivery and postnatal care were generally taken care of by birth attendants and traditional healers in the villages, who were unable to deal with serious or complicated cases.
- **Educational conditions²:** Villagers understood the importance of education but had little opportunity to obtain an education for their children. In practice, only schools in large villages were functioning. In many of the villages on the Nakai Plateau, there was no school or the village schools had not been functioning for several years. At some periods, the attendance was low due to the need to gather NTFPs or plant rice. SDP surveys highlighted that teachers were not regularly conducting classes. Some schools were financed by the villagers themselves since the local government had neither the funds and could not provide teachers. On the Nakai Plateau, 63% of the population lacked access to schooling.
- **Water supply/sanitation:** All villages were located along the Nam Theun or its tributaries. For example, fetching water from the Nam On took about half an hour for the round trip⁴. This work, mainly done by the women, could thus represent a daily work load of more than an hour, half of it carrying heavy loads. Sanitation facilities were absent and villagers defecated around the villages or in nearby rivers.

- **Electricity and Communication Services:** None of the villages had access to electricity except a very limited and unreliable connection in the capital town, Oudomsouk. Only a few telephone lines were available and were also limited to Oudomsouk. **Access and roads:** The Nakai Plateau was historically very isolated. During the dry season, it took half a day to travel between Oudomsouk and Thakhek, a journey that now takes an hour by car under current road conditions. During the wet season, the Nakai Plateau could be virtually inaccessible. Of the 17 resettled villages, eight had no road access and some were only accessible by boat during the rainy season.



Figure 6: The main access to Nakai Plateau before the project.

3.4 Living standards below the poverty line

Various data are reviewed in this section, reflecting different aspects of living standards:

- Some indicators of well-being: nutrition and rice security, health status, women status;
- Some indicators of income: the income itself, but also asset ownership, which is an indirect indicator linked both to income and well-being.

Poor nutrition and rice security²

In all villages on the Nakai Plateau, rice production was insufficient to meet the annual needs of the population. In 1996, only 17% of the families were self-sufficient for rice throughout the year. 50% of the Plateau communities faced rice shortfalls for six or more months a year.



To compensate for rice shortfalls, families substituted rice with corn and wild tubers or sold NTFP and livestock to purchase or barter rice.

Fishing and hunting were important sources of animal protein. Chickens were eaten infrequently, while pigs and buffaloes were usually consumed only during sacrificial and ritual occasions. Various green leafy vegetables, fruits and forest plants provided vitamins. Fruit trees were relatively rare in some villages (Central Plateau area).

Health status: high levels of child mortality, stunting and parasites infections.

The Nakai Plateau was fairly representative of public health problems occurring in the country as a whole. Most of the health problems resulted from a lack of knowledge and poverty turned even simple health problems into life threatening situations. Women and children suffered most and experienced high morbidity and mortality rates. At the start of the project, the median number of children born was four but only three survived, resulting in high child mortality for those under five (120 per thousand). Every second child under five was stunted. The communicable diseases most commonly reported by health institutions in the project area were diarrhea, acute respiratory infections (ARI) and malaria². Accidents associated with swidden type agricultural practices, such as serious cuts and wounds represented nearly 10 percent of all reported health problems². The prevalence of parasite infection was also high (from 59%¹³ up to 90% of persons infected by parasites²).

Poor health conditions for both adults and children resulted from different factors, including limited access to health care and vaccinations², but also from poor nutrition and other habits such as the use of poor quality and unboiled river water for drinking², widespread open defecation and other inadequate hygiene practices.

Women status²

The division of labour between men and women is by no means an absolute but there are clear notions of what is male work and what is female work among all the ethnic groups. On top of the classical tasks allocated to them (taking care of children, sick and elderly, preparing food, cleaning, washing, fetching water at the nearby river or dug well), women were active in slash and burn agriculture, taking care of the small animals (chicken, ducks, pigs) and tending the vegetable gardens near the houses as well as gathering NTFPs in the forest.



They occasionally could sell NTFP products or vegetables at the nearby market. Men, however, were frequently seen taking care of young children and doing domestic tasks while women could do all kinds of work in the fields if necessary. This division of labour reflects a shared production system and similar access to natural resources. Although access to education was limited for all, the situation of women was worse, resulting in the majority being illiterate.

Assets

In 2006, the means of transport were essentially walking, bicycles (one for every second HH) and motorbikes (one for every third HH). Only 9% of HH owned a boat. Based on LECS IV (2007/2008), mobile phones appear as a priority asset that the villagers wanted to own (40% HH)⁶.

Most families lived in houses constructed of traditional materials of wood, bamboo and thatch or shingles for roofing. No electricity was available in any of the villages, though a few households owned small diesel/petrol generators⁶.

Buffalo, a way of storing wealth rather than a source of regular income. Buffalo was the dominant type of livestock owned in the area, with average ownership of 4.3 head per household. Buffaloes were raised in fallows and in the forest and kept largely as a fallback measure for use in times of need rather than being considered as a resource to be managed for regular income. Periodic outbreaks of disease affected all animals in the area¹⁰.

Income and sources

The Nakai Plateau residents HH income was about 110,000 kip per capita per month (in 1996 values), far below the poverty line⁴ at the time. Theirs were mainly lives based on subsistence, with a least 55% of household arising from direct consumption of crops⁴. Agriculture and livestock accounted for the bulk of in-kind income (46 and 23%), while the only cash income came from wages and jewelry sales³. Income from fishing (10%), and NTFPs and wildlife (8%) were complementary but remained of limited importance for subsistence farmers².

4 PRESENT SITUATION OF RESETTLERS - SUMMARY OF PROJECT IMPACTS

Resettlement remains challenging and consists of more than simply moving people and providing them with shelter and land. Resettlement also implies providing support and assistance to help people adapt to a new environment, assistance in the identification and pursue advantages of new livelihood opportunities and to cope with a changing social and economic context introduced by improved road access, telecommunication, electricity and the compensation packages. In other words, resettlers adjust their habits and production/consumption patterns, seize new opportunities such as enhanced access to services like education and health care. While some resettlers demonstrate more flexibility and openness for change, others need more time. Ability to change and adapt is influenced by age, values, behaviour, personal experiences and community or group leadership. The lifestyle of some ethnic groups such as the Makong means adapting to new living and working conditions will take longer.

Some of the new livelihood opportunities required new knowledge and skills. NTPC and its project partners understood this, and so a multidisciplinary package for resettler households was set up and a comprehensive five-year resettlement plan was programmed.

Each household made choices regarding livelihood activity combinations, based on available labour, experience and skills, personal interests and preferences. The dramatic fisheries development might be related, not only to resource availability, but also because it was an already well known activity for the resettlers.

This chapter presents: (1) how the project provided access to determinants for improved livelihoods; (2) the five pillars for restoring livelihoods; and (3) the actual changes in living standards.

4.1 Access to determinants for improved livelihood production and living conditions

Resettlers were offered the option of moving to a location off the Plateau where good agricultural land was available. All but six families preferred to stay on the Nakai Plateau, along the southern edge of the reservoir, near their spiritual ties^{3&5}, agricultural land and forests, this despite the implied subsequent livelihood challenges⁴.

Each resettler household benefited from the resettlement package detailed in annex 1. This includes transitional support to ensure that livelihood standards did not fall during the transition period, as well as household infrastructure (with houses equipped with flush toilets and connected to electricity and with agricultural land), community and state infrastructure and livelihood support programme to maintain livelihoods at their new levels above the poverty line.



From land zoning and land use to livelihood options. PLUP (Participatory Land Use Planning), a method approved in 2009 at the national level, was applied to demarcate village boundaries, clarify what land resources are available within these boundaries, and reach village-by-village agreements. This process helps establish the permanent legal rights of resettlers over their land-based resources for the long-term and also clarifies public and private responsibilities with regard to these resources⁴.

PLUP also helped each village prepare resource information for the project to identify additional land for second generation households, and to design viable agro-forestry approaches in consultation with affected people, which may differ between villages, depending on different resettler interests and opportunities.

This village-based livelihood planning process is a critical next-step to follow immediately after PLUP. It incorporates people's knowledge and interests as to how forest and agriculture resources may be developed for environmentally and economically sustainable livelihood options.

PLUP is also helping ensure that outsider interests do not encroach upon the interests of the project affected population by identifying new households as well as the reasons why they are coming into the area⁴.

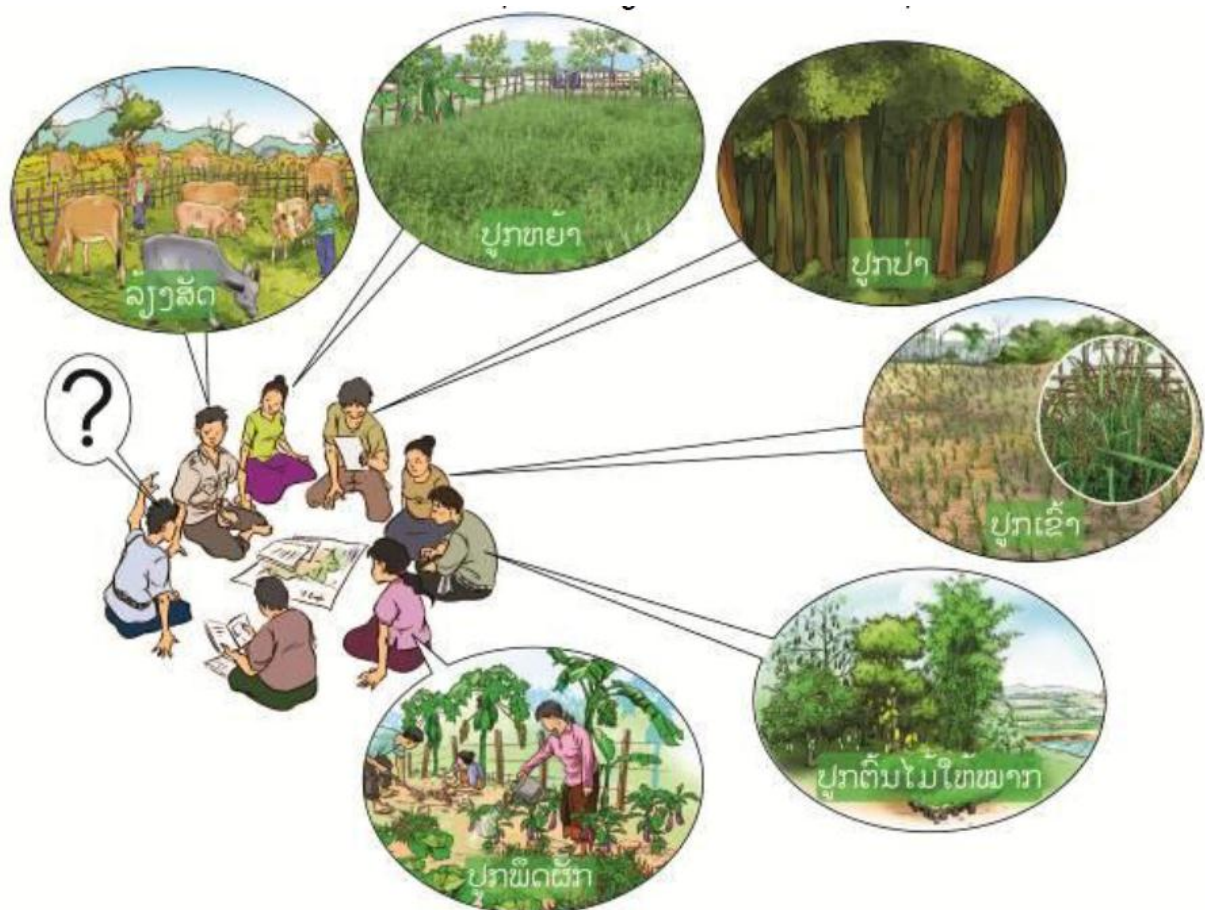
Box 2: Secured access to land

Husband and wife jointly own housing and agricultural land (marked * below), which is officially recognised in a land title.

In addition community land titles were provided for 2,780 ha additional agriculture land and for 17,428 ha of forest land. A 70 year concession was provided to the Village Forestry Association (VFA) to extract timber on production forests. Each resettler household accesses different types of land as detailed below:

- The house lot*, designed for possibly growing vegetables, fruit trees and forage for large livestock and for housing small livestock⁵.
- 0.66 ha per household*, for staple and cash crops.
- 0.2 ha irrigated land* near the houses has been allocated where possible.
- Around 2,780 ha of community land was formally allocated under community land titles to 14 hamlets.
- 17,428 ha community forest under community land titling.
- The draw down zone area is accessible for 2-4 months and turns into useful grazing land during the dry season when the reservoir recedes and fodder elsewhere on the Plateau becomes scarce.

Reservoir islands can be used by villagers but remain project land area (concession area).



After participative land use planning, land titling secured **long term access to agricultural land and forest land for each resettler household**. More than land use rights, the official land titles provide households with land ownership (see box 2).

Improved infrastructure and services.

New infrastructures and additional services provided by the project include water supply and sanitation systems, roads, schools and health centres, electricity as well as credit funds.

NTPC is providing US\$340,000 (in 2013 value) annually to the Social and Environmental Remediation Fund (SERF) throughout the Concession Period to cover the operating and maintenance costs of community infrastructure including a village meeting hall, schools, health centres, water pumps, village roads and irrigation systems⁴.

Increased access to water and sanitation for better health.

During the project, each household was provided with access to an improved water source (rainwater tank and groundwater hand pump at a rate of one pump per five households) and sanitation (pour flush latrine). Villagers have also received education and training programmes on health and sanitation issues. Almost all resettlers are now using pour flush latrines⁶.



Access to electricity and telecommunication services: Each household was provided with access to electricity. Telecommunication services are now available in all of the resettlement villages with every household reporting ownership of at least 1 mobile telephone.

Improved road access for villages and surrounding areas facilitates market access⁶, boosting opportunities to sell produce. Traders now access the Plateau and mainly the Northern villages where the road is best to buy fish, while other farm animals, such as pigs and ducks, are easily sold to collectors or at the market. Improved access to markets makes it easier for resettlers to buy products that were not readily available before. Nutrition has been improved, with a higher fruit consumption. The most important source of vegetables consumed by the resettlers remains their own production, followed by purchased vegetables.



Figure 7: The road to Thakhek, before the project and in 2013

Natural resource use and protection of resettlers against outside interests. Inevitably, with improved infrastructure and facilities come new opportunities. As a result, growing pressure was observed in 2010 on natural resources from resettlers (and the natural growth of their families) as well as from outside interests. The PLUP process addressed the community dimensions of this challenge by helping communities clarify their own land-use patterns and rules for natural resource use.

Enforcement against outside interests have been strengthened, *inter alia*, to preserve livelihood opportunities for resettlers⁴, allowing the operation of the VFA sawmills⁷ only and to patrol the reservoir for illegal fishermen.

Improved access to social infrastructures: the new kindergartens, 14 primary and two secondary schools have facilitated access to education, while the two new dispensaries fostered improved and convenient access to primary health care.



Figure 8: A school class in 2006 and in 2013

The project impacts on education and health are impressive. For example, 90% of the children are currently enrolled in primary school, compared to 37% before. In five years, child mortality of those under five decreased from 120 to 59 per thousand. More detailed figures are presented in section 3.3.

Improved access to credit for boosting income generating activities.

Different funds were established from the early stages of the resettlement programme, for various purposes, most of which were productive, but also for smoothing seasonal and annual income variations or coping with unexpected events such as illness.

Village Credit Funds were established between February and May 2012 with converted individual and community entitlements. The micro-finance system – endowed with the cash value of non-issued agriculture and forestry entitlements, offers new opportunities for loans and also provides dividends to invest in income generating activities⁸. The present share capital of 5.9 billion kip belonging to 16 village credit funds is equivalent to 4.4 million kip for each of the 1,310 eligible resettler households.

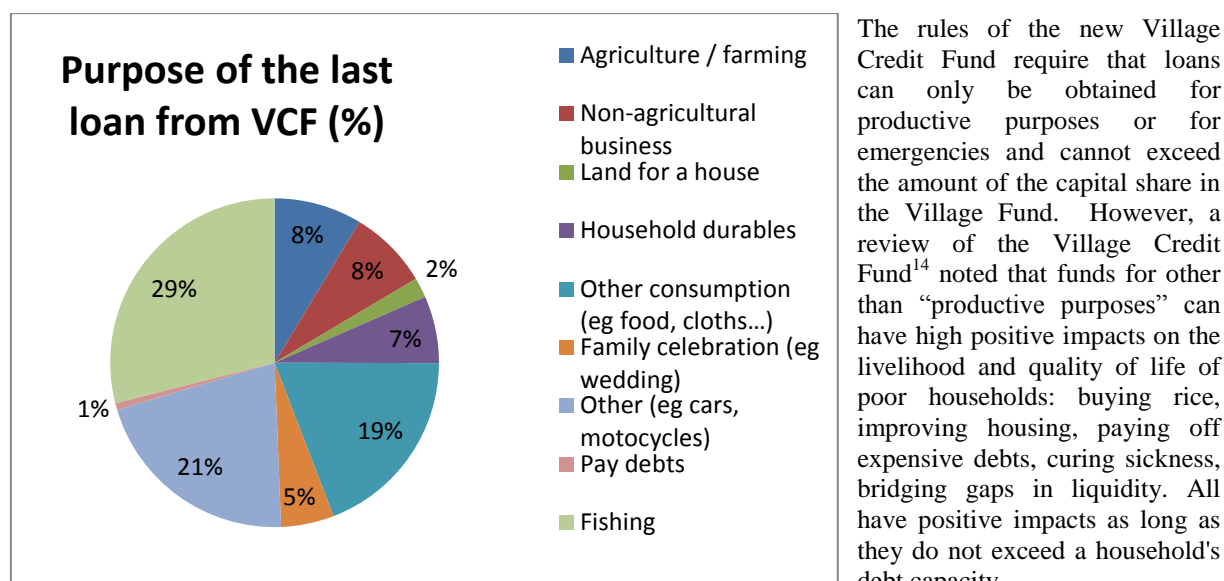


Figure 9: Purpose of the last loan from the Village Credit Fund

Source: LSMS 7, 2013

Since the LSMS 1 in 2006, 19-25% of households obtained a loan in the last 12 months¹. The source of loans has shifted dramatically. In the early phases of resettlement, family and friends were the source of about 80% of all loans reported. This pattern had changed by 2013, when Village Funds provided 80% of all loans. Mechanisms for the long term operation of Credit Funds are under development.

4.2 Five pillars for restoring livelihoods: farming, livestock, fisheries, forestry, non timber forest products (NTFP) and off farm income.

Each of the five pillars will be reviewed in this section.

The project followed the initial recommendations for restoring livelihoods and promoting a high degree of flexibility and diversification. From the very first socio-economic study in 1996, the risk of overly simplistic solutions being proposed for resettlers was raised, which could have the possible effect of creating dependencies on mono-crops or un-diversified activities.

Box 3: Resettlers' sources of income

The largest sources of income (on average, per capita per month) for resettlers in 2013 were:

1. Fishing (86,000 kip), including the collection of Other Aquatic Animals;
2. Cropping (45,000 kip), including rice, other staples and vegetables;
3. Forests (35,000 kip), including timber, NTFPs and VFA dividends;
4. Employment outside the HH (34,000 kip).

Recommendations were thus accordingly made to carefully select income generating projects and include a diversity of agro-economic activities in the development plans. Five pillars for livelihoods have thus been developed, in order to produce food and income, increasing the resettlers resilience to shocks and external changes.

The relative importance of the different income sources varies between wealth classes. Vulnerable households obtain nearly 45% of their total income from fishing whereas rich households have a much more diversified portfolio of incomes, with 30% of their income from fishing and 20% from employment.

Pillar 1: Agriculture - Looking for diversification and intensification, managing fertility and water

Agriculture remains one of the key elements for resettler livelihoods. In a context of relatively poor soils and limited agricultural areas suitable for rice production, the objective of the livelihood programme was not to reach rice sufficiency, which is consistent with the situation before the project⁴.

The project objective is to promote the use of arable land for the most productive purposes possible, agriculture being one element of a broader set of livelihoods activities.

Another objective was to increase farming productivity⁴. Demonstration plots have been set up in each village and free or subsidised agricultural tools, fertilizer and improved crop varieties distributed. The proposed system is based on rotational cropping. For soil fertility management, applying manure and compost were promoted to increase productivity along with leguminous forage crops which can be fed to the animals, help fix nitrogen in the soil and prevent erosion.

The new system emphasises simple technology to enable integrated agriculture including vegetable gardening, fruit plantation and agro-forestry on the 0.66 hectare plots.



This features greater participation of farmers in designing and operating their local system⁴. Rice yields are coming in well above pre-resettlement average production levels⁷. Almost 400 households or about 30% were involved in growing dry season crops in 2013¹.

Access to water for agriculture has been supported in various ways: some riverbank gardens have been re-established at a higher level⁷; irrigation systems and gully dams have been built. After a few years of reservoir water level observations, villagers now understand that reservoir filling and drawdown follows an irregular patterns and that the drawdown zone area is best used for animal grazing rather than for cultivation.

The land use in the 2013 wet season is summarized in the table below:

HHs Cultivation Data in Rainy Season 2013								
Details	All Zones		Northern Zone		Central Zone		Southern Zone	
	HHs	Area(ha)	HHs	Area(ha)	HHs	Area(ha)	HHs	Area(ha)
All cultivated land:	68%	632.30	54%	124.47	57%	144.44	91%	363.38
0.66 ha plot:	24%	147.92	30%	59.29	18%	42.25	28%	46.38
0.22 ha plot:	4%	11.95	12%	10.75	1%	1.12	0%	0.07
Draw Down Zone:	1%	3.85	2%	2.94	0%	0.16	2%	0.75
Additional Agr. land	32%	292.61	19%	36.90	6%	15.94	70%	239.78
Outside Land:	24%	175.97	8%	14.59	39%	84.97	20%	76.41

Agroforestry:	20%	72.99	26%	22.11	13%	18.92	23%	31.96
Demonstration:	4%	11.38	5%	3.75	4%	4.40	4%	3.23



Photo by Stan Fradelizi

Pillar 2: Livestock. From savings to productive herds.

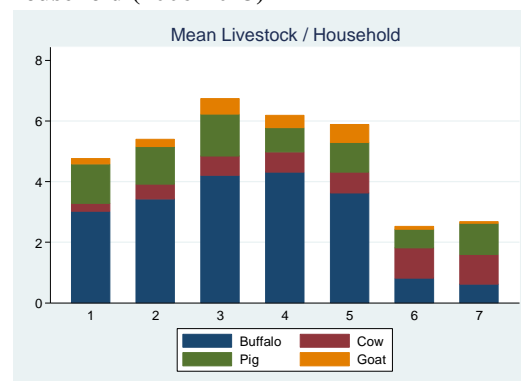
Livestock remains important to many households. Lao households typically keep buffalo and cattle as a store of wealth and insurance, as well as a source of cash income⁴. Resettlers ability to invest in livestock is an indication of livelihood progress and represents a cash income surplus over subsistence levels. Savings are now more in the form of bank deposits, gold, and jewelry.

Most large commercial herds have been taken off the Plateau⁴ to better reflect the present carrying capacity. The Plateau capacity for cattle and buffalo was estimated at 1,500 animals after impoundment⁷. However, this carrying capacity does not include newly developed lands and the drawdown zone and might be as high as 2,500.

Animal statistics show a progressive replacement of buffalo by cattle⁸ which use less grazing land per unit and reproduce more frequently⁴. It also appears to be a welcome trend toward more intensive raising methods (cut-and-carry versus free-roaming feeding systems, mineral inputs and vaccination) for large livestock⁷.



Figure 10: Evolution of the mean livestock per household (2006-2013)



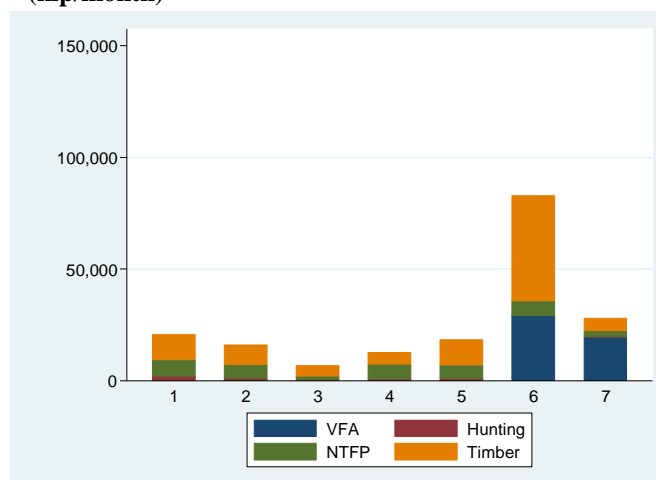
Round 1 = July/Sept 2006; Round 2 = May/July 2007; Round 3 = Jan/Feb 2008; Round 4 = Sept/Oct 2008; Round 5 = May/June 2009; Round 6 = May/June 2011; Round 7 = Feb/March 2013

The use of the drawdown zone as a grazing area might well be part of the solution for feeding herds living on the Nakai Plateau. Indeed, herbaceous plants grow well there during the dry season when fodder is scarce. The project also encourages the transition to greater dependence on smaller livestock, such as pigs, chicken and ducks, which are more suitable to Plateau conditions and easily marketable in small quantities. Suitable breeds of smaller livestock have already been distributed to interested resettlers, and some households have been keen to take up this opportunity. The number of pigs has modestly but constantly increased since the start of resettlement.

Pillar 3: Forestry and NTFPs.

A system of community based forest management enterprises serving resettlers for sustainable forestry management and income. The major objectives of the Nakai Plateau Forest Development Enterprise (NPFDE), also referred to as the Village Forestry Association (VFA), are to ensure sustainable management of more than 17,500 ha of forest land and to provide dividends and employment opportunities to the 6,289 resettler shareholders. Forestry continues to play an important role in resettler livelihoods, through the NTFPs, VFA dividends and logging.

Figure 11: Real per capita income from forest sources (kip/month)



Overall forest incomes have increased compared to 2006, although they decreased between 2011 and 2013.

The forest resources in the Resettlement Area are for the exclusive use and benefit of Plateau resettlers for 70 years after the establishment of the NPFDE. 17,500 ha⁴ of forest area surrounding the resettled villages are

managed by the Nakai Plateau Forest Development Enterprise (NPFDE), providing annual dividends to resettlers: \$150,000 US (roughly equivalent to \$115 US per household in 2010) followed by \$200,000 US in 2011 and 2012. Since 2011 the dividends have been distributed to the 6,289 shareholders according to the number of people in each household⁷. In the same spirit of serving resettlers, all non-VFA sawmill operations on the Nakai Plateau were removed.

The VFA can continue strengthening the understanding and support of all the resettlers to encourage appropriate NTFP development and agro-forestry activities, as well as strengthen enforcement activities within its boundaries.

Since 2010, the NPFDE operated under the new organisational structure of a limited liability shareholder enterprise and requires further effort and improved management capacity to become a mature and viable business organisation. Government assistance through policy and legislative measures is much needed to facilitate this transition into a successful social enterprise.

The percentage of households selling forest products has declined since 2006 for all products except kisi resin, which remains the most commonly marketed NTFP. Other NTFPs still regularly gathered from forest areas include bamboo shoots, cardamom, rattan shoots, and other fruits and vegetables. Change in access to NTFPs is one of the consequences of the project and attempts to domesticate selected NTFPs are in progress. The PLUP process has helped identify forest and land areas that could be used for that purpose. The most promising NTFPs are rattan, bamboo, bong bark, cardamom, hemp and medicinal orchids. Sustainable collection or domestication of these resources could improve household incomes and give the resettlers an incentive to protect, rather than deplete, forest resources. Households have also been involved in charcoal production, handicrafts and small scale furniture production.

Pillar 4: Fisheries continue to contribute significantly to resettler livelihoods, family diet remain one of the most important sources of income

Access to water and fisheries increased with the creation of the 450 km² reservoir at its full supply level which reduces to around 85 km² in those years when minimum operating level is reached.

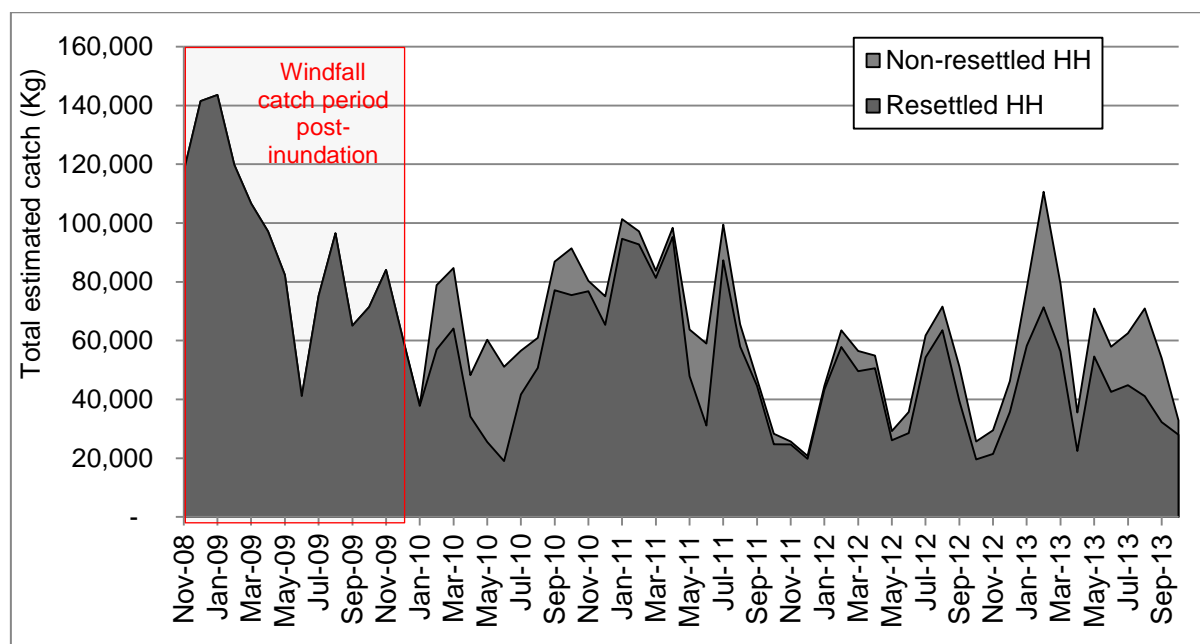
The project has provided boats, fishing gear and fish processing training⁵. About 5% of the fish catch is processed, adding local value. The main processed products are padek (fermented fish) and dried fish. Fish are sold fresh at boat landings to traders from Thakhek, Lak Sao and even from as far away as Vientiane and Xieng Khuang in such quantities that fish processing remains limited.

Fish catches dramatically increased at the start, corresponding to the expected and well known phenomenon of the windfall catch post inundation period (see graph). Experience from similar reservoirs has shown that fish production in the first two to ten years after flooding is high because large amounts of biological material create nutrient-rich water, favourable for plankton feeding fish, as well as large areas for spawning and a low density of predators.

The substantial variation between high and low water levels also means that nutrients are continuously added to the reservoir⁴, however this input remains low and the Reservoir was qualified as meso-oligotrophic. Reservoir fishery catches have now stabilised at lower levels, although they remain above levels caught in rivers prior to the project. In 2013, fish catches reached and seemed to stabilise at around 40 ton per month.



Figure 12: Total estimated fish catch in the Nakai Reservoir from surveying resettler and non-resettled households (2008-2013, in kg/month).



Source: NTPC fisheries team, collected as part of the Fish Catch Monitoring Programme.

The large number of variables that influence fisheries makes it difficult to predict how the fisheries in the NT2 reservoir will evolve. Seasonal variations occur that impact fish availability as well as fishing effort.

2013 data indicate an important contribution of fisheries to livelihoods compared to pre resettlement conditions. Fisheries contribute on average 38% of household incomes.

Fisheries also contribute to food security and diversity: fish consumption by resettlers has risen from 4.2 kg/HH/month before resettlement to 16 kg/HH/month in 2013.

Overall, resettlers reported going fishing on an average of 3.1 days/week in 2013. This is similar to the effort in 2011 when resettlers reported fishing 3.0 days per week.

For some resettler communities fishing has become the main occupation to such an extent that some families decided to stop cultivating their agricultural land and to make a living predominantly from livestock raising and fishing.



A grassroots based fisheries co-management system

Secured exclusive fishing rights for resettlers and their descendants have been granted until 2018 (a 10 year extension is being processed). The reservoir fisheries are co-managed by a Reservoir Fisheries Association (RFA) made up of 16 Village Fishing Groups (VFG), and the Nakai District authorities. Village Fisheries Groups (VFGs) have agreed on boundaries that divide fisheries' management responsibilities between villages. A jointly managed patrolling and enforcement task-force is in operation.

Local fishermen take part in detailed monitoring of fish catches. Fish processing techniques have been improved, fish spawning grounds are being identified for protection, fish trading groups have been formed and landing site operations have been developed.

Even if it is too early to say how fish stocks will develop in the future, the evidence strongly suggests that fisheries will continue to contribute significantly to Plateau livelihoods as long as the resource is properly managed. This will result from fishing practices and from the enforcement of fishery regulations on the reservoir, a task that involves both affected communities and local government, as well as control of commercial fishing by outsiders, protection of spawning grounds, and a moratorium on commercial fishing during reproduction periods.

Pillar 5: Limited off-farm income

Off farm employment often corresponds to an important source of cash income. The ability to undertake off-farm work enhances a households' capacity to improve food security and lift it out of poverty. Before the project only a few households on the Plateau had access to off-farm income⁶. During the course of the project, NTPC employed many villagers in project construction work, as well as building their own houses or preparing agricultural land. The availability of such employment dramatically decreased as civil works reached completion in 2008⁴.

The skills obtained during this period have enhanced the capacity of many resettlers to engage in other forms of off-farm employment and sole-trader enterprises.

Setting up an enabling environment:

1. NTPC has provided technical and financial support in order to develop non-agricultural livelihoods. The joint NTPC and Lao Women's Union Community Development team helped groups identify off-farm livelihood priorities, and provides them with skill training and seed capital to start their own businesses.
2. Village credit funds provide resettlers with access to credit, allowing them to start and scale up their off-farm businesses in the long term.
3. Since resettlement new roads, market facilities, electrical and telecommunications infrastructure and regional economic development have increased local demand and given resettled households increased access to markets and employment.

In response some resettled households have initiated a range of small business activities to boost their income from agriculture and fishing: several small family shops operate in most villages, and some families have opened guesthouses and restaurants⁴. Other activities include employment by NTPC, its sub-contractors, or the VFA, food and fish processing, and other service businesses. Some households receive remittances from family members outside the household or assistance from the government



Textiles, wood sculpture, and other handicrafts were originally identified as potential sources of non-farm income. However, only one textile handicraft group is presently functioning, while wood sculpture seems to have disappeared, despite training provided by the VFA.

Off farm employment remains limited (6% of adults⁶) and mostly benefits men and predominantly middle-class households. A relatively small percentage of households gain income from household businesses (4% in 2013). The development of ecotourism activities is yet to eventuate but the potential remains and, if well planned, could provide additional jobs to resettled households and lead to indirect benefits since visitors may purchase local products.

4.3 Changes in living standards



Analysis of seven rounds of the Living Standards Measurement Survey (LSMS) conducted between 2006 and 2013 are very informative about real and perceived changes by the Nakai resettlers themselves.

Self-perception of overall welfare: resettled people consider themselves better off.

In 2013, 87% thought their life was better than before resettlement, with 36% stating that their lives were “much better” than before resettlement¹.

Box 4: The four most commonly identified improvements associated with resettlement and remaining household concerns¹

1. Housing - including facilities and services such as electricity (92% of respondents);
2. Infrastructure - such as road access, phone coverage (70%);
3. Improved access to education (26%);
4. Access to health services (21%).

HHs remain concerned about access to additional agricultural land, income from fisheries, as well as productivity and access to forests and NTFPs.

Major changes in living standards are highly visible and supported through indicators related to food security and nutrition, women and health status, access to education and through other interlinked indicators such as income, expenses, assets, savings and debt.

Improved food security and nutrition.

The bulk of household expenditure and consumption is on food, be it self-produced or purchased, which accounts for over three quarters of all household consumption⁶.

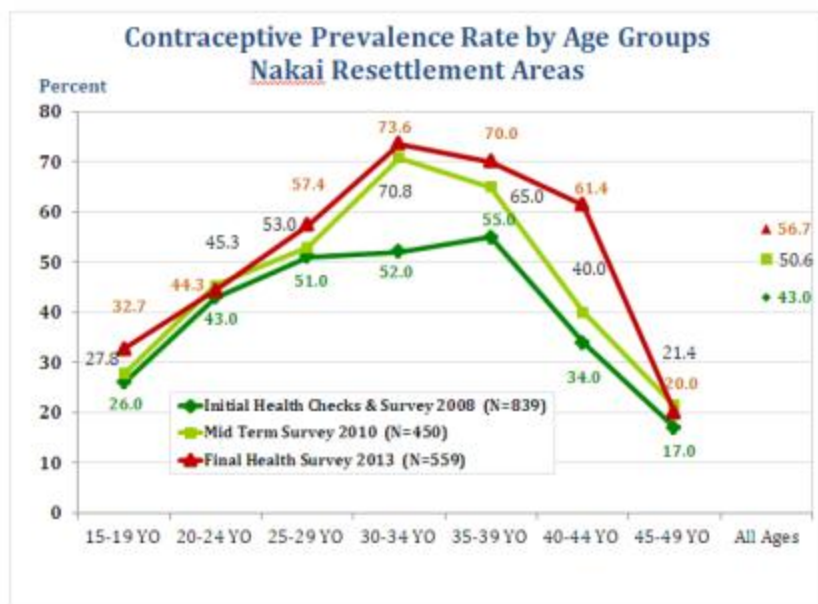
Food diversity has increased over time and the diet balance has improved with more fish and meat proteins being consumed. A move has been noted from self-produced to purchased food due to more diverse sources and higher cash income, reflecting the transition from a self-sufficient to a market economy⁷.

Prior to resettlement, rice production peaked at 217 tonnes and reached more than 1000 tonnes in 2012. Based on FAO standards for Laos (470g rice consumed per person per day) and on a conversion rate of 67% for paddy, this provides rice for feeding 6,289 resettlers for 227 days a year, corresponding to 62% sufficiency in rice.

Alleviation of women workload.

Different aspects have contributed to alleviate women from daily tasks, including better health within the community, greater access to education and water, and improved family planning.

With an increasing number of women now informed about family planning, the use of contraception methods has increased, especially after they reach their 30's, as shown in the graph.



Source: Final health checks and survey - Nakai resettlement area, February 2013

Women's workloads have also decreased with an enhanced ability to space out birth, but access to kindergartens and primary school.

Overall, the project has provided each resettled household with year access to water and advanced sanitation, at higher rates of access than in many urban areas in the Lao PDR⁴, as well as adequate drainage facilities. The ratio of one pump for five households and rainwater tanks for each house improved proximity to water. The time taken to collect water fell from an average of 9 to around 1.5 minutes each way⁴. This is a particularly important improvement for women and children, who are often responsible for collecting water. They easily gain one hour of labour per day and reduce the physical burden.



Figure 13: Women go to the river fetching water (before the project)

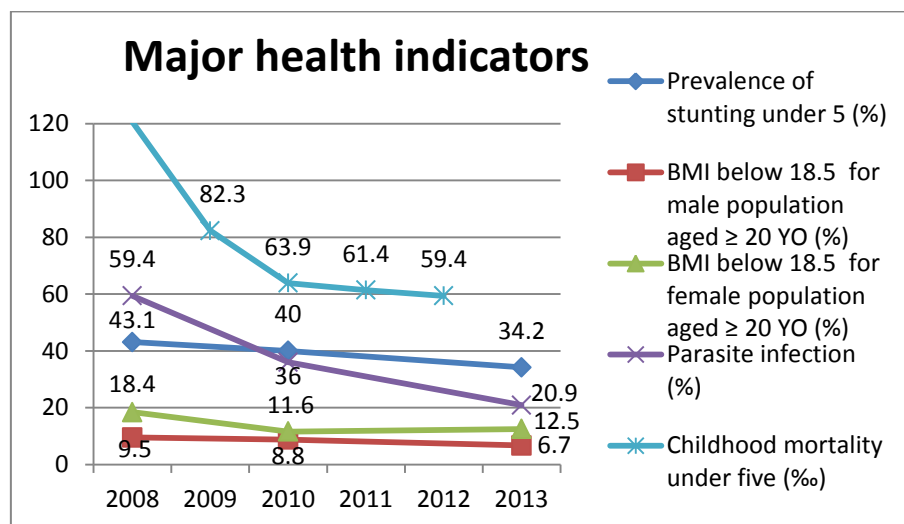


Figure 14: Women rely on hand pumps next to their house now

Alternative sources of livelihood that correspond to lighter work are now more accessible to women, these include vegetable gardening, fishing (generally with their husbands), small animal husbandry and small businesses. All these elements generally correspond to an alleviation of the workload for women and girls.

Improved health status for all

The change in health status is linked not only to personal wellbeing but also directly impacts the productive capacity of resettlers. These quick and impressive improvements were made possible thanks to the building of new infrastructure (health centres, roads and electricity) and enhanced HH cash income, leading to better physical and financial access to health services.



Setting up a conducive environment, with hand pumps and sanitation in the new villages were also a major factor for health improvement. These impressive improvements could not have been achieved without the human resources development and resettlers' increased hygiene and nutrition awareness.

Figure 15: Evolution of major health indicators (2008-2013)

The combination of those various factors produced positive health impacts as shown in the graph, with a decrease in childhood mortality under 5 years old by a factor of 2; of parasite infections by a factor of 3, and 21% less stunted children. In parallel, the Body Mass Index of both males and females adults has increased.

The construction of primary and secondary schools have facilitated access to education

although differences remain between social classes. More than a third of pre-school aged children are attending some form of organised early childhood education programme against 2.4% of children of that age attending pre-school in Lao rural areas (Lao MICS)⁶.

Although enrolment in primary schools (90% of children) is considerably higher than the national average of 79.9% for rural areas with road access¹, significant differences in primary school attendance remain between social classes.

Vulnerable households have the lowest rate of primary attendance (75.6%)⁶ and rich households have the highest rates (100%)⁶.

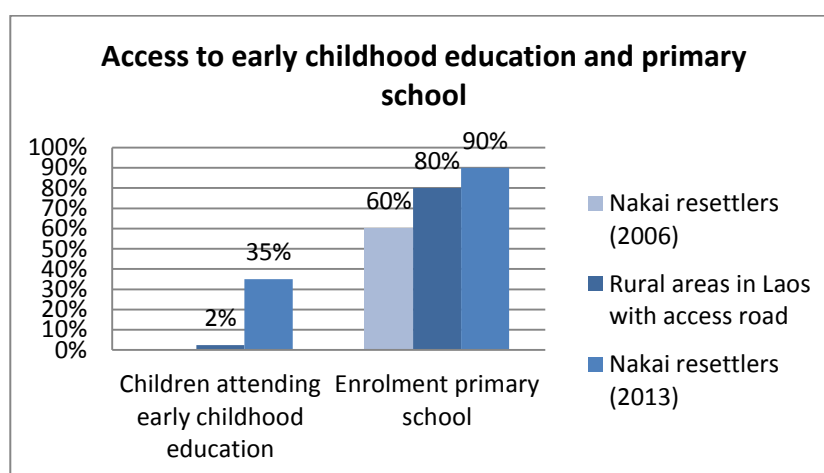
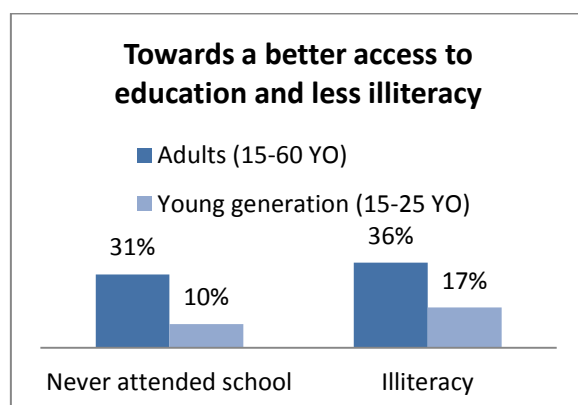


Figure 16: Improvement in access to early childhood education and primary school (2006-2013)

In any case, it is much better than the 60% attendance in primary school recorded in the LSMS (round 1)¹. Attending secondary school generally requires travelling from the village. As a result, 66% of children aged 11-17 years are enrolled in school, but only 25% attend school in 2013, compared to the national average of

29.4% for rural areas with road access (Lao MICS).



Primary school attendance is much higher for wealthy households (27%) than for vulnerable households (11%)⁶.

Adult literacy generally varies with the age of respondents, with older respondents having lower levels of literacy. Women are less literate than men, and this gender gap between is higher in poor and middle-class families. Thanks to an enabling environment, this is changing and improvements are already visible for the young generation (see figure).

Figure17: Illiteracy and access to education per age group (2006-2013). Source: LSMS 7, 2013.

Good performances in girls' access to education⁶. In 2013, there was no difference in the rate of early childhood education between genders. Surprisingly, females are more likely to attend primary school than males overall. However, this is driven largely by differences in enrolment in vulnerable households where boys are less likely to be enrolled in primary school than girls. Girls are just as likely to attend secondary school as boys

Education is generally considered to be an important component of human capital/capacity and a powerful instrument for reducing poverty and inequality, improving health and social well-being, and laying the groundwork for sustained economic growth¹

Assessment of living standards through income, expenses and assets: methods, challenges and complementarities¹.

According to its official definition, the Poverty Line - set as the Household Income Target - corresponds to the minimum amount spent on basic necessities, such as food, clothing etc., that a household needs to support itself. To adequately account for the high levels of direct consumption of produced goods, the value of consumption is used as the metric for income. The Household Income Target is the poverty line defined by the PM decree 201, promulgated in April 2012, and set at 180,000 kip per capita and month for rural areas in Laos. Raising the poverty line to the Lao Consumer Price Index in April 2013, the time when consumption was measured, sets the monthly income target at 186,000 kip.

Both income and consumption results thus provide general useful figures for comparative analysis over time. To cross check the information, three more types of indicators are taken into consideration:

1. **Assets** are used as indirect indicators (also called "proxies") for complementing the assessment of living standards and their evolution. While simply counting the number of assets held by each household provides an indication of household wealth, LSMS constructed a monetary indicator of asset value in which the number an assets held is multiplied by an estimate of the average value of the asset obtained from the quarterly socio economic survey.
2. **Savings** is another potential "proxy". Another clue that resettlers are better off is looking at their savings. Compared to traditional savings in the form of livestock, other types of savings offer relatively secure liquid sets of assets.
3. **Reasonable debts** obtained for productive purposes reflect the household capacity to continue developing its economic activities and increase its income.

Based on those observations and an official agreement, this analysis combines the different indicators, emphasising consumption rather than income. It starts reviewing income evolution before investigating the situation from the perspective of consumption and finally cross checking findings in the light of assets owned, savings and debts.

Evolution of income: Rounds 1-7

The changes in resettler income over the resettlement period is an important indicator of how resettlers fared during the resettlement process and how well they are adapting to the new conditions and livelihood options available in the resettlement villages. The history of this resettlement was relatively complex because of differences between villages, resettlement timetables, the natural resources available to each village, land holdings, compensation and rapidly changing conditions. Interpreting the observed changes in income therefore requires consideration of the nature of the survey and a wide spectrum of the events and factors that controlled the resettlers' experience.

The graph shows **3 phases**: pre-resettlement, the transitional phase and post resettlement.

The pre-resettlement situation in Figure 17 was already affected by project intervention, and therefore an improvement over the pre-resettlement reality. Indeed, rounds 1 and 2 were undertaken in 2006 and early 2007 and use a one year recall period for income. The data for these rounds therefore include livestock and crop incomes that reflect pre-resettlement conditions, but were already influenced by the project presence, influenced as they were by the liquidation of livestock, temporary cropping of "old and new lands" and thanks to project-related wages paid to clear land and develop infrastructure.

Resettlers saw a peak in their income during the period of rounds 1 and 2, with real per capita income over 400,000 and 375,000 kip/capita/month¹ respectively.

Rounds 3 to 5 reflect transitional phase incomes and rounds 6 and 7 largely reflect post-resettlement incomes. Income fell to 200,000 kip per capita per month by rounds 3 and 4 of the survey¹, as project driven wages and transitional food subsidies were phased out, double cropping stopped, income from livestock sales ceased and the number of livestock had decreased. These income sources were progressively replaced by fishery income, starting with the impoundment in 2008, as can be clearly seen in LSMS surveys from rounds 4 and 5.

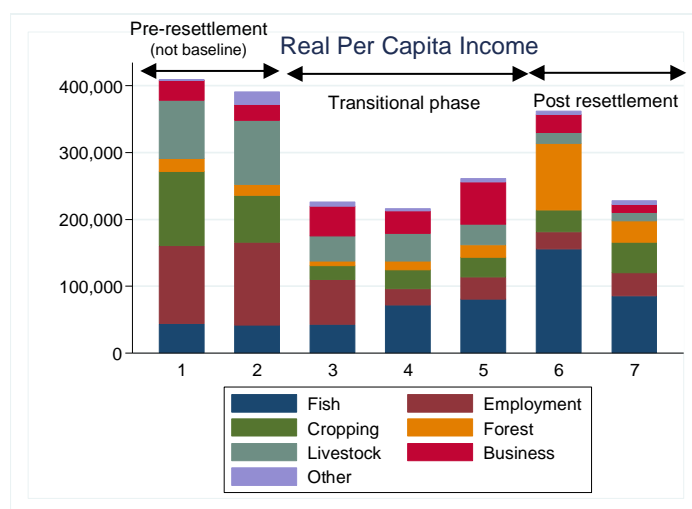


Figure 18: Real Per Capita Income by source and by survey round.

Source: LSMS 7. NB Forest incomes include NTFP's, VFA dividends and timber extraction. Other income mainly includes returns on capital and remittances.

Although income dropped, consumption levels remained well above the poverty level during rounds 3 and 4. Food support to vulnerable households was maintained throughout the different phases of the resettlement process.

Comparison of income levels round 1-round 7: Rounds 1 and 2 are not considered as baselines and were driven by employment and livestock sales. Pre-project mean per capita income levels in 1998 were estimated at 110,000 kip/month¹.

The present declared average income¹ (228,000 kip/capita/month) is now above the current poverty line of 186,000 kip.

Transitions regarding income sources¹. As shown in Figures 18 and 19, there are significant changes in the source of per capita income over time. Livestock, cropping and employment - mainly driven by external factors - were major sources of income in 2006/2007 (rounds 1 and 2). The three largest sources of declared net income in 2013 are¹:

- Fishing income which peaked in round 6 thanks to fishery windfalls during the first two years after impoundment. Incomes from fishing seem to stabilise at lower levels but have become a stable source of income for vulnerable households since 2011 and currently provide equal income across the social spectrum. Mean fishing incomes are at 86,000 kip per capita per month, ranging from 72,000 kip for vulnerable HHs to 93,000 kip for rich HHs.

- Declared forest income, including logging, NTFP harvesting and dividends from the VFA, decreased from 23% in 2011 to 16% in 2013. In a context of increased market demand for rare timbers and high prices, the major drop of income from logging might be linked to the quality and availability of supply and to the effectiveness of regulation enforcement, or possibly to incomplete declarations. Income from NTFPs and wildlife decreased⁴.
- Crops show growth between rounds 6 and 7, which is linked to the allocation of additional agricultural land.

Comparing the composition of incomes in 1998 and 2013 demonstrates that fishery incomes have grown most sharply over this period, while agriculture and livestock incomes have decreased over the same period. The situation continues to evolve, as resettlers strike a balance between income sources, driven by perceptions of the average reward per spent on any specific activity.

Composition of income (1998)

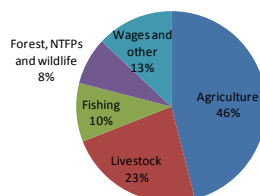


Figure 19: Income sources (1998, in %). Source: SDP

Composition of income (2013)

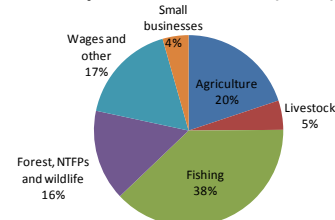


Figure 20: Income sources (2013, in %). Source: LSMS7

Consumption. The trend line of household consumption over time provides an indication of the success of the relocation process (rounds 1 to 5). The results of rounds 6 and 7 indicate that the consumption levels are above the set target and well above the poverty line.

The pre-project consumption level is estimated at about 300,000 kip/HH/month¹, referring to LECS III data in Central Laos (2002-2003 data adjusted to 2013 prices).

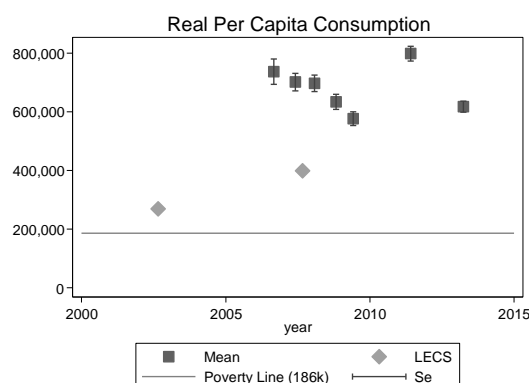


Figure 21: Evolution of per capita monthly consumption LECS and LSMS surveys (2002-2013)¹

Thus the resettlers appear to have experienced a period of rapid economic growth during the early phase of resettlement when they were supported by food allocations and employment. The average consumption level at the early stage of resettlement reached 750'000 kip/capita/year dropped to 585,000 kip/capita/month in 2009. This appears to have been reversed in round 6 of the survey when consumption per capita and month reached 810'000 and 622'000 in round 7. Changes were partly driven by external and internal factors such as a compensation payment of US\$737,000 for paddy fields and fruit trees, a sharp increase of timber value and the ongoing benefits from fishery windfalls. Improved survey methodology as well as a more professional survey team have also increased the reliability and credibility of the data sets obtained for rounds 6 and 7.

Monthly per capita consumption levels in 2013 are at 622,000 kip/year¹ with average and median consumption levels for the vulnerable household group at 536,000 kip and 439,000 kip respectively. Per capita incomes show a similar but not identical trend over time. The fact that declared incomes appear far below expenditure levels confirms that incomes have been systematically under-declared and that consumption is a more reliable indicator for measuring living standards.

Benefiting from a variety of income streams, resettlers have gradually built up their assets¹¹ (see Figure 22):

A clear upwards trend since the beginning of resettlement is seen in steadily accumulated assets throughout the transition from old to new villages, with a levelling off in 2013¹.

The asset index has increased across all wealth groups since 2006 (round 1). Many have invested in improving their homes and buying new assets such as electric appliances as mobile phones, televisions, refrigerators, and rice cookers as well as clothes cupboards and vehicles.

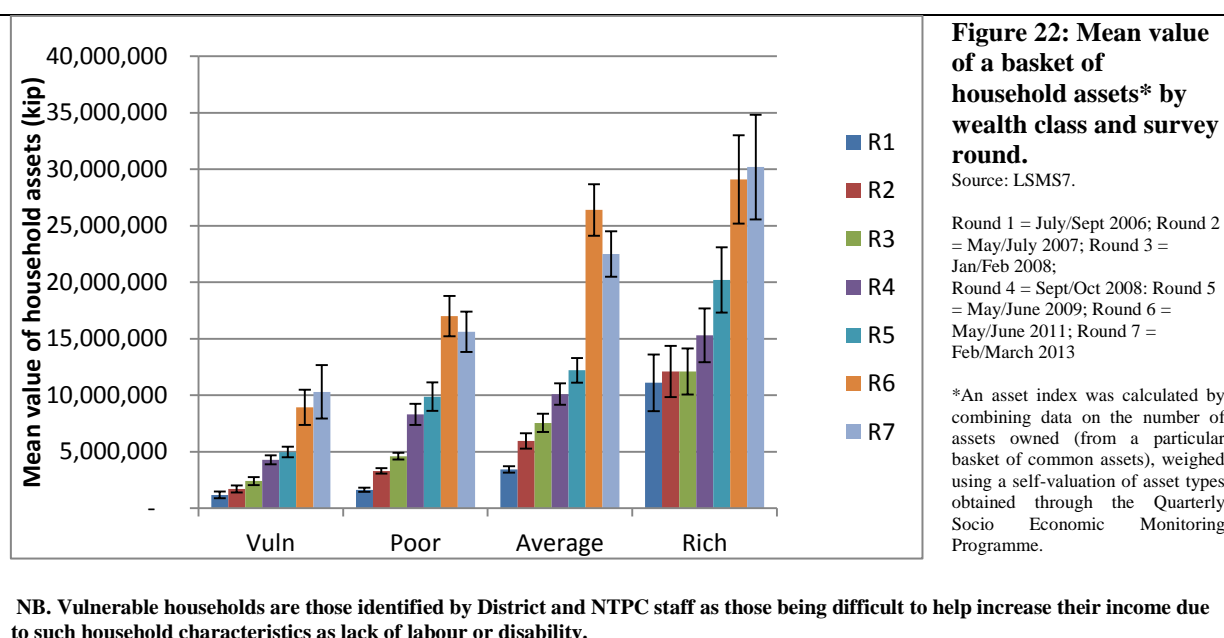
The acquisition of these goods reflects a significant change in living conditions that has occurred in the resettlement villages⁶ – a combination of increased income, combined with the provision of electricity to every household and all weather road access. The purchase of simple items such as electric rice-cookers, cupboards, furniture and refrigerators can substantially reduce the workload of women and reduce the burden of collecting fuel, as well as cooking and storing food for the family. While television, CDs and stereos probably reflect a major change from traditional lifestyles, they clearly offer much appreciated entertainment opportunities.

Ownership of a small number of goods, such as sewing machines and bicycles has decreased over time. The reduction in these goods suggests that they are perceived as “inferior” and as such are purchased less as living standards/incomes improve.

There has been little change in the asset index between LSMS rounds 6 and 7, which is consistent with the changing income streams and a saturation of needs and requirements for “modern goods”.

Vulnerable households have experienced the greatest increase in the value of their asset index¹. The relative increase in the asset index between rounds 1 and 7 was greatest for non-rich families who saw an approximate five to eight fold increase in their asset index.

Rich households have shown a slower rate of increase in their asset index and clearly went through a period of consolidation immediately after resettlement¹.



Housing conditions have improved substantially. Each resettled household received a 600 m² (20 x 30 m) house plot with all-weather access roads and a new timber house with corrugated sheet metal roof. The size and design of the house varied with the number of people in the household unit (3, 6 or 9 persons), its average cost being US\$8,000. Households that had more than seven members and included two families were offered a second dwelling. While the house was designed in consultation with the community, the majority (86%) of resettlers had modified their houses by the time of the 2013 survey. The mean investment of household alterations since resettlement was 6.9 million kip or nearly US\$900⁶. Villagers greatly appreciate their new physical surroundings⁴. All new houses are made of wood, with a sheet metal roof and wooden floors. Prior to resettlement, most resettler dwellings had bamboo walls (66%), half thatched/leaf roofs and one fourth bamboo flooring⁶. The average house size has more than doubled⁴. Whereas in 2006 only 13% of vulnerable households judged their house to be in “good” condition⁴, 93% responded positively about their new homes after resettlement⁴.



Figure 23: Houses before the project.



Figure 24: New houses.



Increasing savings confirm that resettlers are financially better off. The percentage of households with savings in the form of bank deposit, gold and jewelry, has increased from 21% in 2006 to almost 100% in 2013, including 97% of vulnerable households. This also indicates that the type of savings has evolved, with less buffaloes and more bank deposits, confirming the transition to a market economy.

Mean debt remain limited to 200,000 kip per capita and mainly oriented for productive purpose. In 2013, 25% of HHs reported having contracted loans during the last 12 months. 86% of those loans (66 HHs) have been obtained from the Village Credit Funds. The rules of the Village Credit Funds require that loans can only be obtained for productive purposes or for emergencies and cannot exceed the amount of the capital share of an individual member of the village fund.

5 COMPARISONS WITH THE SET OBJECTIVES

The resettlement assistance programme has a number of objectives to be reached before the Resettlement Implementation Period can be closed. These comprise both specific quantifiable targets and more general objectives. The programme includes the following statements:

- "a. Ensure that resettlers have their income earning capacity enhanced and achieve the Household Income Target, with adequate support being provided by the parties during the Resettlement Implementation Period;*
- b. Materially improve resettler livelihoods on a sustainable basis."*

The Household Income Target means the "yearly target for the income of resettler households, including income in cash and in kind, to be reached at the beginning of year 5 of the Resettlement Implementation Period, being for each resettler household in the Resettlement Area, above the current National Rural Poverty Line, multiplied by the number of persons in the household (5.2 in the resettler community). The Household Income Target is the poverty line defined by the PM decree 201, promulgated by April 2012, and is set at 180,000 kip per capita and month for rural areas in Laos. Raising the poverty line by the Lao Consumer Price Index to April 2013, the time when consumption was measured, sets the income target at 186,000 kip.

The Nakai LSMS survey is the primary instrument agreed upon by NT2 stakeholders to assess the achievement of the Household Income Target and overall wellbeing.

Box 5: Poverty and the National Rural Poverty Line in Laos

The **definition of poverty** in Laos refers to Prime Minister's Decree 201 dated April 2012:

Poverty is defined as "*a lack of the basic human needs in daily life such as: lack of food because of inability to afford the energy 2100 kcal per person per day, lack of necessary clothing and shelter, no permanent residence, inability to pay when sick, inability to pay for basic education, no conditions to access the gridline of social infrastructures*".

In Laos, 27.6% of the population lives under the poverty line (the most recent data dates from 2008 - Source: World Bank website).

Income target versus consumption target¹. While the Lao Poverty line, as defined in Prime Minister's Decree 201 is based on income, that income is calculated based on the minimum amount of basic necessities, such as food and clothing, that a household needs to support itself. So in essence, the Poverty Line, and hence the Household Income Target is, in effect, a consumption target.

Moreover, per capita consumption is considered to be a better economic measure of poverty and household well-being than income because of the practical difficulties associated with measures of household income (refer to World Bank's "Designing Household Survey Questionnaires for Developing Countries, edited by M. Grosh and P Glewwe, 2000, in LSMS7).

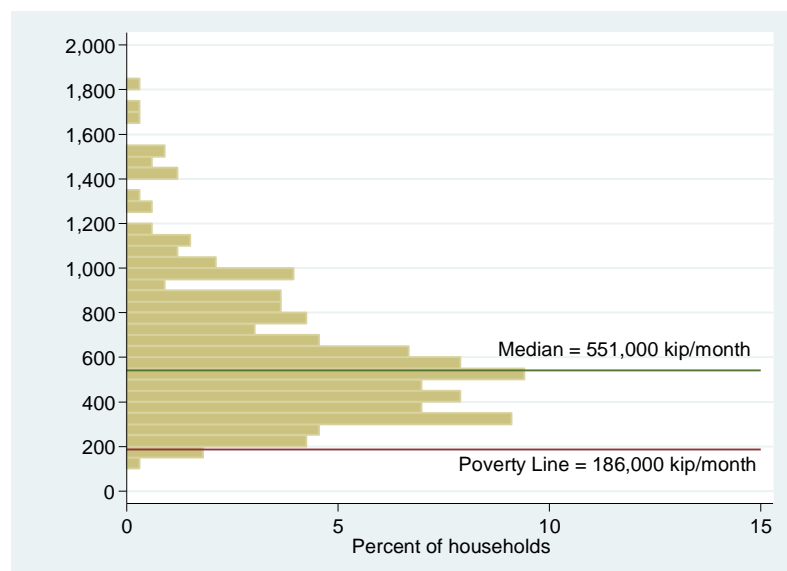
Therefore, while the CA specifies a Household Income Target, NTPC stakeholders have decided that the target is better estimated through measuring household consumption.

LSMS 7 data shows that 97% of resettler households are above the national poverty line.

- Monthly consumption per capita is much higher than income for all wealth groups⁷. Mean consumption levels (622,000 ±18,000 kip/capita/month) as well as median per capita consumption (551,000 kip) are significantly higher than the declared income and than the poverty line (186,000 kip).
- Mean value of consumption in 2013 is also substantially higher than the estimated pre-project consumption of 300,000 kip/capita/month.
- Asset ownership and savings have been sustained at relatively high levels.
- Resettlers living on consumption levels below the poverty line account for only 3% of households.

Nakai resettlers are better off compared to populations in other rural areas:

- Nakai resettlers' mean consumption levels are significantly above other rural populations in the Lao PDR (320,000-350,000 kip/month in September 2012, according to PRF survey, in 1);
- Only 3% of resettlers have consumption levels below the poverty line compared to the poverty rate of 27.6% for rural households with road access reported in 2008 (Poverty in Lao PDR, 2008).



The poverty rate dropped significantly due to the sum of all mitigation and support programmes to restore livelihoods of all resettlers. Special support programmes were designed for vulnerable persons and households which lacked social safety nets, had physical or mental handicaps and often lacked the manpower to take advantage of the allocated natural resources, namely reservoir fisheries, land, forests, and livestock.

Box 6: Vulnerable households on the Nakai Plateau

207 “potentially vulnerable” households⁴ identified in 1998. The Nakai villagers are a diverse group of households, with different skills, assets, capabilities and desires. As with any development project, it was clear from the start that while some would quickly make the most of new opportunities provided by the Project, others would need support to re-establish their livelihoods and improve their standard of living. The 1998 baseline survey identified 207 “potentially vulnerable” households on the basis of characteristics including lack of adult labour (i.e. a very young, very old or handicapped household head) and other socioeconomic factors (i.e. female headed households). These households have received additional support throughout the resettlement process, including rice and protein support as well as priority access to livelihood programmes. LSMS reports present data according to representative samples of 4 wealth segments (vulnerable, poor, average, rich) which demonstrates the evolution of socio economic indicators for all wealth groups and not only the resettler population average.

There remain 24 vulnerable households in 2013⁸. There is increasing recognition that selected households will always find it difficult to remain above the poverty line for a variety of reasons largely beyond their or the Project’s control, such as single elderly households and people with disabilities⁷. The current support to these individuals and families include the distribution of food packages, regular monitoring visits and assistance with medical follow-ups⁸. Appropriate long-term solutions to this challenge are under discussion, building on traditional family and community safety nets as well as self-reliance for those who can reasonably take care of their own **livelihoods⁷**.

Livelihood resources are now much more evenly distributed within resettler communities than they were previously¹. Resettlers stated in periodically repeated surveys (QSEM) that vulnerable and poor households had benefited more relative to richer households during the resettlement process.

The improvement in living standards for all is probably the result of a combination of inclusive Project support, local, regional and national factors including:

- Direct economic stimuli to resettler households including employment in clearing village and farm plots, VFA dividends, and land compensation payments;
- Creation and exploitation of reservoir fisheries including the higher rates of productivity immediately following the filling of the reservoir;
- High market demand and exploitation of forest resources (partially documented);
- Strong growth of incomes, consumption and living standards in Laos as a whole during the resettlement period, as documented in the LECS series of surveys and the ongoing growth in GDP;
- Provision of all-weather road access which reduced costs faced by resettlers and increased market options, particularly for fish and forest products, as well as access to services; and
- The provision of infrastructure including schools and community health clinics.

6 CONCLUSIONS

Overall the post-resettlement consumption and income levels as well as the accumulation of savings and assets by resettlers indicate that **97% of resettlers live above the poverty line and that the Household Income Target is being achieved** 5 years after the beginning of the resettlement implementation period.

A social support programme is in place to support the approximately 3% of households unable to make a decent living based on their livelihood capitals.

Project progress reports and monitor evaluation reports indicate that provisions and entitlements as well as technical and social assistance have been provided to resettlers.

Resettlers have increased access to, and control over, land resources, have improved access to markets and public services and have secured exclusive rights over fisheries and defined forest areas.

A fund is provided by the company to maintain resettler and public infrastructure in the resettlement area. This is evidence that resettlers' living standards have materially improved compared to pre-resettlement conditions.

Moreover, NTPC has provided a major reference on social and environmental standards for hydro power development. To reach the Household Income Target during and after resettlement, the initial spirit of the CA has been respected:

- a. the Resettlement Process has been transparent;
- b. resettlement impacts have been minimised as far as possible;
- c. traditional organisational structures, religious beliefs and resource use have been recognised and respected;
- d. the social and cultural cohesion of villages has been protected and resettlement sites have been as near as possible to resettlers' previous villages;
- e. appropriate consultation and participation methods have been used, utilising local knowledge in developing production systems that suit the resettlers' needs and environment, resulting in a self-sustained livelihood;
- f. prompt and adequate compensation to the resettlers was based on the principle of actual full replacement or provision of equivalent assets or provision of an alternative livelihood;
- g. providing for any other costs and implementing such other measures as are associated with mitigating the social effects of the Project; and
- h. special consideration has been given to gender issues, vulnerable households and ethnic minorities during the detailed planning, design and implementation of social plans.

NT2 established an important reference for best practices in hydro power development at an early stage of the fast growing hydro power sector in the Lao PDR. From the start, the Project aimed to "be a catalyst for regional development and for alleviating existing poverty"².



Information sources

- ¹ Fredericks et al, 2013. LSMS 7
- ² NTPC, 2005. Social Development Plan (SDP).
- ³ Chamberlain et al, 1996. Socio-economic and cultural survey (part 1 and 2).
- ⁴ WB board update, 2010. Taking Stock at Halfway Point.
- ⁵ Resettlement Action Plan, undated. 66 pp.
- ⁶ Fredericks et al, 2011. LSMS 6.
- ⁷ World Bank Board Update 2011.
- ⁸ NTPC quarterly progress reports.
- ⁹ Foppes, 1997. The use of non-timber forest products on the Nakai Plateau.
- ¹⁰ Resettlement Development Plan.
- ¹¹ WB Board Update 2012
- ¹² CA, 2005.
- ¹³ NTPC, February 2013. Final health checks and survey - Nakai resettlement areas
- ¹⁴ Behrle and Lorbanlith, 2013. Evaluation of the Village Credit Fund in Nakai Resettlement Areas.

ANNEXES

Annex 1: NT2 Resettlement Package

Box 7: NT2 Resettlement Package⁴

Type of benefits	Summary of Package
Community infrastructure	<ul style="list-style-type: none"> – All weather access roads to each village; – Meeting hall, village office, warehouse and covered market for each village; – Primary school (combined with a nursery school) for each village with complete school equipment and supplies for the classrooms; – Teacher's house for the teacher's family; – Seed processing and storage facilities; – Organic fertilizer factory; – Electricity distribution system for all villages along with wiring and appropriate safety devices in each community building; – Good quality year-round domestic water supply (1 outlet per 5 households) with adequate drainage facilities; and – Embarcadero and trading places to allow easy boat and road access for each village.
Household Infrastructure and Assets	<ul style="list-style-type: none"> – Residential land and house with joined title to husband and wife. Households with 7 or more people containing 2 families were provided with an option to have two houses; – Flush toilet with appropriate septic tank in each household; – Standard electricity supply to each house; – 0.66 ha of land for agricultural purposes, with partial irrigation; – Drawdown zone plot; – Granary; and – Specific compensation for lost paddy and fruit trees.
Livelihood programme	<ul style="list-style-type: none"> – An agricultural development programme, including UXO cleared land, seeds and seedlings, fertilizer, compost bins, various agricultural tools, demonstration and extension activities; – A community forestry programme, including: a 70 year 23,400 ha forestry concession in the area surrounding resettlement villages, household membership in the Village Forestry Association, which can be inherited and passed on to future generations, and forestry equipment to be used by the VFA, such as sawmills, logging trucks, carpentry tools, etc. – A fisheries programme including: full access to fisheries in the reservoir for subsistence purposes; access to fisheries in the reservoir for commercial purposes in accordance with Reservoir Fisheries Management Programme; fishery equipment and gear, such as boats, fishing nets, etc. – An off-farm marketing programme including: access to skills training for off-farm employment such as tailoring, weaving, small shop keeping, processing of locally produced goods, marketing of locally produced goods and other services related to tourism and construction for developing unskilled and semi-skilled labour.
Transitional support	<ul style="list-style-type: none"> – Monthly rice support of 18 kg per adult and 12 kg per child for all households during the transitional period. As the majority of households have been able to access new income sources, since October 2008 the rice support was targeted to around 35 vulnerable households; – Monthly protein support of 8 eggs, 800g of dried meat and 800g of fresh meat per person, for all vulnerable households, throughout transition; and – Wages for clearing land and constructing houses during transition.