The social and economic impact of the construction of the Nam Ham and Nam Ven Roads, Houaphan Province, Lao P.D.R

FINAL REPORT

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International Labour Organisation

Contents

Abbreviations

ADB	Asian Development Bank
ASIST-AP	Advisory Support, Information Services and Training Asia Pacific
DCTPC	Department of Communications, Transport, Post and Construction
HH	Household
ILO	International Labour Organisation
MCTPC	Ministry of Communications, Transport, Post and Construction
SCSPP	Shifting Cultivation Stabilization Pilot Project
TOR	Terms of Reference
TT	Travel Time

Exchange rate - $1 = 10,436 kip

Introduction

In 2003 ILO ASIST-AP began collaboration with the Asian Development Bank (ADB) to assist the Government of Lao PDR in developing capacity for labour-based rural road construction under the ADB supported Shifting Cultivation Stabilization Pilot Project (SCSPP) in Houaphan Province.

As part of this project the ADB financed the construction of two access roads in the province. Work was undertaken to upgrade the Nam Ven Road which was a 34.2 km track from Ban Done to Ban Phiang and a new construction of a 20.4 km road from Ban Ham Tai to Ban Muang Sang. The works on both these roads have been classified as new construction and were completed in July 2004.

The road construction was just one component of the ADB project which was designed to be an integrated rural livelihoods development project. The project was designed with five interrelated components (i) capacity building of relevant Government departments; (ii) project management; (iii) diversified sedentary farming development; (iv) village based development and (v) rural infrastructure development. This last component designed was to support components three and four. The objective was to reduce poverty, increase food production, reduce production and consumption of opium and preserve natural resources.

The SCSPP targeted some of the poorest communities in Lao PDR in Houaphan Province; upland farmers who were still practicing slash and burn agriculture despite the growing population and resulting pressure on existing fallow land. These communities represented some of the poorest and most isolated in the country. Existing roads, trails and tracks were seldom accessible throughout the year and villages were regularly isolated during the wet season when these access routes became impassable due to flooding and landslides. This isolation in turn led to continuing poverty amongst the upland communities.

Rural roads provide access and benefits to people and this can be seen through people's improved access to services such as schools, health care, markets and credit etc. Additionally, improved access helps people's economic and social lives by enabling people to visit more easily, and maybe more frequently, other family members and friends located further away. Benefits from rural roads can also result from reduced travel and transport costs and employment created during construction.

Isolation, vulnerability to fluctuations in income that often occur from economic shocks, sickness and natural disaster and poor access to services and facilities such as health care, markets and schools are some of the key characteristics of poor rural households, and these characteristics were reflected in the villages targeted by the ADB project. Improved access to transport and greater mobility opportunities can help address some of these issues; however, while the role of transport in relation to agricultural production and marketing are well understood, its contribution to the development of human and social development is also very important and sometimes less well defined.

While it is easy to measure the success of improved transport in terms of greater access to services (through reduced travel time, increased trip making, greater variety of services to access), there is a growing recognition of the importance of social trip making. Increasing people's social trip making can help in strengthening poor people against unexpected economic shocks and related vulnerability described above by helping to forge personal safety nets through increased contact with wider family members and friends who can be called upon in times of need.

In this report ILO ASIST-AP intends to qualify the benefits resulting from improved access from the construction of these two all-weather roads. An impact study was designed and baseline data was collected in early 2003. In December 2003 a first follow-up survey was conducted that took a 'snapshot' of life along the roads during construction. In August 2005 a final socio-economic survey took place that included interviews with households within a 5km zone around both roads, traffic counts at predesignated stations, an origin/destination survey and a price survey.

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1. RURAL ROADS AND POVERTY REDUCTION

Objective

The objective of this final report is to try and qualify the impacts on households within a zone of influence of the two roads in terms of greater or improved access to social and economic goods, services and facilities.

In May 2003 a baseline survey was conducted to collect socio-economic data about the households in the area (Donnges 2003); later in December 2003 a follow-up 'snapshot' survey was taken of life along these roads (Pearse 2003). This survey showed that marked improvement in the quality of life of households in the immediate vicinity of the two roads were starting to occur.

In brief, results from this 'snapshot' survey showed that the new roads were already contributing to reduced travel times to main towns, to the road head and to other villages. Villagers were experiencing greater contact with people from outside. Traders were visiting more frequently both to sell and buy goods. People were beginning to move about more, visiting relatives and new market places. There was a general feeling amongst the households questioned that changes had been positive. People in villages further along the roads (where construction had yet to occur) were seeing the effects on neighbouring villages and in turn were planning future activities based on the ease of access they witnessed along completed sections of the roads.

The final study conducted in August 2005, over a year since both roads were completed, was carried out to enable an analysis of conditions pre and post construction. This survey should enable ASIST-AP to conclude whether the construction of the roads has enabled households to benefit economically and socially from greater mobility and access opportunities.

Methodology

The following four tools and data gathering processes were used to assess the impact of the roads for this final survey: i) household survey, ii) village price survey, iii) traffic counts, iv) Origin and Destination.

During a 12 day period in August 2005, 63 households in 21 villages in a 5km sphere along both the Nam Ven and Nam Ham Roads were interviewed. A seven day traffic count and an origin/destination survey were conducted at two sites; at Nachong Station, Nam Ham Road and at 2Km between Ban Muang/Ban Done Station on the Nam Ven Road. Finally, a price survey was carried out in shops in 21 villages. This methodology

reflected that of the baseline survey of May 2003. The 'snapshot' survey of December 2003 used a shorter household survey; it interviewed only 30 households in three villages along each road and did not undertake an origin/destination survey.

Shifting Cultivation Stabilisation Pilot Project

The roads at Nam Ham and Nam Ven were not built in isolation but were one component of the ADB supported Shifting Cultivation Stabilisation Pilot Project (SCSPP). The focus of the project was to address the inherent poverty of shifting cultivators through integrated crop development and sedentary farming systems that would also help reduce household's dependence on opium production. The villages in the project areas are universally poor. Their subsistence economy based on shifting cultivation in upland areas does not meet the household food consumption needs and generates little cash income. The objectives of the project were to improve the income of upland farmers and to conserve natural resources through the establishment of diversified sedentary agriculture systems as alternatives to shifting cultivation and the provision of basic rural infrastructure.

Villages by the roadside

The project supports an integrated area development approach to improve the socio-economic conditions of the beneficiaries while creating a favourable environment for the adoption of new diversified sedentary agriculture systems.

The project has five major components: (i) institutional strengthening and capacity building of the Ministry of Agriculture and Forestry and the Government of Houaphan; (ii) diversified sedentary farming development; (iii) village based development; (iv) rural infrastructure development; and (v) project management.

Nam Ham and Nam Ven project areas

The Nam Ham and Nam Ven areas are located in Houaphan province which is approximately 300 Km northeast of Vientiane. The provincial capital, Xamnua is 17km from Nam Ham Road and 28km from Nam Ven Road. Prior to the road construction, average travel times to Xamneua from Nam Ham in the dry season was 4 hours, 28 minutes and just over 6 hours in the dry season from Nam Ven. The SCSPP project targeted a total of 52 villages and 2,100 households within a 70,000 ha area.

The climate is monsoonal subtropical with distinct wet and dry seasons and 94% of the average rainfall (1,700mm) falls between April-October. The terrain is mountainous with steep slopes. The population are engaged in agricultural production. There are some variations in farming systems that are dictated by the differences in elevation and accessibility of the villages. Ethnic groups in the project areas are in turn separated by location, in general Lao villages are in the lower elevations and valley areas and they tend to rely on lowland paddy-based systems. The Khmuu and Phong are settled along the middle elevations and rely on shifting cultivation, cash cropping and own less livestock whilst the Hmong are settled mainly at the highest elevations and in the least accessible areas, they rely almost entirely on shifting cultivation with opium poppy cultivation and livestock raising. (ADB 1999)

Impact of Rural Roads on Poverty Reduction

Nam Ven and Nam Ham Road construction

With technical assistance from the ILO, the Department of Communications, Transport, Post and Construction (DCTPC) of Houaphan Province carried out the construction, by labour based methods, of two roads in Houaphan; the Nam Ham Road (20.4km) and the Nam Ven Road (34.2km) [1]. While the Nam Ven Road existed in the form of a dry weather track, the Nam Ham Road was an entirely new construction. Though the roads would ultimately serve small populations they would more importantly open up access to previously isolated communities in the upland areas. A concern of the SCSPP was that access to these villages was difficult especially during the wet season and subsequently many villages lacked the basic community facilities they needed. The construction of these two roads would provide the main access into and out of these two districts covering approximately twenty[2] villages.
Poor access and related physical isolation are some characteristics of poverty. Rural roads aim to improve basic road access from villages to markets and social services and

[1] The total number of workdays created in the construction of both these roads was 24,488 and 11,740 worksdays for the Nam Ven Road and 12,748 for the Nam Ham Road.
[2] The 2003 Baseline survey interviewed all the villages within a 5km zone of influence along both roads. There is no clear data in 2005 to say whether the number of villages around these roads have increased, though the 2003 'snapshot' survey indicated through informal conversation that new villages were coming down from the hills to the road side.

in so doing help contribute to poverty reduction by improving people's physical access to places. This study assesses the impact of road investments under the SCSPP. It does so by analysing the extent to which the new roads have contributed to villagers increased mobility and in turn whether this improved mobility has benefited households in terms of greater economic opportunity and increased social trip making. This is done by comparing the situation before construction based on the 2003 baseline study with the situation now the roads are complete and operational using data from the 2005 final survey.

The poor and rural roads

Rural roads have no value in themselves. The key role they play is to provide access. Benefits may arise from improved access to markets and jobs, access to education and health services, access to credit and business and access to information. Other benefits may result from reduced travel and transport costs and employment created during construction as well as the more nebulous social benefits of increased interaction between people through more frequent social trip making.

The ADB has researched (ADB 2002) the impacts of rural roads on poverty reduction in an attempt to learn how to better design the rural road components of their projects so that they achieve sustainable benefits for the poor. It concluded that there while the volume of vehicles increased and transport services improved in the project study areas there was however, no automatic and necessary link between improved roads and more cheap transport services.

Improving access through rural roads is an important enabling condition for livelihood development additionally; studies show that better rural roads are a necessary, though not sufficient, condition for reducing poverty.

The SCSPP focus was on poor rural upland communities through an integrated project. Objectives included crop diversification and a move to more sustainable and economically productive crop substitution. Additionally, it was recognised that for households to increase their economic production, better and improved access to markets was required; hence the inclusion in the pilot project of the construction of two rural roads. These roads would open up previously isolated communities and the creation of three new weekly markets (one along each road and a third at the main road head) would help provide space to increase people's income.

The SCSPP however accepted that though construction of the roads would serve small populations the social the economic benefits developed through increased access as well as the jobs and skills training resulting from employing people during the of construction period was deemed important. It needs to be remembered that these roads were not built in isolation but as one component of a livelihood development project.

Measuring the impact of rural roads

It is important to separate roads and transport. Most projects and investments tend to equate the two but this is unhelpful. The traditional assumption has been that if a rural road is constructed or upgraded there will be a spontaneous growth or establishment of transport services ready to ply their trade along the new road. In reality this is not always the case; in fact, roads construction alone will not develop a cost-effective and cost-available transport service. As the ADB review concluded, "there is no automatic and necessary link between improved roads and more transport services at lower prices." (ADB 2002)

Key characteristics of poor rural households include isolation, vulnerability to economic shocks and natural disasters[3] and poor access to social and economic goods, services and facilities such as health care, markets and schools. Improved access to transport and greater mobility opportunities can help alleviate the isolation of poor communities and households. The alleviation of poverty is seen both in terms of economic poverty and increasingly now, in terms of social poverty. A more detailed understanding of poverty in recent years has shown that in addition to income generation, the alleviation of poverty also includes addressing peoples' social, human and physical wellbeing, enabling greater access to these assets as well as the traditional financial one is regarded as just as important as helping to increase people's economic wellbeing. While the role of transport is well understood in relation to agricultural production and marketing, transports role in the development of human and social development is less well understood. While improved access to health care facilities or schools is obvious, there is a growing recognition of the importance of social trip making. This is seen as valuable in maintaining a person's social capital and so strengthening their ability to cope with unexpected vulnerability due to changes affecting their livelihoods. (Hine & Rutter 2000)

Data from the 2003 baseline study will be compared with that of the final 2005 survey to try and assess changes and improvements to household's access issues. While the roads have certainly opened up access to previously inaccessible areas, the key question is whether people been able to take advantage of this and expanded their mobility? Are they visiting areas previously thought as too timely and costly to travel to? What have been the negative effects of more open access? Are traders and merchants visiting more often and if so has that enabled people to feel more secure in expanding economic activities? How have people financed their changes?

[3] Poor households are less able to cope financially and are thus more vulnerable to sudden economic shocks, natural disasters and illness. They are far less likely to have a reserve of cash or livestock/agricultural surplus to carry their household through times of hardship.

Precarious access

In brief the answer to these questions has been yes. Yes, people's access has improved dramatically. Their travel time to markets and main towns has decreased and their frequency of travel has increased. People's ownership of transport has increased; motorbike ownership has seen the biggest rise. Household's income has also increased hugely from 2003; this has been in part due to the work on diversified farming techniques introduced by the SCSPP and greater access to loans and credit; but connected to that is the presence of the all weather roads that have encouraged traders and merchants to visit villages more frequently buying produce direct from the source.

This report will use a simple comparison of 'before' and 'after' comparing the collective situation of villages before the roads to their situation now the roads have been fully operational for over 12 months. It is a simple methodology that should provide a clear picture of changes that have occurred. Due to the nature of the surveys it is not possible to go into the micro detail of individual household experience but this report should enable the reader to understand on a meso-level the effects road construction has had on communities when it is an activity within a fully supported livelihoods project.

2. HOUSEHOLD SURVEY DATA

2003 baseline survey and 2005 final survey

The 2003 baseline survey did not distinguish between levels of poverty among households or villages. A random sample of 66 households in 22 villages within a 5km zone around each road of influence were identified and questioned. There was no attempt to specifically target or disaggregate the households into poor, very poor or as transient poor or chronic poor. On this basis, the analysis that follows does so from the point of view that the areas in general represent some of the poorest in Lao PDR and the villages in the area of the roads were some of the poorest in the country. These communities were extremely isolated and in many cases suffered from food deficits because of low crop production at some points during the year. While there were communities involved in opium production, households were not increasing their income substantially from it and addiction rates were high. An objective of the SCSPP was to raise food security through alternative sources of income and access to wider markets.

On this basis the analysis of the data tires to uncover whether the roads construction has enabled households to take advantage of greater mobility opportunities to increase their economic opportunities and whether they have been able to take advantage of the social benefits of greater mobility opportunities.

The baseline survey was conducted in May 2003, later that year in December 2003 (Pearse 2003) a small 'snapshot' survey was undertaken to produce a picture of the most immediate effects of the road construction on villages along them. By December 2003, the Nam Ham Road, while not completely constructed, was passable in dry weather along its entire length with varying surface quality. The Nam Ven Road however was less well developed and had not yet got a motorable surface along its length. Both roads though were accessible by cart, bicycle and motorbike and this limited (but improved) access resulted in positive developments for the villages along and close by the roads.

Analysis of the Nam Ham Road Household Data

The Nam Ham Road is a new road, 20.4km long. This road will, like the Nam Ven Road, serve a small rural population opening up access to previously isolated communities in the upland areas. See Annexes 1 and 2 for maps of the area.

In 2005 27 households (HH) in 9 villages were interviewed. 3 women and 24 men were interviewed. In the 2003 baseline survey a total of 30 HH in 10 villages were interviewed. Below is a comparison between data collected in 2005 and the baseline data collected in 2003.

1. HOUSEHOLD COMPOSITION

2003 baseline data [4]		**2005 data**	
Household Average		**Household Average**	
HH size	8.5	HH size	7.81
Nos of men	-	Nos of men	3.88
Nos of women	-	Nos of women	3.96
Nos of children under 19 yrs	4.9	Nos of children under 15 yrs	2.88

2. HOUSEHOLD OCCUPATION

Household Head

2003 baseline data (not disaggregated by gender)		**2005 Data (all identified as male)**
Farmer (inc highland slash/burn)	27	25
Teacher	1	1
Other	1[5]	1[6]

Wife

2003 baseline data (not disaggregated by gender)		**2005 Data**
Farmer	-	25
Housewife	-	1
Other	-	0

It is interesting to note that in 2005 when asked, women were identified as 'farmers' like their husbands, with the exception of one, who was identified as a 'housewife'. Also, many respondents identified themselves specifically as 'wetland cultivators' in 2005, something that did not come up in 2003. This may been a translation error, or it could be a sign of the changing agricultural practices being introduced by the SCSPP.

3. HOUSEHOLD POSSESSIONS

2003 baseline data		**2005 Data**
	HH Own	**HH Own**
Motorbike	4	17
Bicycle	5	6
Car	1	0
Truck	0	1
Bus	1	0
Hand-tractor	2	17
Rice-mill	12	11
Sewing machine	14	10

In 2005, 63% of households interviewed now owned a motorcycle, compared with only 13% of households in 2003. Hand-tractors were the second biggest purchase increase. In 2003, only 7% of households interviewed owned a hand-tractor; by 2005 this had increased to 63% of households interviewed. Both means of transport were used in 2005

[4] The 2003 baseline survey did not disaggregate the household data by gender
[5] Identified himself as a 'bus service operator'
[6] Identified himself as a 'villager'

exclusively by the males of the household, whether as always the driver transporting their wives and children or as the only person travelling was not clear from the translation of the answers.

4. LIVESTOCK PURCHASED IN PREVIOUS 12 MONTHS

2003 baseline data			**2005 Data**	
	No purchased in past 12 months	**Average per HH**	**No purchased in past 12 months**	**Average per HH**
Cattle	158	5.26	144	5.33
Buffaloes	77	2.56	66	2.44
Goats	15	0.5	142	5.25
Horses	15	0.5	3	0.11
Pigs	146	4.86	12	0.44
Poultry	608	20.26	867	32.11

There has not been a huge increase in livestock purchased. This could be explained by households not increasing their land holdings and the limited space within villages which give a natural limit to the numbers of livestock each household can reasonably maintain. It is not clear why the numbers of goats and pigs purchased in 2003 and 2005 fluctuate so.

5. HOUSEHOLD INCOME[7]

2003 baseline data		**2005 Data**
	Average annual income for all survey HH (kip)	**Average annual income for all survey HH (kip)**
Agriculture	313,000	3,475,926
Livestock	1,747,000	3,467,407
Weaving/textiles	-	2,969,815
Casual labour inside village	9,000	0
Casual labour outside village	330,000	0
Regular employment	358,000	182,085
Loans	95,000	1,437,037
Remittances	520,000	48,148
Business[8]	699,000	55,555
Other	1,726,000[9]	325,111[10]
TOTAL	**5,797,000**	**11,961,804**

[7] Exchange rate as of March 2006 $1 = 10,436 kip
[8] Includes a variety of activities including running a small shop and a bus service
[9] Includes weaving/textiles/handicrafts and blacksmith activities
[10] 2005 activities included village head incentive and making a rice table

Number of HH earning from this activity

2003 baseline data			2005 Data	
	No of HH earning income from this activity	**Average annual income for HH earning from this activity (kip)**	**No of HH earning income from this activity**	**Average annual income for HH earning from this activity (kip)**
Agriculture	13	722,000	26	3,609,615
Livestock	25	2,096,000	25	3,744,800
Weaving/textiles[11]	-	-	21	3,818,333
Casual labour inside village	2	135,000	0	0
Casual labour outside village	3	3,300,000	0	0
Regular employment	4	358,000	2	2,458,108
Loans	5	95,000	22	1,763,636
Remittances	3	520,000[12]	2	650,000
Business	7	699,000	3	500,000
Other	17	1,726,000	10	877,800
TOTAL		**9,651,000**		**23,422,292**

The biggest rise in income comes from agricultural production. The average annual income for households earning from this activity leapt by 400% in 2005 to 3,609,615 kip (approximately $346), whereas in the same period income from livestock rose by 78%, which can be seen as a positive sign of the agricultural diversification component of the SCSPP. Although in 2003 weaving and textiles came under 'other'; in 2005 the average annual income for households earning from this activity alone was 3,818,333 kip (approx. $366)[13]. In 2003 baseline survey the combined 'other' total was 1,726,000 kip (approx. $165).

Weaving at home

[11] In 2003 this was not asked as a separate activity but came under "other"
[12] Substantially influenced by the large remittance of one single household
[13] An ADB agriculture and natural resource sector evaluation found that under the SCSPP that weaving had become a profitable household business. Hundreds of women and grils had taken it up and traders had facilitated marketing of the woven cloth. Of the 56 microfinance groups in the SCSPP villages, 51% had invested in weaving operations. (ADB 2005)

6. ECONOMIC ACTIVITIES

Traders visiting the villages

In the 2003 baseline survey 24 families sold non-agricultural products and 12 families had sold agricultural products to traders visiting their villages in the previous 12 months. Traders were visiting the villages a few times a year to conduct business, for example, traders buying agricultural products visited as much as 5 times a year to a little as once a year. For traders buying non-agricultural goods their visits were slightly more frequent between 2-8 times a year. In 2003, 19 households were buying non-agricultural goods from traders visiting their villages.

In 2005, all 27 households interviewed were regularly buying and selling from traders. They were buying household goods; clothes, cloth and textiles, electrical goods and they were selling to traders weaving and textiles; agricultural produce and livestock. The 2005 survey asked households whether the increase in traders buying from the villagers directly in their village had increased their household income, they all answered yes. Traders were now visiting as often as once a week.

7. ACCESS TO MARKETS

Average travel time to markets

In 2003 the main market that people identified as visiting was Xamnua, the provincial capital (17km from the road head) and all 30 households interviewed travelled there. 27 households walked to the main national road and then caught a bus to town, and 3 households walked the entire way. On average the journey took 3 ½ hours. In 2005, all 27 households travelled to Xamnua market and the journey now took on average 1 hour 17 minutes[14]. Unlike in 2003 where the majority of people were walking to the main road and then catching the bus, in 2005 14 households were using a motorbike for the entire journey and the remaining 12 took the bus

When asked in 2005, all 27 households said that they were now visiting markets further away than before the road was built and were using a variety of modes of transport, the most common being the bus (with a walk to catch it) and motorbikes. In 2005 villagers living along or close to the Nam Ham Road visited the following markets

Markets visited by households from Nam Ham Road area in 2005

Market	Average Travel Time (hrs/mins)	Number of households	Most common method of travel
Xamnua	1.17	27	Motorbike
Houanuang	2.15	10	Motorbike
Muang Van	1.57	9	Motorbike
Nameo	5	2	Bus[15]
Louangprabang	21.30	2	Bus
Vientiane	21.14	13	Bus

[14] One HH recorded a travel time of 7 hours, otherwise it was generally 30 – 90 minutes
[15] Only one HH recorded their mode of transport

In 2003 Ham Tai was the second most visited market (12 households). All respondents walked to Ham Tai and the average travel time was 1.15 hours. In 2005 Ham Tai did not feature as a market visited. In 2005 10 households visited Houanuang market taking an average of 2 hours 15 minutes. 15 households undertook longer journeys to Louangprabang and Vientiane taking on average 21 ½ hours and 21 hours 30 minutes respectively.

New transport services and travel times

Along the Nam Ham Road there has been an increase in transport services. A bus service has begun operating and this is used by all 27 households interviewed in 2005. The fares vary between 7,000 – 14,000 kip. Trucks and pick-up were also available and households appear to use these for a price per trip to travel to places.

When asked, all 27 households confirmed that travel times have reduced for those household members travelling outside the village since the road had been built. Travel times in both the wet and dry season had shortened. For example, a 4 hour journey in the wet season now took only 40 minutes; a 6 hour wet season journey was now just 60 minutes. In the dry season journeys of 1 hour now took 15 minutes and one previous 4 hour journey took a person only 30 minutes.

The journey times have become faster because people have greater access to motorised transport, either through the use of their own motorbikes, through using the bus service that now operates along the road or they used other vehicles that offer rides such as trucks and pick-ups.

8. ACCESS TO SERVICES

Health

In 2003 only two households had visited a dispensary in 12 months prior to the interview and in 21 households at least one household member had used a hospital. The average journey was 4 hours and 40 minutes walking first to the road head and then catching the bus to Xamnua.

In 2005, 21 households had visited a hospital in the previous 12 months[16], with an average travel time of 1 hour 27 minutes; however, this did include one trip of six hours which was the exception rather than the norm. Most individual trips took between 1 ½ hours and 30 minutes. The method of transport was evenly split between taking the bus and using a motorcycle to go to the hospital. All those who used the hospital agreed that their journey was quicker now than before the road had been built and more importantly when asked they all said that they had accessed health care sooner than they would previously had done because of the faster travel times.

[16] No one interviewed said any family member had visited either the clinic or dispensary in the previous 12 months.

Schools

In the 2003 baseline survey travel times to schools were disaggregated by school type. It found that for those children travelling to a neighbouring village the average travel time was 25 minutes and the average travel time for children needing to travel further to where a complete elementary school was (grades 1-5) was 43 minutes.

In the 2005 final survey, travel time to school was not disaggregated by grade it just asked how long it took for children to travel to school. The average travel time in 2005 was 23 minutes and the majority of children walked. You can infer from the travel time and method; walking, that children were travelling between or within their own villages to attend schools. The individual travel times varied from 2 minutes to 1 hour 40 minutes, leading to the conclusion that distances varied for travel within the village to travel to neighbouring villages.

9. PERCEIVED BENEFITS , ACCESS PRORITIES AND PROBLEMS

In 2003 a series of questions were asked to households about their current access problems to various goods, services and facilities. These were scored as either 'big problem', 'minor problem' or 'no problem'. In 2003 the following services and facilities were deemed a 'big problem' the reasons cited included: distance to source, no road to transport materials and difficult transportation. In 2005, households were asked again to state whether the access to the same goods, services and facilities were still either a 'big problem', 'minor problem' or 'no problem'. This time access to all these services was not recognised as problems for the households interviewed.

	2003 baseline survey	**2005 final survey**
Water	Big problem	No problem
Agriculture land	Big problem	No problem
Markets	Big problem	No problem
Clinic/hospital	Big problem	No problem
Schools	Big problem	No problem
District Centre	Big problem	No problem

Secondly in 2003, a series of questions were asked to determine the perceived benefits and costs the new road would have. Issues bought up included: improvements to passenger transport, improved goods transport, better access to schools and health services, improved living conditions in the village, better distribution of goods and services. As well as; making it easier to visit relatives, shorter travel times, increased vehicle ownership and improved communication between authorities and villages. Negative costs of the new road included: exploitation of forest and wildlife theft, illegal trafficking, traffic accidents, out migration, loss of agricultural land and import of disease.

In the final 2005 survey, household respondents were asked to comment on the changes that have occurred due to the road construction. The following is a selection of verbatim responses:

"Vehicle is available for household use. It is easier to visit relatives and easier for children to go to school and there is now an available bus service."

Quote from household head

"Selling and buying of weaving materials and products can be done at home. Pupils travel to schools faster."

Quote from wife

"A bus operation is available. Going for buying and selling is better. It is more convenient to transport goods, rice to home and visiting villages. Pupils go to school on time. More traders visit the village leading to the increase of income."

Quote from household head

"Faster access to school. During illness can get to big hospital on time."

Quote from child

"Purchasing and selling increase leading to an increase in income. Traders come to buy weaving production at village and it is also easier to get access to selling opportunities) at Xamnua market."

Quote from wife

"Houses are under construction and materials are transported to front door."

Quote from household head

"More convenient to visit relatives and trading."

Quote from wife

"Access to friend's house and leisure creation and convenience to travels to school."

Quote from child

Overall, the rest of the comments from women, men and children follow these examples. The striking improvement is that of time saved travelling; travelling either to main markets, to schools, to health facilities or visiting relatives and friends. For women, an important improvement seems to be the increase in traders visiting the village to buy direct from the house weaving and textiles. Children all commented on faster and easier travel to schools and increased leisure time because of the decreased travel times. Men talked of quicker and more efficient transportation of crops and goods to markets and from their fields. They talked about using their own transport such as motorbikes and hand tractors and all mentioned the new bus services they could now access.

Analysis of Nam Ven Road Household Data

The Nam Ven Road is 32.2 km long and unlike the Nam Ham Road, this trail existed in track form prior to construction. Like the Nam Ham Road though, the Nam Ven Road will serve small previously isolated upland communities. See Annexes 1 and 2 for maps of the area.

In the 2003 baseline survey 36 households in 12 villages were interviewed in the area of the Nam Ven Road. In 2005 36 households in 12 villages were interviewed. Below is a comparison between data collected in 2005 and the baseline data collected in 2003.

1. HOUSEHOLD COMPOSITION

2003 baseline data[17]		**2005 data**	
Average		**Average**	
HH size	7.8	HH size	8.02
Nos of men	-	Nos of men	3.8
Nos of women	-	Nos of women	4.1
Nos of children under 19 yrs	4.2	Nos of children under 15 yrs	3

2. HOUSEHOLD OCCUPATION

Household Head - as identified by villagers in interview

2003 baseline data (not disaggregated by gender)		**2005 Data (all identified as male)**
Farmer	26	19
Teacher	-	5
Other	10[18]	12[19]

Wife – as identified by villagers during interview

2003 baseline data (not disaggregated by gender)		**2005 Data**
Farmer		15
Housewife	-	6
Other	-	15[20]

Like with the Nam Ham Road, the 2003 baseline survey did not disaggregate the household by gender when looking at occupation. Again, as with the Nam Ham Road data, in 2005 people tended to classify themselves as 'types' of farmers eg: 'wetland cultivator and in some cases 'wetland cultivator/slash & burn' of farmers, however what is not clear is whether this is a result of translation or exposure to new farming techniques

[17] The 2003 Baseline survey did not disaggregate data by gender
[18] Gardener/ slash & burn and house husband
[19] Included those identifying themselves as: villagers, deputy secretary of party, head of dispensary and house husband
[20] Includes: villager, village union representative and credit official

3. HOUSEHOLD POSSESSIONS

2003 baseline data		2005 Data
	HH Own	**HH Own**
Motorbike	2	10
Bicycle	5	16
Car	6	0
Truck	-	1
Bus	-	0
Hand-tractor	1	12
Rice-mill	8	19
Sewing machine	17	19
Other	6[21]	-

In 2003 only 6% of households questioned owned a motorcycle, by 2005 this had risen to 28%. The next biggest increases were seen in bicycle and hand-tractor ownership. In 2003, 14% of households owned a bicycle, this increased to 44% in 2005 and hand-tractor ownership increased from 3% in 2003 to 34% in 2005.

In 2005 motorbikes were used mostly by the men (though as with Nam Ham, whether this was as the driver with passengers or only as the driver is not clear) in the household, likewise bicycles were used by the children and the men of the household. The hand-tractors were used exclusively by the men of the household whereas the rice-mill and sewing machines were used by both the women and men of the households.

4. LIVESTOCK PURCHASED IN PREVIOUS 12 MONTHS

2003 baseline data			2005 Data	
	Nos purchased in past 12 months	**Average per HH**	**No purchased in past 12 months**	**Average per HH**
Cattle	14	0.4	32	0.8
Buffaloes	121	3.4	147	4.08
Goats	24	0.7	68	1.89
Horse	12	0.3	5	0.13
Pigs	126	3.5	99	2.75
Poultry	699	19.4	1275	35.42

Interestingly in the Nam Ven Road area livestock purchases has increased more than along the Nam Ham Road. Poultry increased by 82.5%, buffaloes by 20% and goats by 170%. Again, reasons for these increases are not clear. In part they may be a result of the SCSPP diversification scheme.

[21] Included boat and tor-tor

5. HOUSEHOLD INCOME

2003 baseline data		**2005 Data**
	Average annual income for all survey HH (kip)	**Average annual income for all survey HH (kip)**
Agriculture	483,000	3,592,500
Livestock	1,382,000	2,004,125
Weaving/textiles[22]	-	1,784,167
Casual labour inside village	206,000	15,385
Casual labour outside village	0	13,889
Regular employment	111,000	766,211
Loans	64,000	734,722
Remittances	19,000	55,556[23]
Business	253,000	716,667[24]
Other	17,000	137,778

Number of HH earning from this activity

2003 baseline data			**2005 Data**	
	No of HH earning income from this activity	**Average annual income for HH earning from this activity (kip)**	**No of HH earning income from this activity**	**Average annual income for HH earning from this activity (kip)**
Agriculture	20	870,000	34	3,803,824
Livestock	26	1,913,000	31	2,004,125
Weaving/textiles	-	-	26	2,470,385
Casual labour inside village	6	1,233,000	2	200,000
Casual labour outside village	0	0	1	500,000
Regular employment	1	4,000,000	6	4,597,267
Loans	4	575,000	26	1,017,308
Remittances	4	175,000	1	2,000,000
Business	4	2,275,000	1	15,000,000
Other	1	600,000	4	1,240,000

As with the Nam Ham Road, average annual incomes have increased the most in the last year. The biggest increase is seen in the agricultural sector with a 337% increase for those households earning income from agriculture. Again, this is most likely the result of the SCSPP. As with the Nam Ham Road, weaving and textile production in 2003 was not recorded as a separate activity but came under 'other' and again like the Nam Ham Road data, in 2005 its income generation was substantially higher than the 'other' total of 600,000 kip in 2003; reflecting the success of micro credit and other finance schemes available to the SCSPP target villages. (ADB 2005)

[22] In 2003 this was not asked as a separate activity but came under "other"
[23] Only 1 HH stated 'remittances' as a source of income
[24] Only 1 HH stated 'business' as a source of income

6. ECONOMIC ACTIVITIES

Traders visiting the villages

In 2003, 18 families indicated that they sold agricultural produce to traders visiting their villages in the previous 12 month period. Traders visiting to buy agricultural products were recorded as visiting villages as much as once a month to as little as once a year. 24 households indicated that they sold non-agricultural products (weaving, textiles and handicrafts) to traders. Traders visiting to buy and sell non-agricultural goods visited villages as much as 10 times per year to as little as once a year.

In 2005 all 36 households interviewed confirmed that traders visiting their villages had increased. Traders were visiting between three times a month to once a week. All households surveyed said they sold produce regularly to traders this included agricultural products as well as textiles and weaving products. Traders visiting to sell goods were selling household supplies and cloth. The 2005 survey asked households whether the increase in traders buying from the villagers direct in their village had increased their household income, they all answered yes.

7. TRAVEL TIMES

Average travel time to markets

The 2003 baseline survey recorded that 29 households regularly visited Xamnua market. People walked to the main road and caught a bus to ride to Xamnua. On average the journey took 7 hours to reach the market, people were visiting the market on average once a month and the average round trip fare was 12,000 kip.

In 2005 the picture is very different. 35 of the 36 households questioned visited Xamnua market. 30 households took the bus, 3 travelled by motorbike and 1 household travelled by private truck. The average travel time in 2005 was 2 hours, 5 hours quicker than in 2003. The price of the bus varied between 11,000 – 18,000 kip.

Markets visited by households from Nam Ven Road area in 2005

Market	Average Travel Time (hrs/mins)	Number of households	Most common method of travel
Xamnua	2 hrs	35	Bus
Nameo	5 hrs 45 mins	2	Truck/motorbike
Houanuang	3 hrs 50 mins	3[25]	Bus
Muang Van	1 hr 27 mins	16	Walk
Vientiane	24 hrs 51 mins	4	Bus
Phiengdy	13 mins	5	Bus

Muang Van was the second most visited market by people living along or near the Nam Ven Road. 16 households visited it regularly and the average travel time was 1 hour 27 minutes. 34 households stated that they were now going to markets further away now the road was built than they had done before. These markets included Xamnua, Mueng Van

[25] This included one trip of 10 hours

and Saleuay[26]. The majority (23 HH) used the bus and some (5 HH) used their motorbikes to travel to these markets.

New transport services and travel times

All 36 households confirmed that there was now a bus service operating along the new road and they have all used it at one time. The fares ranged from between 11,000 – 18,000 kip.

The 2005 survey also asked whether in general travel outside of the village had become quicker since the road was built. Overwhelmingly the answer was yes travel times were now reduced. Journeys were up to three times quicker than before. For example, in the wet season, journey's that used to take 4 hours were now completed in 40 minutes and journeys that took 1 ½ hours now only took 1 hour. In the dry season, journey times were equally quicker, ones that used to take 3 ½ hours now took 35 minutes. In many cases the presence of a bus service enabled people to travel to their destination much more quickly than before.

Making travel time faster and easier

8. ACCESS TO SERVICES

Health

In the 2003 baseline survey 22 households visited a dispensary in the previous 12 months and in 5 households at least one person used a hospital. The walk to the dispensary took about 50 minutes but to make a combined trip (walk/ride) to the hospital in Xamnua took on average 3 hours 15 minutes and cost approximately 12,000 kip.

In 2005 a total of 25 households sought medical treatment in the past 12 months. 18 households visited a dispensary with an average travel time of 28 minutes, the majority of households walked to the clinic (9 households). 13 households[27] visited a hospital with

[26] Saleuy market is one of the markets built by the SCSPP to provide new marketing opportunities
[27] 6 HH visited both a dispensary and hospital

an average travel time of 1 hour 31 minutes and the majority of people took the bus to the hospital. All 25 households stated that they had sought medical treatment earlier than before the road was constructed, because travel times would be quicker now.

Schools

In the 2003 baseline survey travel times to schools were disaggregated by school type. For children attending primary schools (usually within the villages or in villages close by) the average travel time was 23 minutes. Children from 18 households who attended secondary schools took on average 1 hour and 39 minutes to reach school. In 16 households, students walked all the way and in 2 households, students walked and caught a ride.

In the 2005 final survey, travel time to school was not disaggregated by grade it just asked how long it took for children to travel to school. In 2005 33 households had students who attended school and the average travel time was 12 minutes, 26 students walked the entire way, 4 used a bicycle and 1 caught a bus.

9. PERCEIVED PROBLEMS AND BENEFITS AND ACCESS PRORITIES

In the 2003 baseline survey access to the following services was in the majority deemed a 'big problem'. The reasons for the problems included: distance to travel; no facility in village, lack of usable road in wet season. By 2005 access to the same services were deemed 'no problem' at all with the exception of villagers access to their agricultural land, this was still a 'minor problem' because of the location of the plots, which were still far from the road and up mountainous terrain.

	2003 baseline survey	**2005 final survey**
Water	Big problem	No problem
Agriculture land	Big problem	Minor problem
Markets	Big problem	No problem
Clinic/hospital	Big problem	No problem
Schools	Big problem	No problem
District Centre	Big problem	No problem

In 2003 households were asked to identify possible future benefits coming from the new road. People saw these as: improved passenger transport services; improved goods transport; better access to education and health services and improved business environment. They also felt it would be easier to visit relatives and friends and that the new road would bring improvements to agriculture production and better communication. No once questioned in 2003 saw any potential costs associated with the construction of the road.

Finally, in the 2005 survey, all the households were asked to talk about the changes to their village life and household that has happened since the road has been complete. The following are a selection of verbatim responses given to the interviewers:

"Better living condition and more convenient to travel."
Quoted household head

Better living condition, no more transporting goods on back, available public transport service."
Quote wife

"Shifting from slash and burn to growing crop and livestock raising. Better access and goods can be bought within the village
Quoted household head

"Visiting relatives is more convenient due to available public transport service. Living conditions improved resulting from increased income."
Quoted household head

"Available public transport, no more walking from Xamnua to here."
Quoted household head

"Living condition is slowly better off and travelling is more comfortable. The trading is a source of family income."
Quoted household head

"Easier going and coming. You can hear good sounds and eyes can see beautiful things. Easier for trading and reduced labour burden."
Quoted household head

As with comments from the Nam Ham Road, the overall pattern of the Nam Ven Road comments is similar. All who responded talked about the time saved travelling. People also commented on the gradual improvement to their livelihoods through improved methods and better transport and greater opportunities to sell their produce. Ease of travelling also meant that people were visiting relatives and friends more conveniently than before and people commented on that welcome change to their lives. The comments gathered during the Nam Ven Road interviews were all from men apart from the one comment quoted above by one wife.

3. TRAFFIC COUNT AND ORIGIN/DESTINATION SURVEY

Traffic Counts at Nam Ham Road and Nam Ven Road

Traffic counts were conducted at two sites, one on each road in both 2003 and 2005. Results show, as expected, an increase in the numbers of people using the roads, both as pedestrians and as those using motorised vehicles. Along the Nam Ham Road, in 2003 the daily average for pedestrians was 40, by 2005 this had risen to an average of 60 pedestrians. In 2005 along the same stretch, there was on average 29 motorcycles using the road compared to none being recorded in 2003. Similarly, the Nam Ven Road recorded increased use; in 2003 the daily average number of pedestrians was 6 and in 2005 it was 37. The average number of motorcycles in 2003 was one and in 2005 it was 34.

Nam Ham Road Origin/Destination Survey 2003 and 2005

2003 Nachong Station

Mode of transport	Number of interviews	Main purpose of trips	Average number of passengers	Goods transported
Pedestrian	47	Visit market (16); visit relatives (9); going to farm/garden (6); fishing (5); buying livestock (5); buying textiles (1)		
Motorcycle	4	Buying livestock; visiting relatives[28]		
Hand-tractor	2			

2005 Ban Nachong Station[29]

Mode of transport	Number of interviews	Main purpose of trip	Average number of passengers	Good transported
Hand tractor	21	Going to work (8); Village festival (4); back from work/social activities (3); return home (3)	5	
Bus/truck	12	Market inc buying/selling visiting district centre (7)	11.4	

[28] The number of people was not recorded. Likewise for hand-tractor main purpose was also not recorded.
[29] The Nam Ham Road during the origin-destination survey was partially blocked by a landslide.

Nam Ven Road Origin/Destination Survey 2003 and 2005

2003 Muang Yong – Vatpa Station

Mode of transport	Number of interviews	Main purpose of trip	Average number of passengers	Good transported
Pedestrian	56	Visit relatives (9); returning home (7); buying household goods (7); going fishing, food gathering or agriculture (9); selling agricultural products (3)		
Motorcycle	22	Visit relatives (6); returning home (3); going to work (3)		
Hand-tractor	2	Go to work (2); visit relatives (2)		
Car/pick-up	9	Going to work (2)	7	
Bus/truck	4	Transport products (3)	9	Household supplies

Making villages more accessible

2005 Km 2 between Ban Yong and Ban Done

Mode of transport	Number of interviews	Main purpose of trip	Average number of passengers	Good transported
Hand-tractor	6	Goods delivery (3); work (1); selling/buying goods (2)		Non-forest products; household supplies
Car/pick-up	15	Government business (6); going to work (2); returning from/going to visit relatives (4); buying goods/goods delivery (2)	1.3	Household supplies
Bus/truck	45	Goods delivery (5); returning home (2); buying goods (3); selling goods (1)	16.6	Household supplies and goods; non-forest produce; livestock

4. CONCLUSION

The objective of this report is to analyse the data collected in 2005 with the baseline data generated in 2003 to see whether it is possible to show that the households and villages along the Nam Ham Road and Nam Ven Road have benefited from greater access opportunities because of the road construction.

As discussed in Chapter 1 the road construction was just one component of a livelihoods improvement project implemented by the ADB and the Government of Houaphan. The project's aim is to increase poor households' food security and income through a programme of crop diversification and village based development.

Taking as a starting point for comparison *Household Possessions*, data from 2005 clearly shows an increase in the number of households who now own some form of motorised transport; either motorbikes or hand-tractors. Motorbike ownership increased by over 325% along the Nam Ham Road and by roughly 400% along the Nam Ven Road. Hand-tractors increased by 750% along the Nam Ham Road and by 1,100% along the Nam Ven Road.

New motorbikes owned by villagers

The availability of loans and credit through the SCSPP must have contributed to the increase in ownership, coupled of course with the presence of an all-weather road on which to travel. The increase in vehicle ownership has enabled people to become more mobile, both the motorbikes and hand-tractors have taken away some of the burden of people having to physically load their produce on their backs and transport it from field to village to market.

Some of the tractors now owned by villagers

Improvements to people's lives that we can infer from the data are interconnected. *Household Income*, for example has also risen sharply and this surely is a sign of the of the SCSPP projects aim, encouraging people to move away from the traditional slash and burn methods to the more sustainable and higher yielding shifting cultivation techniques and crop diversification. Annual household income in agriculture along the Nam Ham Road increased by 1,011% and livestock earnings by 98%. Along the Nam Ven Road, agriculture saw a 635% increase, while there was a 45% increase in livestock earnings. However, households would not have been able to take advantage of increased crop production and livestock produce if they did not have the means or the way of transporting those crops and products to the market.

The construction of the two roads has resulted in an increase in the frequency of traders visiting the villages to both buy and sell products. In 2003, few households sold regularly to traders, mainly because few traders visited villages regularly; in some cases traders were coming once a year to buy produce at the source. The data in 2005 showed that traders were visiting the villages along and around the road much more frequently and buying regularly from villagers. This change in trade patterns appears have encouraged villagers to increase their production of agriculture, livestock produce and weaving and textile products because they know they have a steady market in which to sell their goods. As stated in the Nam Ham Road and Nam Ven Road section, in 2003 'weaving & textile' production was not looked at separately but was included in the 'other' category. However; by 2005, its annual average income along both roads was greater than the 2003 'other' total and was considered an important household activity. The availability of loans and the creation of microfinance groups through the SCSPP have clearly benefited households in the areas with weaving and textile production clearly growing in popularity and becoming a profitable household business for women and girls to engage in. The development of this sector has also been facilitated by traders being able to visit villages and engage in buying and marketing what is produced. When asked directly, all the households questioned along both roads agreed that their household income had increased

in the past 12 months in part because of the increase in the number of traders buying direct.

A third trend that this report analysed was *Travel Times*. Had the roads helped reduce people's travel times to markets, towns, health and education facilities? The answer for both roads was yes. Travel times showed a marked decrease. This can be explained by the increase in personal motorbike ownership (of the 27 households' in the Nam Ham Road area regularly visiting Xamnua market, the majority travelled by motorbike) and the introduction of bus services that operate along both roads and the availability of trucks and pick-ups travelling along the roads that people could ride in. Because travel times have shortened, villagers are visiting markets more regularly and because of success in the agricultural and livelihoods development component of the SCSPP, people now have more surpluses to sell.

The introduction of the bus service was mentioned by villagers from both roads as a valuable improvement to their daily lives. Many households stated that the ease of travel that now exists meant that they sought medical treatment sooner than they would have done prior to the road construction. This is an important change for the villagers. Research shows that in many poor and isolated rural communities, people seek medical treatment at the last possible moment. Usually when they are unable to work any more or the illness has progressed to a far worse state. This delay in seeking medical treatment in part is often because people are unable to afford to visit a doctor and/or buy the medicines but also because travel to medical facilities is long and difficult as well as expensive. By providing an all-weather road plus the presence of a regular bus service as well as an increase in personal vehicle ownership, communities around these two roads have been visiting medical facilities sooner than they would have previously. This must surely bode well in terms of encouraging preventative health care and ensuring the good health of households for the future.

The 2005 survey did not determine whether the roads had decreased children's travel times to schools. For the most part, schools in these areas are located within a village and travel occurs within and between villages. It was not possible from the data collected to say categorically that the roads had made journey times shorter for pupils. The presence however, of these two roads has potential to help address issues of absenteeism. Schools (and health facilities) that are located in remote areas with difficult road access have traditionally suffered from staff shortages and high levels of absenteeism. The ability to both access these services and facilities and for the staff to get away easily and regularly from the schools and medical facilities encourages teachers and health staff to remain in often isolated areas for the duration of employment. In this case however, teacher and medical staff retention has not been measured in this survey. In future analysis of these roads it could be worthwhile looking at employment records to see if the roads have indeed had an effect on staffing levels in schools and health facilities.

Verbatim evidence shows that people's lives have improved a great deal since the roads were built. Comments centre on the ease of travel, the increase in spare time now that travel times have reduced. The presence of an affordable bus service has enabled people to travel with their produce to markets. The availability of personal transport has

encouraged people to travel for social trips as well as economic ones. Many people commented on the ability to visit family more easily now. Children commented on the increased spare time because of quicker journeys. From these verbatim comments it is clear that the roads and transport opportunities that have come along have encouraged people to move about more frequently than before; a sign that the previous isolation of many of the communities is dropping away.

An evaluation by the ADB of its assistance to the agriculture and natural resources sector in Lao in which the SCSPP was one project reviewed also concluded that the access roads had "generated significant benefits." Reflecting, the results of this final survey, the ADB evaluation also concluded that the access roads helped support the off-farm employment opportunities such as weaving. (ADB 2005).

It is clear is that these roads were a necessary component of the SCSPP. They were part of an integrated livelihoods project that aimed at reducing poverty by increasing households' income and the roads played an important part in supporting people's diversification. Without the roads, the opportunity to purchase personal transport, and the arrival of a bus service, any increase in agricultural and non-agricultural production would have been lost through an inability to access markets to sell at. The roads have clearly opened up access and people are taking advantage of this. The project encourages livelihood diversification, promoted community loans and provided a road on which people could transport themselves and their produce. With the increase in household income a greater sense of economic security will grow. Households will be better protected against sudden shocks that would have previously affected the household's ability to cope.

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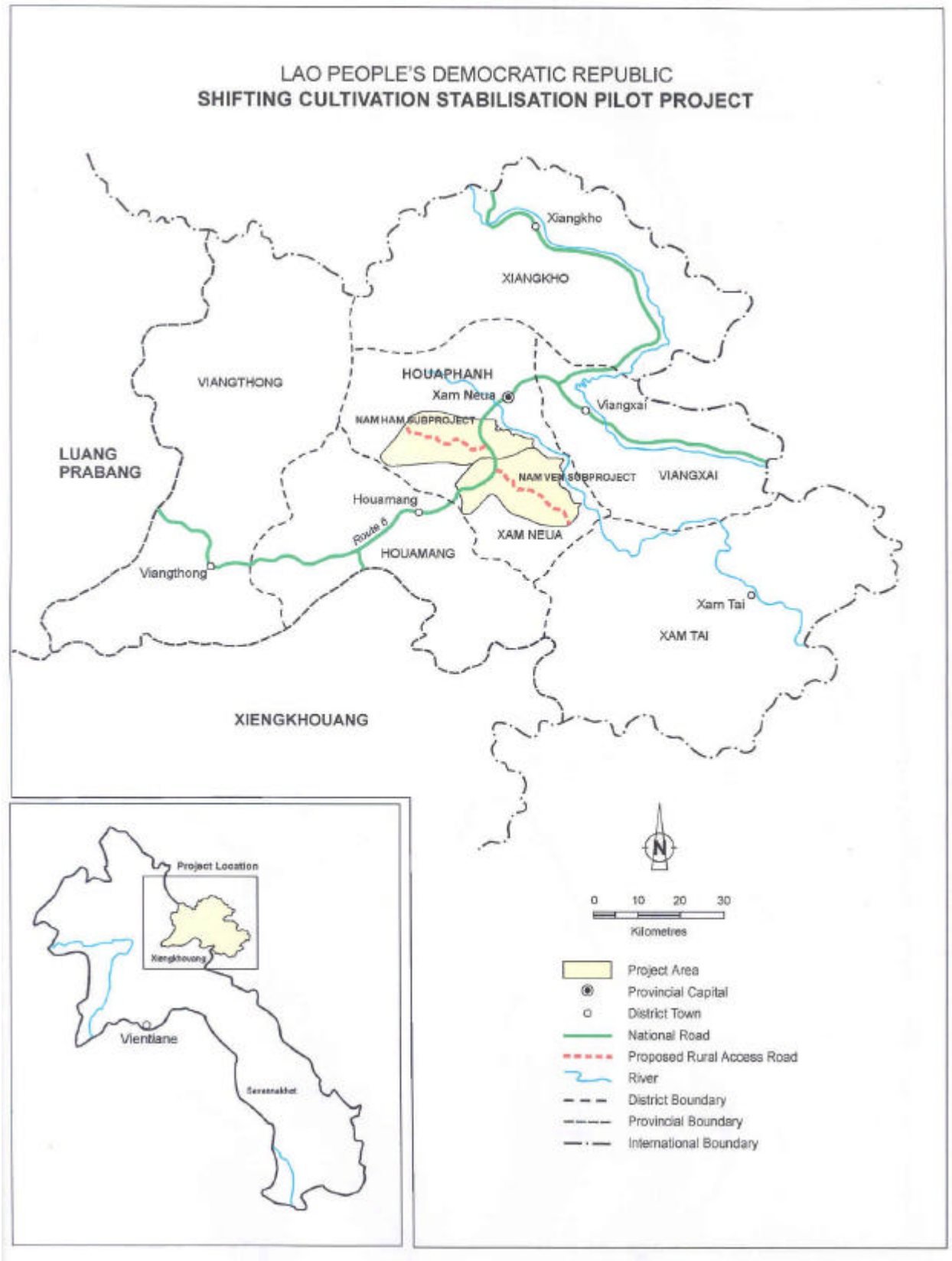
Annex 1 Map of Shifting Cultivation Stabilisation Pilot Project area



Annex 2 Strip Map of Nam Ham Road and Nam Ven Road from 2003 Snap-shot survey (December)