



Socioeconomic Impact Assessment

Stora Enso Plantation Project
Lao People's Democratic Republic

United Nations Development Programme

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Foreword

Lao PDR is an economy in transition from centrally planned to a market economy. While Lao PDR has achieved significant growth due to the expansion of the natural resource sector, the country's valuable natural resources are under increasing pressure, threatening the livelihoods of local communities. As Lao PDR develops, ensuring sustainable and equitable growth without devastating the environment is a key challenge faced by the country.

The private sector is crucial to economic growth over the next 5 years. The government has estimated that half of the total investment needed for the implementation of the 7th Five-Year Plan (2011-2015) should come from Foreign Direct Investment (FDI) and to a lesser extent domestic private investment. Given the significant role of FDI, attracting high quality FDI can play an extremely valuable role in creating jobs and incomes for Lao people; transferring skills and technology to Lao workers and Lao businesses; safeguarding and enhancing the country's environment assets; and adding meaningful net revenues to the Government budget to fund higher levels of human development.

UNDP globally supports the promotion of public-private partnerships (PPP), private sector development, as well as growing sustainable business and inclusive markets. PPP has been increasingly recognized as an effective and appropriate mechanism with which to manage the complexity of development challenges and the achievement of the MDGs. UNDP's cooperation with Stora Enso to conduct the Socioeconomic Impact Assessment (SIA) of its eucalyptus plantation project is really the first PPP that UNDP has undertaken in Lao PDR. The study presents a snapshot of the social and economic impacts of the eucalyptus planta-

tions within a limited number of villages of Savannakhet and Saravane provinces during the pilot phase, providing a preliminary assessment of the potential impact of the feasibility phase of the project. The SIA found that the approach adopted by Stora Enso shows strong commitment and responsibility by the company towards the betterment of the community in the project area, and indicated that the project made a significant and positive impact on the community. However, in order to make sure that this model is well understood by the communities, the SIA recommended that the project facilitate better understanding through improved communication with the communities in question.

Finally, UNDP would like to thank Stora Enso for this partnership. As the SIA suggested, Stora Enso's efforts to foster social development in a transparent manner and mitigate negative impacts on the project villages could demonstrate a strong example of Corporate Social Responsibility by a foreign investor that should be promoted in Lao PDR. UNDP hopes this SIA can help Stora Enso make a positive contribution to the country's investment policies with the goal of developing good practices, and eventually contribute to economic and social well-being of Lao people.



Minh Pham
Resident Representative
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in Lao PDR

Final Report

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Contents

Page

1.	EXECUTIVE SUMMARY	17
1.1	Introduction	17
1.2	Description of the Project	18
1.3	Policy, Legal and Administrative Framework and Stakeholder Analysis	19
1.4	Description of the Assessment Methodology	20
1.5	Socioeconomic Baseline	21
1.6	Significant Social and Economic Impacts and Development Considerations	25
1.7	Project Alternatives	39
1.8	Social Management and Monitoring Plan	41
2.	RECOMMENDATIONS	43
2.1	General	43
2.2	Impacts on Agricultural Land Use	43
2.3	Impacts on Forest Resource Use	44
2.4	Impacts on Water Resource Use	44
2.5	Impacts on Employment and Cash Income	44
2.6	Impacts on Community Health and Safety	44
2.7	Impacts on Education	44
2.8	Impacts on Cultural Heritage	44
3.	INTRODUCTION	45
3.1	Context for the Socioeconomic Assessment	45
3.2	Objectives of the Socioeconomic Assessment	45
3.3	Scope of Work	46
3.4	Report Structure	48
4.	DESCRIPTION OF THE PROJECT	49
4.1	Project Background	49
4.2	Description of the Major Development Activities associated with the Project	50
4.3	Project Proponent	60

5.	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK AND STAKEHOLDER ANALYSIS	61
5.1	Legislative and Administrative Framework in Lao PDR	61
5.2	International Framework for Best Practice SIA and Plantation Development	68
5.3	Stora Enso Corporate Standards relating to SIA	72
6.	DESCRIPTION OF THE ASSESSMENT METHODOLOGY	75
6.1	Study Area	75
6.2	Methodology	75
7.	SOCIOECONOMIC BASELINE	81
7.1	Project Setting in Lao PDR	81
7.2	Historical Overview	82
7.3	Demographic Characteristics of Surveyed Villages	83
7.4	Land and Livelihoods	88
7.5	Water Resource Use	101
7.6	Occupations, Cash Incomes and Expenditure in Surveyed Villages	103
7.7	Housing	110
7.8	Community Infrastructure	111
7.9	Cultural Heritage	113
7.10	Health	114
7.11	Education	118
7.12	UXO	122
7.13	Gender Issues	124
7.14	Other	125
8.	SIGNIFICANT SOCIAL AND ECONOMIC IMPACTS AND DEVELOPMENT CONSIDERATIONS	127
8.1	Impacts on Agriculture	127
8.2	Impacts on Forest Resource Use	154
8.3	Impacts on Water Resource Use	155
8.4	Impacts on Employment and Cash Income	158
8.5	Impacts on Economic Development	163
8.6	Impacts of In-Migration	165
8.7	Impacts on Community Health and Safety	166
8.8	Impacts on Education	171

8.9	Impacts on Cultural Heritage	172
8.10	Impacts on Vulnerable Groups	174
8.11	Other Impacts	176
8.12	Preliminary Cost Benefit Analysis	179
9.	PROJECT ALTERNATIVES	183
9.1	Development Alternatives	183
9.2	Not Proceeding with the Project	183
9.3	Alternative Complementary Plantation Models	185
10.	SOCIAL MANAGEMENT AND MONITORING PLAN, INCLUDING SOCIAL AND ECONOMIC INVESTMENTS/ DEVELOPMENT STRATEGY	187
10.1	Social Management System	187
10.2	Management and Mitigation Program	187
10.3	Auditing and Review	194
10.4	Monitoring Plan	194
11.	REFERENCES	197

LIST OF TABLES**Page**

Table 4-1:	Areas to be occupied by Project components during each Project phase (ha)	49
Table 5-1:	Social impact legislation in Lao PDR	63
Table 5-2:	Social and cultural legislation in Lao PDR relevant to the Project	64
Table 5-3:	Land documents and corresponding user rights	67
Table 5-4:	Description of relevant World Bank/IFC Safeguard Policies	70
Table 6-1:	Villages surveyed for the socioeconomic assessment and previously surveyed for the 2007 socioeconomic survey	77
Table 7-1:	Demographic characteristics of surveyed villages	84
Table 7-2:	Sex ratios in surveyed villages	85
Table 7-3:	Reasons for changes in village populations in 2008	86
Table 7-4:	Agricultural resources in surveyed villages	89
Table 7-5:	Approximate area of swidden fields and yields of upland rice in 2008	91
Table 7-6:	Approximate area of paddy fields and yields of paddy rice in 2008	93
Table 7-7:	Numbers of households in surveyed villages reporting to have a rice surplus or rice deficit in 2008	95
Table 7-8:	Average numbers of livestock of different types in surveyed villages in 2008	96
Table 7-9:	Forest resources in surveyed village in Nong and Ta oi district villages	98
Table 7-10:	The main types of NTFPs collected in surveyed villages	99
Table 7-11:	Existing water supply in the surveyed villages	102
Table 7-12:	The main occupations reported in surveyed villages	104
Table 7-13:	Estimates of cash income for surveyed villages in 2008	105
Table 7-14:	The main sources of cash income in surveyed villages	106
Table 7-15:	Categories of cash income in surveyed villages	107
Table 7-16:	Major sources and range of expenditure for households in surveyed villages	108
Table 7-17:	The numbers of disadvantaged households of different categories in surveyed villages	109
Table 7-18:	Status of housing in surveyed villages	110
Table 7-19:	Status of community infrastructure in surveyed villages	112
Table 7-20:	Number of deaths attributable to each cause of death and estimated crude death rate in surveyed villages	115

Table 7-21:	Health infrastructure and services available to the village (location of nearest clinics, hospital and pharmacy, availability of nurses and doctors, accessibility to households in the village)	116
Table 7-22:	Places where villages seek medical treatment in surveyed villages	117
Table 7-23:	Levels of educational qualifications in surveyed villages	119
Table 7-24:	Levels of literacy and ability to understand and read Lao language in surveyed villages	120
Table 7-25:	Reasons provided for children not attending school	121
Table 7-26:	Degree of impact of UXOs in surveyed villages	123
Table 8-1:	Estimated proportion of agricultural land acquired by the Project in surveyed villages in Nong and Ta oi districts during the pilot phase	128
Table 8-2:	Intercropping areas established by the Project in surveyed villages in Nong and Ta oi districts during the pilot phase including the number of families participating	129
Table 8-3:	Estimated acquisition of village land (ha) in Nong and Ta oi districts for the Project	132
Table 8-4:	Estimated proportion of agricultural land to be acquired by the Project in surveyed villages in Nong and Ta oi districts	133
Table 8-5:	The average area of intercropping land to be established in the Feasibility phase (ha)	135
Table 8-6:	Preliminary Compensation Framework for the Stora Enso Project	140
Table 8-7:	Breakdown of wages paid to casual and full time labour by the Project from 2007-2009	159
Table 8-8:	Project Feasibility phase employment Projections for Nong and Ta oi district villages	160
Table 8-9:	Estimates of truck movements in the Project area resulting from Project activities	168
Table 8-10:	Village Development Fund investments in surveyed villages	177
Table 8-11:	Preliminary cost benefit analysis of the feasibility phase of Project (figures are average figures per year over the concession agreement)	180
Table 10-1:	Summary of proposed mitigation and monitoring measures for the Project	188

LIST OF FIGURES**Page**

Figure 3-1:	Location of the Project area	47
Figure 4-1:	Spacing of eucalypt trees intercropping area in the Stora Enso plantation model	56
Figure 4-2:	Illustration of the 7-year rotation cycle adopted as part of the Stora Enso plantation model	57
Figure 5-1:	Structure of the ESIA Department in WREA	61

LIST OF PLATES**Page**

Plate 4-1:	Example of village land use map	52
Plate 4-2:	Bush clearing and UXO removal activity	53
Plate 4-3:	Mechanical soil preparation and tree planting activity	54
Plate 4-4:	Tree nursery at Sepone Agriculture and Forestry Training Centre used during the Pilot phase	58
Plate 6-1:	Village leadership group, and women's group consultation	78
Plate 7-1:	Typical terrain in the Project area	81
Plate 7-2:	War remnant near Ban Choravieng, and preserved section of the Ho Chi Minh trail, Nong district	83
Plate 7-3:	People in the Project area participating in village consultations	84
Plate 7-4:	Cultural traditions in Ban Choravieng (Ta oi district)	88
Plate 7-5:	Swidden agriculture fields in villages in the Project area	91
Plate 7-6:	Vegetable gardens in old bomb casings in the Project area	94
Plate 7-7:	Villagers feeding livestock in the Project area	97
Plate 7-8:	NTFP collection in villages in the Project area	100
Plate 7-9:	Water resources in villages in the Project area	103
Plate 7-10:	Sources of employment and cash income in villages in the Project area	107
Plate 7-11:	Status of housing in villages in the Project area	111
Plate 7-12:	Status of road infrastructure in villages in the Project area	112
Plate 7-13:	Signboard advertising government health program in villages in the Project area	118
Plate 7-14:	Educational facilities in surveyed villages	122
Plate 7-15:	UXO in the project area utilised as foundations of a rice storage hut	123
Plate 7-16:	Women's role in agriculture in villages in the Project area	125

LIST OF ACRONYMS

ADB	Asian Development Bank
AIDS	Acquired Immunodeficiency Syndrome
CBWP	Capacity Building and Work Program
DJSI	Dow Jones Sustainability Index
ESL	Earth Systems Lao
ESIA	Environmental and Social Impact Assessment
EMMP	Environmental Management and Monitoring Plan
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organisation
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
FRC	Forestry Research Centre
FSC	Forest Stewardship Council
GoL	Government of Lao PDR
HIV	Human Immunodeficiency Virus
IAIA	International Association for Impact Assessment
IFC	International Finance Corporation
ILO	International Labour Organisation
ISO	International Standards Organisation
ITTO	International Tropical Timber Organisation
IUCN	International Union for Conservation of Nature
LAFA	Land and Forest Allocation Program
LAK	Lao Kip (currency)
LAU	Land Allocation Unit
MAF	Ministry of Agriculture and Forestry, Lao PDR
MPI	Ministry of Planning and Investment, Lao PDR
NBCA	National Biodiversity Conservation Area
NGO	Non-Government Organisation
NGPES	National Growth and Poverty Eradication Strategy
NLMA	National Land Management Authority
NSEDP	National Socio-Economic Development Plan
NTFP	Non-Timber Forest Product
OP	Operational Policy
PBPCC	Political Bureau of Party Central Committee

LIST OF ACRONYMS

PRF	Poverty Reduction Fund
RAP	Resettlement Action Plan
RRA	Rapid Rural Appraisal
SAFTC	Sepone Agriculture and Forestry Training Centre
SAT	Sustainability Action Team
SE	Stora Enso
SIA	Social Impact Assessment
SLU	Swedish Agricultural University
SMMP	Social Management and Monitoring Plan
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TFPs	Timber Forest Products
UNDP	United Nations Development Programme
UXO	Unexploded Ordnance
VFI	Village Focus International
VLFMA	Village Land and Forest Management Agreement
WB	World Bank
WBCSD SFPI	WBCSD Sustainable Products Industry
WBCSD	World Business Council for Sustainable Development
WFP	World Food Programme
WREA	Water Resources and Environment Agency (Lao PDR)

EXCHANGE RATES

Exchange rates used in all calculations in this report are as follows: USD 1= 8,455.00 Lao Kip

1 Executive Summary

1.1 Introduction

This report has been prepared by Earth Systems Lao (ESL) as part of the Socioeconomic Assessment for a proposed Stora Enso Eucalyptus plantation project (hereafter 'the Project'). Earth Systems Lao is conducting the social assessment on behalf of the United Nations Development Programme Lao PDR (UNDP Lao PDR).

Stora Enso is a large Finnish and Swedish paper, packaging and forest products company that currently operates a Pilot Eucalyptus plantation of 257 ha in Nong District, Savannakhet province and Ta oi district in Saravane province. The company is planning to establish 35,000 ha of Eucalyptus and Acacia plantations in Nong, Sepone, Ta oi, Vilabuly and Samuoi districts, within Savannakhet and Saravane provinces, Lao PDR.

The Socioeconomic Assessment for the Project will be undertaken in two (2) stages:

- Stage 1 (this study) will make a preliminary assessment of social impacts of the Project, based on experiences thus far in establishing 257 ha of plantations. The output of this stage will be a snapshot of the social and economic impacts of the existing plantations within a limited number of villages and a preliminary assessment of the potential impact of the 2022 ha plantation programme (the Feasibility phase) and the 35,000 ha Project Implementation phase.
- Stage 2 of the Social assessment will involve similar focus areas to Stage 1 with larger scope and will be based on the experience,

framework and findings of Stage 1 producing a comprehensive report which includes full elements of a Social Impact Assessment (SIA).

The findings of the Socioeconomic Assessment will inform the Project's overall Environmental and Social Impact Assessment (ESIA) being coordinated by Salwood Asia Pacific. In addition to this study, Stora Enso has also engaged the IUCN Lao and the Swedish Agricultural University (SLU) to assess the Project's impacts on Biodiversity, Soil and Water and Carbon.

The Socioeconomic Assessment encompasses an assessment of the land, assets, and livelihood of communities living within and adjacent to the Project area that will be either directly impacted or indirectly impacted by the Project. In summary the scope of the Study includes

- Background review of previous studies and socioeconomic data relating to the Project and villages in the Project area;
- Background review of the Legal and Policy Framework for plantation development and Social Impact Assessment in Lao PDR and globally;
- Interviews with Stora Enso employees in Vientiane and the Project area;
- Detailed village-level surveys of all potentially directly impacted villages in the Project area;
- Consultation with District, Provincial and Central level government and Non-governmental and International Organisations; and
- Data analysis and report writing.

1.2 Description of the Project

Stora Enso plans to develop the Project in three (3) phases: the Pilot phase, the Feasibility phase and the Project Implementation phase totalling approximately 35,000 ha including plantation areas, support infrastructure and roads.

The Pilot phase began in 2005 and its conclusion is planned for early or mid-2010. Key results include the development of 257 ha of plantations, comprising 180.8 ha of plantations in Savannakhet and a further 76.2 ha in Saravane province; and development of supporting infrastructure including Project offices and nursery facilities. Current activities involve the maintenance of plantation areas, continued demonstration of the plantation model, species and provenance trials and surveying and planning for the larger 2,022 ha plantation area.

The Feasibility phase will develop an additional 2,022 ha of land within the same districts of the two provinces to further test the viability of the plantation model including focusing on developing improved methods of UXO clearance.

If the Feasibility phase is successful in terms of plant growth and anticipated costs, Stora Enso plans to approach the Government of the Lao PDR to apply for a concession to accommodate the full 35,000 ha plantation program.

Major development activities associated with the Project can be divided into seven (7) major categories:

- Plantation land identification, establishment and management;
- Intercropping;
- Upgrading of Project roads;

- Establishment of Project nurseries and other supporting infrastructure;
- Employment;
- Payments to government; and the
- Village development fund.

Establishment of Project plantation areas involves land survey and land acquisition; bush clearing and unexploded ordnance (UXO) clearing; soil preparation and planting; weeding and fertilizing activities; and harvesting of eucalyptus trees for sale.

The intercropping scheme is an agro-forestry model which intends to improve the welfare of local communities and increase yields of rice and other food crops as well as produce wood. Key aspects of the model are that it builds on a wide spacing of the trees, allows villagers to grow food and cash crops between the trees and manages plantations on seven-year rotations. The Project provides farmers with rice seed and other edible crops for the first year of production and the services of an agronomist to advise on what crops to grow and how to grow them and provide information on markets, especially price and quantity demands.

The Project will upgrade local village roads to support Project access to each plantation area. Tree nurseries will also be established to support feasibility phase plantations.

Employment associated with the Project includes work on Bush clearing and UXO clearance (hired as employees of a certified UXO contractor to clear the land of vegetation and to burn cleared vegetation) soil preparation and planting; plantation maintenance; and harvesting of trees for processing and sale. The majority of plantation identification, establishment and management tasks will be carried out by local villagers with a pref-

erence for labour from the concerned villages. Villagers will be recruited and trained as nursery and forestry workers and opportunities for further training and promotion given where possible. When working for the Project, local villagers will be paid 25,000 kip per day. The company will not employ those who are under the age of 15 years old.

A condition of the Concession agreement is that the Project must pay the Government of Lao PDR a rental fee of USD 10 per hectare per year for the plantation areas. A separate initiative of the Project is the establishment of a Village Development Fund (VDF) of 30,000 kip/ha/year (USD 3.55) which is paid to each village 5 years in advance and to be used for immediate and agreed needs in the village with focus on food security, sanitation and health care, education, and income generation activities.

The proponent of this Project is Stora Enso (SE), an integrated paper, packaging, and forest products company, which is a global market leader in the production of publication and fine papers, packaging boards and wood products. In 2007, Stora Enso sales totalled close to USD 20 billion. Globally, the company has 38,000 employees spread across more than 40 countries in five continents. Stora Enso has made a commitment to developing its business towards ecological, social, and economic sustainability, a commitment demonstrated through its values and its environmental and social responsibility policies. Stora Enso has contracted Burapha Agro Forestry Co. Ltd (Burapha), a Lao-Swedish plantation and consultancy company to carry out activities in the Pilot and Feasibility stages of the Project.

1.3 Policy, Legal and Administrative Framework and Stakeholder Analysis

Administration of environmental and social impact assessment in Lao PDR is controlled by WREA's Department of Environmental and Social Impact Assessment. This department manages the project approval process culminating in the issuing of an environmental certificate. With regards to ESIA for plantations projects, the Ministry of Planning and Investment (MPI) also plays a role in coordinating the initial screening of projects before issuing investment licences. The Ministry of Agriculture and Forestry (MAF) plays a role in issuing business licences to plantation companies and is also responsible for post approval environmental (and social) inspection and evaluation of plantation projects.

Unlike the hydropower and mining sectors, to date there has been little progress in the development of plantation-sector-specific policy and regulation for environmental and social impact assessment. General social impact legislation relevant to the Project includes the Environment Protection Law (1999) regulation 1770/STEA on Environmental Impact Assessment (2002) which outlines the requirements for social assessment, development of Social Management plans and Resettlement action plans (RAPs). Decree 192 Compensation and Resettlement (2005) and Regulation 2432 Compensation and Resettlement (2006) outline the compensation requirements for development projects in Lao PDR. WREA is currently conducting a review of its environmental and social legislative framework. In addition to these key pieces

of legislation, Lao PDR has a comprehensive policy and legislative framework governing socio-economic and cultural aspects which project developers need to comply with when initiating and implementing projects in Lao PDR.

In relation to the administrative framework for land management in Lao PDR, the National Land Management Authority (NLMA) plays the lead role in the implementation of Lao PDR's Land laws, and takes a lead role in land classification and land use planning under the Land Law 2003. Most relevant to the Stora Enso Project are the Village Land and Forest Management Agreements (VLFMA) issued under the Land Law, through which the GoL recognises the rights of villages to protect, use, benefit from, inherit, and be compensated for land within the village boundary.

Other legislation relevant to plantations and land concessions in Lao PDR is the Law on Investment (2004), the Forest strategy 2006 and the Forestry Law 2005. Lao PDR is currently developing a new legislative framework for Land Concessions to close a number of loopholes regarding issuing of land concessions across the country.

The National Socio-Economic Development Plan (NSED) through the Ministry of Agriculture & Forestry (MAF), is highly relevant to the Project and aims to achieve four (4) goals: increase food production by 3.4 percent per annum; supply agriculture and forestry products to the industrial sector (agro-processing); end shifting cultivation focusing on the 47 poorest districts (this includes Nong and Ta oi); and increase forest cover from the current 41.5 percent to 53 percent by the year 2010.

In addition to adhering to the legal requirements for plantation development in Lao PDR, Stora Enso has committed to following international best practice social impact assessment and man-

agement for the Project. Relevant standards include those of the International Association for Impact Assessment (IAIA), World Bank/International Finance Corporation (IFC), the Equator Principles, The Tropical Forests Dialogue (TFD), World Business Council for Sustainable Development (WBCSD), and the International Standards Organisation (ISO). Further best practice guidelines relating to plantation management include the FAO's Responsible Management of Planted Forests: Voluntary Guidelines, the Forest Stewardship Council's principles for sustainable forest stewardship and the International Tropical Timber Organisation (ITTO)'s guidelines for the establishment and sustainable management of planted tropical forests.

Stora Enso has a strong internal environmental and social policy and framework, including the Stora Enso Code of Business Conduct, Stora Enso Sustainability Policy and its constituent set of principles for Environment, Social Responsibility and Sustainable Wood and Fibre Procurement and Land Management, all of which inform the way the company conducts its business. In June 2009, Stora Enso published a Project Manual for its plantation project in Lao PDR. This manual describes in detail the Project, SE's Sustainability Policy, Environmental Principles and Principles for Social Responsibility and how these will be applied to the Lao project.

1.4 Description of the Assessment Methodology

The study area for the assessment includes Nong and Ta oi districts, which have been impacted by Pilot phase activities and will potentially be directly or indirectly impacted by the Project activities in the Feasibility and Implementation phases. The methodology used to conduct the Socioeconomic

Assessment encompassed: a review of previous studies and definition of the focus areas for the study. From this review it was decided that these should be demography (including migration issues); agricultural and forest land use, livelihood and food security (including agricultural production, livestock, Non-Timber Forest Products); water resource use; cultural heritage; employment and labour issues; community infrastructure; community health and safety; and the process for community engagement. Field preparation including development of questionnaires, two (2) programs of field surveys focusing on semi structured interviews at the village, central, provincial and district levels of government and NGOs and International organisations. The survey team for the study included Lao staff from ESL and International staff from Earth Systems Australia, Makhong and Katang language speakers and District representatives.

1.5 Socioeconomic Baseline

1.5.1 Demographic Characteristics

The Project is located in Southern Lao PDR, in the Provinces of Savannakhet and Saravane. Both provinces stretch across Lao PDR from the Annamite mountain range on the Vietnamese border to the east and the Mekong River and the Thai border to the west. Savannakhet is the largest province in Lao PDR and has a population of 824,662 people. Administratively, the province is divided into fifteen (15) districts and has a total of 1,543 villages and 132,301 households, with an average household size of 6.3 people. Saravane has a population of 324,470 people and is divided into eight (8) districts with 724 villages and 53,141 households, with an average household size of 6.1 people.

The Project's five (5) target districts - Nong, Sepon, Vilabuly, Ta oi and Samuoi- are located along the provinces' eastern border, adjacent to the Vietnamese border and characterised by undulating and fallow landscapes interspersed with large pockets of re-growth and remnant forest, surrounded by mountains consisting largely of secondary, evergreen, semi-evergreen and montane rainforest (IUCN, 2007).

The districts of Nong and Ta oi are recognised as amongst the 72 poorest in Lao PDR and the 47 listed as priority for GoL intervention in 2003-2005. Within Nong district, 93.8 percent of villages were reported to be poor and 86 percent of all households poor, while in Ta oi, 63 percent of villages were reported to be poor and 83 percent of all households poor. The World Food Program describes Nong and Ta oi Districts as highly vulnerable to food insecurity according to indicators including rice production per capita, cropping diversity, livestock ownership, access to forested areas, access to roads and rivers, malaria incidence, UXO impact, and education.

Surveyed villages are characterised as clearly defined settlements, with villages occupying an area of between 491 and 3470 ha. Villages vary greatly in their proximity to services and community infrastructure. All surveyed villages were impacted significantly during the Indo-China war between 1965 and 1973 as a result of the presence of the Ho Chi Minh Trail which intersects the Districts. A total of 582 households containing approximately 4,016 persons were present in the twelve (12) surveyed villages. The average household size in surveyed villages is 6.9 persons per household and population density was 22 persons/km². Sex ratios in surveyed villages indicate that there are slightly more men than women in village populations, with an overall sex ratio of 1.1. According

to the results of 2009 village surveys, the populations of surveyed villages increased by 36 people in 2008 or 0.9 percent, largely as a result of natural growth with migration minimal in most villages.

The ethnic makeup of surveyed villages is divided along District lines, with surveyed villages in Nong district predominantly comprised of people from the Makhong ethnic group and surveyed villages in Ta oi district predominantly comprised of people from the Katang ethnic group. Both ethnic groups are classified as being within the Mon Khmer language family.

1.5.2 Land and Livelihoods

In recent years the Ministry of Agriculture and Forestry has commenced its LAFA program in Nong district, however in Ta oi district the LAFA program is yet to begin. Despite the fact that the villagers have no ownership on land, villagers have the right to use the land for their daily livelihood activities, particularly for agriculture practices and NTFP collection. Village surveys noted that land disputes over land boundaries with neighbouring villages are still common. Within all surveyed villages, land is held communally with the exception of rice paddies and land in the immediate vicinity of houses in the village settlement areas.

The two (2) districts are primarily dependent on a subsistence economy with agriculture as the main occupation and livelihood of much of the districts' populations, with a focus primarily on rice cultivation and animal husbandry, supplemented by consumption of Non-Timber Forest Products (NTFPs).

Analysis of available land in surveyed villages indicates that villages in Nong district have between 415.3 and 2,201 ha of agricultural land, which represents between 15.97 and 37.91 ha

per household. In Ta oi district villages have between 1486.8 and 3477.7 ha of agricultural land, which represents between 24.6 ha and 57.01 ha per household.

The two basic forms of agricultural land use in surveyed villages are rotational swidden cultivation of glutinous or sticky rice as well as other upland crops such as corn and cassava (sometimes referred to as 'slash-and-burn' or 'shifting cultivation') and rice grown in permanently cultivated fields, i.e. paddy rice.

All surveyed villages conducted swidden agriculture in 2008. It is estimated that approximately 1164 ha of swidden fields were tended by surveyed villages in 2008 and the average area of swidden fields tended in each of the twelve (12) villages was 97 ha. Results of village surveys indicate that the average yield in the two (2) districts was approximately 1,182 kg of rice per hectare. The GoL has as a policy goal to reduce, and eventually eradicate swidden cultivation in the country as a whole (Lao PDR 1997).

Six (6) of the twelve (12) surveyed villages farmed rice paddies in 2008, with a total area of 93.1 ha, predominantly in Ta oi district. The productivity of paddy fields in 2008 was less than that of swidden fields, reported at an average of 865kg/ha over the six (6) villages.

In addition to swidden and paddy cultivation, within surveyed villages, villagers establish small fenced plots for growing vegetables in the dry season along river banks and close to the small streams that are usually running through the villages or in small plots within the village settlement area.

Villages in the Project area are still highly susceptible to rice deficiency. Across all villages in Nong and Ta oi districts, on average, only 7 percent of households had an excess amount of rice for the

whole year, with 30 percent of households having enough for 9-12 months consumption, and 44 percent of villages having enough for only 6-9 months consumption. The remaining 19 percent of households only had enough rice to consume for 3-6 months. Major constraints to production of sufficient rice for the whole year's consumption mentioned during village consultations are unstable weather conditions and unpredictable rainfall and poor soil quality arising from shorter swidden rotations. As across all of Lao PDR, livestock in surveyed villages represent a source of animal protein as well as a source of cash income for buying rice during the months when there is a rice deficit. Populations of livestock in surveyed villages appear highly variable with some large decreases reported over the last year, with chicken and pig numbers particularly impacted..

Forests form a crucial economic base for rural communities in Lao PDR, particularly those located in remote areas, such as most of the surveyed villages, providing Timber Forest Products (TFPs), Non-Timber Forest Products (NTFPs) for household consumption, traditional medicines and source of cash income. Across all surveyed villages, villagers had access to 1161.8 ha of designated forest areas (Village Spirit forest, Village Conservation forest and Village Production forest), 1107 ha in Nong district and 54.9 ha in Ta oi District.

NTFPs are of crucial importance to the majority of surveyed villages, ranking from 1-3 in importance in terms of employment. Women and children were reported to play a major role in NTFPs collection, and a large range of NTFP types were collected including bamboo, rattan, wild vegetable, mushroom, wild fruit and flowers. In surveyed villages, most women reported collecting NTFPs almost daily.

1.5.3 Water Resource Use

Surveyed villages use water from a wide variety of sources including rivers and streams (e.g. Xelanong River and its tributaries); ground water wells, gravity flow water systems; rainwater tanks; and freshwater springs. Some surveyed villages reported only having access to river water for drinking. Toilets were only found in one (1) of the surveyed villages.

1.5.4 Occupations, Cash Incomes and Expenditure in Surveyed Villages

The majority of the villagers in surveyed villages are self-employed farmers who produce only enough for rice for personal consumption. A minority of villagers produce a surplus of rice which they can sell and raise livestock for sale when cash income is required. Collection of NTFPs (for consumption and sale) was also regarded as a popular occupation, as was production of handicraft work such as clothing and baskets. In 2008, the total annual income reportedly generated in surveyed villages was about 210 million LAK, an average of 17,250,000 LAK per village (USD 2,040). The main sources of cash income in all surveyed villages are from sale of livestock, sale of NTFP products and manual labour. In terms of income level across all surveyed villages, slightly more than 50 percent of the households can be categorized as low income (earning 300,000 LAK/USD 35.48 or less annually), about 33 percent of the households as middle income (310,000 LAK/USD 36.66 to 600,000 LAK/USD 70.96, and about 15 percent of the households as higher income (610,000 LAK/USD 72.14 to greater than 750,000 LAK/USD 88.71).

With the cash income that villagers earn, their main expenditure is on rice, followed by cooking ingredients (salt, MSG, chillies), and followed by clothing and medicine.

Approximately ten (10 percent) of surveyed village populations can be considered disadvantaged, either with a single female head of the household (7 percent), a household with no labour (2 percent), a household with infirm or elderly members (1 percent).

1.5.5 Housing

In the Project area, more than 60 percent of the houses are considered semi-permanent, where the main house structure is made from hard wood, with walls and roof made from bamboo, plywood, grass or zinc sheeting (Table 7-18).

The remaining houses in the Project area can be classified as temporary structures where the foundation poles are constructed of timber but the main house structure is made from bamboo and the roof constructed from thatched grass.

1.5.6 Community Infrastructure

The majority of the surveyed villages have dirt roads but only seven (7) of the twelve (12) villages have all year access, with the others impacted by flooded streams and impassable road conditions. Accessing two (2) surveyed villages Ban Houp and Ban La-ou is impossible all year round by car as the villages are located in very remote areas. Most villagers acknowledged an improvement in road infrastructure in recent years.

For electricity infrastructure, the only surveyed village with access to electricity is Ban Houkayo in Ta oi district, where 60 percent of the households are able to access the grid.

1.5.7 Cultural Heritage

The most important cultural sites present in the surveyed areas are the cemetery and spiritual sites and caves. The majority of the villages surveyed have more than one (1) cemetery usually located within the village boundaries no more than three (3) km away from the village centre. Some of the cemeteries are also co-located within spiritual sites and village protected forests. Other spiritual sites typically include unique natural features, such as caves, rocky outcrops, grasslands, or water sources, which through the course of generations have become part of the cultural landscape for the local villages.

1.5.8 Health

Within surveyed villages, using results from village surveys, the crude death rate was calculated at 13.74 per 1000 inhabitants during the year preceding the survey, 13.47 per 1000 inhabitants in Nong district and 14.03 per 1000 inhabitants in Ta oi. Within surveyed villages in Nong and Ta oi districts, the major cause of death reported over the last five (5) to ten (10) years was diarrhoea followed by dengue and malaria.

Health facilities in the surveyed villages are very limited. None of the twelve (12) villages surveyed had a Health Centre, with facilities at the village level limited to a village medicine box overseen by a village health volunteer, supplemented by irregular visits by District health teams. In the absence of formal medical facilities, sick villagers were reported to generally seek treatment at home using traditional medicines mostly taken from roots of specific plant types or in the village with the assistance of the village health volunteer, or where possible (due to short distance), visit the District hospital.

1.5.9 Education

Levels of formal educational achievement among adults in the surveyed villages are very low with 80 percent of the population of education age reported as having no educational qualifications at all. More women were reported as having no education (88 percent) than men (80 percent). The low levels of educational qualifications in most surveyed villages have resulted in correspondingly low rates of literacy within surveyed villages of 39 percent. Fewer women were literate (9 percent) than men (65 percent).

Large numbers of children in surveyed villages were still reported as not attending school, largely due to poverty related factors such as children having to help with family housework, farming activities and income generating activities. The lack of teaching and learning material is a further factor restricting children from attending school.

Every surveyed village has a primary school, either within their village settlement area or within a short distance (<100m) of the village. Primary schools mostly only provide an education up to grade 2 or 3 level. School facilities are limited in their facilities and many lack basic equipment such as blackboards, desks and chairs.

1.5.10 UXO

The Project area is characterized as an area highly contaminated by UXO. In Nong district, the World Food Program ranked the UXO impact as moderate at 4.1, while in Ta oi the district was considered to have a high rating of 6.1 (WFP, 2005). In surveyed villages, the presence of UXO was acknowledged by all villagers. There has been previous UXO clearance in ten (10) of the twelve (12) surveyed villages by government

and NGO clearance teams as well as more recently by the Project. Ban La-ou and Ban Houph are the only two villages where land has not yet been cleared. Across all surveyed villages there have been 50 UXO incidents over the past three (3) years, including 28 deaths and 22 injuries.

1.5.11 Gender Issues

In terms of women's role in agriculture and management of the household, women in surveyed villages reported participating in land preparation before cultivating, sowing agricultural crops, weeding and harvesting. At the household level, women must also collect water for household consumption or usage, collect firewood or fuel and take care of small livestock. Women also take the role in marketing, selling their agriculture products, which contribute to household income in combination with selling their weaving, petty trade, wage labour and bamboo baskets where and when possible. Some women in surveyed villages also reported taking the role in handling and managing family income.

1.5.12 Other

Due to their low development status, and presence on the GoL's list of priority poor districts, Nong and Ta oi districts, have in the past, and continue to receive much assistance and support from different development Projects, from government organisations and non-government organisations.

1.6 Significant Social and Economic Impacts and Development Considerations

1.6.1 Impacts on Agriculture

In the Pilot phase, the Project acquired an estimated 257 ha of land in seven (7) villages, 180.8 ha in Nong district and 76.2 ha in Ta oi district. This area accounts for between 1.1-6.3 percent of available agricultural land of three (3) villages in Nong district and between 0.5-1.8 percent of available agricultural land of a further four (4) villages in the Ta oi District. Simple comparison of the area required to enable swidden agriculture to continue at current levels (14 ha) with the area of agricultural land remaining in each village suggests that all of the villages continue to have sufficient agricultural land and that Pilot phase plantations are unlikely to have reduced swidden agricultural production in surveyed villages. .

Despite this apparent availability of agricultural land, during village surveys two (2) of the villages (Ban Takor and Ban Tamlong) noted that they are currently constrained by a land shortage, and that they felt that as a result of the Project villagers now have less land to use for shifting cultivation.

This apparent discrepancy between calculations on paper and reality on the ground in the villages is an important issue for the Project to resolve. One way that this can potentially be achieved is through adopting more detailed land use assessments at the village level and classifying village agricultural land into areas currently used for shifting cultivation, potential shifting cultivation areas and other areas.

The intercropping scheme introduced by the Project has had the following positive benefits:

- Anecdotal evidence of positive impacts on crop production, labour savings for participating families.
- Some evidence of farmers adopting use of improved farming systems outside the land allo-

cated for intercropping and obtaining improved production levels.

- During the village surveys, villagers in Ban Takor expressed their desire for continued and expanded participation in the intercropping scheme suggesting villager satisfaction with the results of the scheme.

There are concerns with the intercropping model, which relate to the issues of trials being conducted at the wrong time of year and resulting in poor yields. There are also requests from villages that this scheme is expanded to allow them to share in the benefits of the trees once harvested.

Potential limitations include the reluctance of some villagers to take up the scheme due to their risk-averse nature, thereby threatening the sustainability of the scheme.

Impacts on livestock production have been minimal as the agricultural land acquired represents an insignificant proportion of the total land available for grazing. Some villages have benefitted from purchase of vaccinations for their livestock through the Village Development Fund (VDF).

It is important to note that the exact location of feasibility and project implementation phase plantation areas is not yet certain and is subject to change depending on the outcome of discussions with potentially impacted villages, and agreement from these villages and the District government authorities to proceed with plantations in these areas.

In the feasibility phase, based on information provided by Stora Enso in March 2009 (and subject to the above qualification), an estimated area of 2022.4 ha will be impacted in nine (9) villages. This includes 1210 ha in Nong district and 813 ha in Tao-oi district, representing between 9.7 and 27.2 percent of available agricultural land

of five (5) villages in Nong district and between 3.2 and 17.9 percent of available agricultural land in four (4) villages in the Ta oi District. The most affected villages include Ban Loe (27.2 percent) and Ban Houp (26.7 percent) in Nong District and Ban Kang (17.9 percent) and Ban Lapeung (12.8 percent) in Ta oi District. After land acquisition eight (8) of the villages surveyed will still have more than the 14 ha per household required for a full seven (7) year rotation, suggesting that these plantations are unlikely to directly reduce swidden agricultural production in these villages. Ban Sa-loi Mai, with an estimated 12.8 ha of agricultural land per household remaining after development of the feasibility phase plantations, will not have enough agricultural land to complete a full seven (7) year swidden rotation.

The acquisition of swidden agricultural land is likely to increase pressure on remaining agricultural land. This will exacerbate the existing pre-Project trend towards shorter rotational cycles and reducing productivity of the remaining agricultural land with potentially adverse impacts on future food security, particularly as village populations and household numbers increase over time. Villagers noted that shorter rotations reduced yields, led to poorer soil quality and increased weed growth.

Additional areas of agricultural land are likely to be acquired to make way for enlarged road right of ways to accommodate greatly increased traffic.

It should be noted that reduction of the area of swidden agriculture across the two (2) districts, in favour of more permanent forms of agriculture is consistent with the policy of the Government of Lao PDR as noted in their Sixth National Socio-Economic Development Plan 2006-2010.

The Project proposes to enable villagers to plant agricultural crops within rows of the eucalypt trees through its intercropping system. For indi-

vidual villages in the Project area, this equates to average intercropping areas ranging in size from 15.9 to 80.5 ha in Nong district and 11.8 to 29.7 ha in Ta oi district per year. In terms of intercropping area available per household per year, this ranges 0.4 ha per household in Ban Choravieng to 2 ha per household in Ban Houp:

Potential positive impacts on agriculture in the Project Area include:

- Project experience and experience elsewhere (e.g Thailand) indicate that intercropping has the potential to generate significant benefit for local farmers through improved levels of production;
- Increased agricultural production in the area through additional markets for food, improve roads leading to enhanced availability of agricultural inputs, improved access to markets and access to previously inaccessible land;
- Initiatives funded through the VDF have the potential to increase rice quantities and quality of product for sale and result in higher incomes for villagers; and
- Positive impacts on livestock are likely to result from initiatives introduced through the VDF such as inoculations programs as well as through increased cash incomes associated with the Project, which can be expected to be directed to purchases of livestock and subsequently leading to increases in the size of village livestock herds.

Potential negative impacts on agriculture in the Project Area include:

- Labour shortages as employment with the Project conflicts with the traditional agricultural cycle;
- Increased risk of livestock death through road accidents and livestock theft as roads are im-

proved and access to village areas improves; and

- Reduction in grazing areas surveyed, particularly impacting villages with large livestock populations and relatively small areas of agricultural land (e.g Ban Saloy Mai and Ban Loe).

Potential measures to address negative impacts on agriculture in surveyed villages, and enhance the positive impacts of the Project include:

- Continue to employ full time skilled extension and agribusiness officers to support the transition from swidden to intercropping for rice sufficiency and production of cash crops. These technical staff should be engaged until villagers are confident in the application of the new farming systems being promoted through the intercropping scheme;
 - Consider implementation of a microcredit scheme for villagers participating in the intercropping scheme;
 - Consider the implementation of a purchasing system for cash crops and eventually rice surplus products produced by farmers through the intercropping scheme;
 - Carry out cost-benefit analysis considering various productivity/output scenarios to demonstrate if this actually contributes to improving livelihoods/food security over, at the very least, the 7 year rotational cycle – this should be carried out in the second phase of the SIA.
 - Incorporate support for village livestock production recognising the importance of livestock and their current susceptibility to disease;
 - Develop an equitable compensation scheme based on a Compensation framework for the Project which is consistent with Lao Decree PM192 Compensation and Resettlement;
- Regulation 2432 Compensation and Resettlement; and Guidelines for Compensation and Resettlement and the IFC Performance Standard 5, Land Acquisition and Involuntary Resettlement;
- Under the Compensation framework, provide compensation for all agricultural land acquired or disturbed as a consequence of Project development. The Compensation framework would include (i) identification of all affected people at the household level; (ii) registration of affected assets; (iii) describe methods applied for valuing land and other affected assets; (iv) describe compensation entitlements and rates to be paid; (v) outline of schedules for land acquisition and compensation payments; (vi) descriptions of the process whereby people can appeal property valuations which they deem to be inadequate;
 - The Compensation framework would provide a means of bringing the different components of Stora Enso's social mitigation program (intercropping scheme and Village Development Fund) into a more formal structure to show explicitly how the Project's approach to social mitigation meets the requirements of Lao Decree PM192 and IFC Performance Standard 5;
 - Reduce the indirect land impacts resulting from increased population by working with the District Government and village chiefs to develop an in-migration and population management strategy;
 - Minimise the duration of exclusion zones in plantations for livestock;
 - Consider development of improved forages for livestock herds and appointment of a vet to conduct routine inoculations in Project villages;

- Install appropriate drainage erosion and sediment control structures to stabilise cleared land and prevent impacts on adjacent and downstream land areas; and
- Limit construction of roads on other agricultural land in the Project area.

1.6.2 Impacts on Forest Resource Use

Impacts on forest resource use to date have been minimal due to the small land areas acquired in each village in proportion to the total amount of forest land and Stora Enso's policy of avoiding designated forest areas. Some negative impacts on villagers' forest resource use were reported in two (2) villages as a result of the Project's acquisition of degraded forest areas including villagers having to walk further to access firewood/NTFPs and additional pressure being placed on remaining forest areas.

The Feasibility and Project Implementation phases of the Project, similar to the Pilot phase, are not expected to impact directly on village use of designated forest areas within the Project area.

Potential positive impacts on forest resources in the Project Area include:

- Reduction of villager's dependence on NTFPs as a source of food, pressure on forest resources to supply NTFPs and pressure to clear regenerating forest due to the intercropping scheme and project based employment which will potentially provide an alternative source of cash income; and
- Reduction in use of natural forests as fuel sources as off cuts from forest harvesting activities become an important alternative fuel supply for local residents.

Potential negative impacts on forest resources in the Project Area include:

- Some impact on villager collection of timber and NTFPs from villager's loss of access to degraded forest areas outside designated forest areas;
- Indirect impacts on designated forest areas as a result of increased usage pressures as degraded forest areas are replaced with plantations;
- Increases in conflict between villages surrounding designated forest areas which are in dispute as more people become dependent on these disputed forest resources;
- Increases in noise, vibration and dust associated with Project vehicles results in a further decrease in the success of hunting efforts as wildlife move to areas outside the Project area; and
- Increased trade in NTFPs to outsiders due to the improved road network.

Potential measures which the Project can introduce to address negative impacts on forest resource use in surveyed villages, and enhance the positive impacts of the Project include:

- Develop an equitable compensation scheme to offset the loss of livelihood derived from forest resources. These programs would be identified in the Project's Compensation framework and could include livelihood assistance to restore income generating capacity and improve natural resource management through skills transfer between the Project, District government and local communities;
- Clearly communicate to local communities and heads of affected villages the extent of land to be acquired for the Project;

- Minimise the extent of land acquisition, and subsequent impacts on degraded forest areas; and
- Continue to investigate the potential for the Project to support the commercialisation of NTFPs by impacted villagers.

1.6.3 Impacts on Water Resource Use

No major impacts on water resource use as a result of the Pilot phase activities were identified through village surveys, either for drinking/ other potable uses or use for stock watering or fishing. This is presumably due to the small area of plantations established to date and the Project's policies of not clearing land within 30 m of water bodies and careful procedures of management of agricultural chemicals. The extent of any changes in water quality or quantity as a result of establishment of the Pilot plantations, however, cannot be quantified due to the lack of baseline water quality/hydrology data prior to plantation establishment.

Results from village interviews have noted the following issues regarding water resources:

- Villagers from Ban Takor noted a decline in the number of fish in the stream near the plantation site on their village's land. They were not sure whether this was attributable to the Project or other reasons (e.g. increased numbers of fishers).

In subsequent phases the Project has the potential to adversely affect the amenity of downstream surface water resources including adverse surface water quality impacts from erosion of disturbed soils, runoff of chemicals, drainage from

fuel facilities and through accidental release. A significant degradation of surface water quality could compromise the ongoing use of downstream surface water by villagers.

Potential positive impacts on water resources in the Project Area include:

- Impacts on the quality/quantity of village water resources from VDF investments.

Potential negative impacts on water resources in the Project Area include:

- Impacts on the quantity of surface water and groundwater flow which could compromise the ongoing use of downstream surface water by villagers. The likelihood of these impacts has been assessed by a separate study conducted as part of the overall ESIA.

Mitigation measures to safeguard the amenity of water resources include:

- Continue to ensure that all plantations are located 30 m from water sources;
- Implement erosion and sediment control measures throughout the Project area;
- Conduct a baseline surface and groundwater water quality/hydrology assessment prior to plantation establishment and conduct regular follow up monitoring;
- Provide alternative sources of water where monitoring suggests that the amenity of existing sources is impacted by Project development;
- Appropriately manage the transportation, stor-

age and use of hazardous materials; and

- Implement an appropriate storm water management and land rehabilitation program.

1.6.4 Impact on Employment and Cash Income

The Project has provided a variety of temporary employment options to local villages in the pilot stage and a further ten (10) villagers have been employed on a permanent basis as plantation guards. Due to the large numbers of people carrying out temporary employment tasks, the number of days work obtained by each household was limited. In terms of economic benefit from the pilot phase, benefits appear substantial in relation to current levels of cash income in surveyed villages and equivalent to approximately three (3) years cash income in each surveyed village. Villagers noted that income obtained from the Project was used most commonly to purchase rice, other food products (e.g. salt/seasoning) and clothes.

Stora Enso estimates of the monetary value of employment generated during the Pilot phase suggest that USD 193,277 was paid to daily labour and locally contracted workers and trainees. An additional USD 18,000 of employment income was generated from local labourers employed by the UXO clearance contractor PCL for clearing bushes and removing stumps. An undisclosed amount of employment income was generated from the employment of the Project's 40 permanent Lao employees.

A benefit of subsequent phases of the Project will be the injection of wage income into the local area, resulting in overall improvements in food security and health. Additional benefits to local villagers are likely to result from training op-

portunities provided by the Project. Experience from other Projects in Lao PDR indicates that if it's not managed properly, employment can also be a major source of grievances and even conflict between the Project and local communities.

Based on estimated Project labour requirements, the feasibility phase of the Project will create an average of 40,128 days of employment per year or an average of 106 days of employment per household per year with an approximate value of 1 billion kip (USD 116,945) per year or an average of 2,219,486 kip (USD 261) per household – a six (6) times increase from the current average of USD 42. Additional employment will be provided by contractors hired to undertake UXO clearance, companies contracted to transport harvested timber and some further permanent employment for plantation guards and Project administration staff. Some potential negative impacts include:

- Inter and intra village conflicts or conflicts between villages and the Project if employment opportunities are perceived as being unfairly unallocated;
- Frustrations and potential conflict with the Project if local workers are precluded from skilled or more permanent positions with the Project due to inadequate levels of education and employable skills. Experience in Lao PDR on other infrastructure projects suggests that this could lead to potential criminal activity (e.g. damage to equipment or blockage of roads) as a result of these frustrations;
- Conflicts occurring within families as a result of changes to the family dynamics as a result from employment of women;
- Localised price inflation for food and other essential items due to the rapid growth of a wage

economy may result in placing non-participants at a disadvantage;

- Uneven sharing of employment benefits with some households doing very well while others will not benefit;
- Frustrations arising from the low levels of employment generated by the Project and the periodic nature of the work, especially in the first seven years of the Project when the plantations are being established and harvesting of trees (requiring additional employment) is yet to occur;
- Increased cash incomes generated from the Project are not spent appropriately;
- Project contractors do not comply with Lao law/international labour standards;
- Issues of child labour arising; and
- Labour shortages to occur in villages in the vicinity of the Project area, as younger people seek employment with the Project.

Mitigation measures to enhance the positive impacts on employment and cash income associated with the Project and minimise potential negative impacts include:

- Development and implementation of a recruitment policy which maximises local participation in the Project;
- Maintain recruitment practice that is equitable between genders and across ethnic groups;
- For permanent positions, the Project should develop a policy of localisation;
- Coordinate with the District Census staff to develop comprehensive village lists for each impacted village;
- Acknowledge the traditional seasonal calen-

dar and avoid planning activities in period of high labour input;

- Consistent with Stora Enso's CSR policies, the Project should;
 - o Institute pre-employment training programs, apprenticeships and educational programs for local residents;
 - o Provide continuous training and development of local employees (including training in budgeting and management of increased levels of cash income);
 - o Develop a clear communication policy regarding employment;
 - o Regularly monitor employment statistics and socioeconomic conditions in local villages to ensure effectiveness of employment management measures; and
 - o Through the VDF, improve sustainable livelihoods in the local communities to ensure that non-employees are able to obtain economic benefits from the Project.

1.6.5 Impacts on Economic Development

There have been positive overall impacts on the local economy in the Project area as a result of the investment made by the Project in project infrastructure. Service businesses in the two (2) district centres will also have benefitted from increased business associated sales of supplies direct to the Project and to the Project's permanent staff. At the village level, economic benefits are also apparent as a result of Project employment. Improvements in road infrastructure as a result of Project maintenance have led to increased access to village areas by traders and increased sale of products. The VDF has provided a further

economic stimulus in some villages.

Potential positive impacts on the local economy in the two (2) districts from subsequent Project phases include:

- Increases in employment and cash income and skills development;
- Alternative livelihood opportunities such as secondary employment and business opportunities are expected to increase in villages due to the rise in agricultural production and increased cash income of villagers;
- Community development initiatives such as the VDF and the intercropping scheme;
- Improved access to resources and infrastructure through an improved road network; and
- The proposed life of the Project (50 years) also offers several potential benefits from an economic perspective.

While economic growth in the local communities will have obvious economic benefits, it also has the potential to have adverse impacts on local communities, such as:

- Transfer of local authority from traditional elders; and
- There is a risk that many of the potential economic benefits arising from the Project will be exported from the Project area as wood is harvested and sold to other parts of Lao PDR and neighbouring countries in the Feasibility phase.

The potential negative impacts on economic development in the Project area can be minimised by:

- Design of a VDF which supports local development initiatives and entrepreneurial enter-

prise. The VDF should be coordinated with parallel development Projects initiated by District, Provincial and National Governments;

- Development and implementation of a procurement and supply policy for the Project, which favours local products and services;
- Regular community consultation and review of the Project's social management measures during Project implementation; and
- The further development of the out grower scheme.

1.6.6 Impacts of In-Migration

Populations in surveyed villages in the Project area are relatively stable with increases only due to natural increases and limited migration as a result of family movement.

Once Project development begins, in-migration into the Project area is likely to occur and is likely to increase gradually over this time.

All of the surveyed villages are likely to be vulnerable to in-migration, as they will be eligible for prioritised employment status from the Project. The Nong and Ta oi District centres are also likely to experience in-migration.

Some potential negative impacts surrounding in-migration include:

- Reduction in the opportunity for local people to gain employment;
- Overwhelming of existing social and economic infrastructure e.g. hospitals/schools;
- Increased pressure on the already stressed remaining agricultural land and NTFPs;
- Social disharmony and conflict between original residents and incoming migrants;

- Gender imbalance;
- Increased risk of introduced diseases, especially those transmitted sexually;
- Insensitivity to local cultural and environmental values; and
- Inflation in the cost of goods for non-workers.

Relatives of those living within the area holding relevant Project skills, existing retail traders and other service providers (provided that it does not also result in increased competition) may benefit from in migration.

Migration into the Project area by workers seeking employment with the Project needs to be managed in a manner that does not introduce new environmental and social issues.

The following policies and practices should be implemented by the Project:

- Continue to implement a preferential recruitment strategy aimed at minimising any influx of job-seekers and ensure all Contractors use similar recruitment strategies;
- Liaise with District government officials on issues of in-migration and support and where practicable support government mitigation measures;
- Develop an In-migration Management Policy in coordination with District officials;
- Develop and resource a Community Relations Department responsible for the continual disclosure of Project information and consultation with the local community;
- Develop a Procurement and Supply Policy which rewards suppliers in the broad area surrounding the Project and along transport and haulage routes;
- Develop and enforce rules of employment with regards to Project workers' interaction with local communities;
- Implement a social and environmental induction program to educate outside contractors on the cultural and environmental sensitivities of the Project location; and
- Continue to conduct biennial household surveys to improve understanding of the extent of in-migration and the problems that it may cause.

1.6.7 Impacts on Community Health and Safety

Positive impacts on community health and safety identified to date include:

- Increased access to health facilities in the District centres of Nong and Ta oi through improvements to road networks;
- Anecdotal evidence of improved health status of the permanent employees (e.g. plantation guards) who receive access to free medical care;
- Anecdotal evidence of improved health awareness in surveyed villages through the village health worker program implemented by the Project;
- Isolated cases of injuries as a result of accidents during forest clearance activity; and
- Impact of the acquisition of agricultural land on food security and nutrition.

Potential positive impacts on health from subsequent Project phases include:

- Improvements to the road network are likely to facilitate easier access to healthcare centres,

and improvements to road surfaces could lead to dust pollution control;

- Increased levels of cash income are likely to increase access villagers' ability to pay for access to health facilities and their ability to purchase medicines; and
- Improvements of community infrastructure such as improved water and sanitation are likely to lead to further improvements in the health status of local populations.

Potential negative impacts on health include:

- Impacts on food availability and nutrition due to reduced productivity levels of remaining agricultural land. The intercropping scheme has the potential to compensate for this but changes in food availability and nutrition at the household level (especially with vulnerable groups) need to be monitored closely to ensure that this is in fact occurring;
- Impacts on the price of foodstuffs due to rapid increases in the population of villages surrounding the Project site; and
- Impacts on community safety due to increased use of the plantation roads and roads joining districts in the Project area by heavy vehicles.

Additional health issues relevant to the Project include:

- A potential increase in sexually transmitted infections (STIs) resulting from in-migration;
- Increased exposure to the threat of trafficking in women and associated with Project road upgrades;
- The potential impacts of malaria on the Project workforce and local community as the population density in the Project area increases;

- Off-site pollutants from the Project area could potentially have health impacts on downstream communities by introducing new pathways for disease vectors;
- Noise and air quality disturbance from forest harvesting, road transport and wood processing (during the Project Implementation phase); and
- Occupational health and safety issues associated with core activities such as bush clearance, UXO clearance, tree harvesting and wood processing.

Potential negative health and nutrition impacts associated with the Project can be mitigated if the Project adopts a pro-active stance to prevention including:

- Continue to implement the Project's village health worker program;
- Develop a health management strategy to prevent the introduction and spread of STIs (especially HIV/AIDS);
- Implement anti people trafficking education in vulnerable communities and support GoL enforcement of existing legislation through police checkpoints etc;
- Develop a program to prevent and control malaria and dengue and the presence of other water-borne disease vectors;
- Provide health care services for permanent Project employees and first aid/medivac capabilities for all employees;
- Use the Village Development Fund to support improvements in health care facilities;
- Use the Village Development Fund and intercropping scheme to increase the food security and nutrition status of impacted villages;
- Appropriately manage waste water arising

from Project facilities;

- Applying water suppression to control loose materials on the road during construction;
- Develop appropriate indicators of health and nutritional status amongst the workforce and local community and regularly monitor these indicators;
- Implement measures to reduce noise impacts on local communities; and
- Develop a monitoring mechanism to monitor noise levels in the villages.

Mitigation measures to safeguard against adverse impacts on community safety from increased road usage include:

- Implement traffic safety awareness programs for villagers in collaboration with Provincial and District government;
- Implement measures to ensure truck driver safety;
- Provide alternative access arrangements in consultation with affected communities;
- Incorporate safety signage and pavement markings for upgraded road sections;
- Implement strict management of vehicle and equipment noise;
- Assess the requirement for haulage vehicles to move in convoy preceded by an escort 'warning' vehicle;
- In cooperation with GoL and Provincial/District authorities, the Project should monitor and report on accident rates;
- Develop appropriate environmental emergency response procedures for accidents; and
- Develop a Social Management and Monitoring

Plan (SMMP) identifying mitigation measures for each predicted social impact.

1.6.8 Impacts on Education

The Project appears to have had an impact on education in communities in the Project area largely through investments made through the VDF, which has education as one of its key focal areas. Seven (7) of the villages that have access to the VDF have used funds for educational purposes.

The Project is likely to bring educational benefits including:

- Further access to improved educational resources such as schools through the VDF;
- An increase in employable skills among the local population;
- Increased school attendance rates as more parents can afford to send their kids to school, and buy school uniforms/books; and
- Improved access to primary schools in neighbouring villages and secondary school in the District centres.

Potential negative impacts on education status in subsequent Project phases include:

- Difficulty in sourcing skilled workers and sufficiently educated employees;
- Resentment by the local population if employment preference for permanent skilled positions is given to non-local residents; and
- Potential increase in child labour as parents remove their children from school to work in plantations.

Experience in other Projects in Lao PDR has shown that impacts can be managed by:

- A recruitment policy which favours members of the local population;
- A training policy which encourages and facilitates the career development of local employees; and
- Continued investment in education in the local communities through the VDF.

1.6.9 Impacts on Cultural Heritage

Impacts on cultural heritage identified to date have been minimal due to the small area of land acquired and the care taken by the Project in delineating spirit forests and other important areas. It is also possible that impacts have occurred but were not reported due to the low level of awareness by Project employees.

Potential impacts on the cultural heritage in subsequent phases include:

- Theft or vandalism of cultural heritage that is in publicly accessible places; or increase trade and dispossession of movable artefacts due to improved road access;
- Loss of local languages/dialects as villagers are exposed to the influence of outsiders and mainstream Lao/Thai culture;
- Disturbance/violation of cultural sites (cemeteries/spirit forests);
- Loss of interest in traditional ceremonies/rites/traditions; and
- Disturbances to chance finds during construction of the processing facility.

Mitigation measures to safeguard the physical integrity and amenity of cultural sites should include:

- Provide adequate buffer zones between Proj-

ect facilities and sites of cultural value;

- Provide culturally appropriate compensation for any potential disturbance to sites or artefacts of cultural heritage;
- Engage the services of a Lao cultural resources expert to assist in the implementation of an awareness program with villages in the Project area;
- Develop a Chance Finds Procedure for sites and artefacts of cultural significance and incorporate this into the Project procedures manual;
- Engage the services of a Lao archaeologist to assist in the implementation of the Project's Chance Find Procedure including providing training to the Project's workforce;
- Acquire, on behalf of the GoL archaeological artefacts owned by the villagers before they are sold to antique dealers; and
- Provide resources to improve the system of cultural heritage management at provincial, district and village levels.

1.6.10 Impacts on Vulnerable Groups

Impacts to women as a result of the pilot phase of the Project include:

- Increased labour burden on women who now have to walk further, and spend more time looking for NTFPs; and
- Issues of women from several villages not being involved with decisions regarding allocation of the VDF.

Potential impacts on vulnerable groups in subsequent phases include:

- Increased levels of education, employment

opportunities and health and sanitation service for women leading to improvements in women's status;

- Women's benefits from improved access to markets to sell locally produced garden products, NTFPs and handicrafts and purchase of household goods; and
- Reduction in women's labour as electricity and other community infrastructure such as pumps, water pipes, rice mills and electricity generators reach the villages.

If not managed appropriately, the project has the potential to exacerbate problems in the area generally, and specifically enhance gender inequalities. Women are also more at risk from any potential introduction of STIs (including AIDS) from migrant workers, and are likely to be particularly impacted by changes to routines and socioeconomic circumstances within households.

Potential impacts on poor people in communities include acquisition of agricultural land associated with the Project area is likely to have the greatest impact on poor families, as the poor are often most dependent on NTFPs that these areas formally provided. Poorer households will also typically rely heavily on upland fields for the production of their staple food. The poor are also often the most risk averse and reluctant to take on new agricultural techniques (e.g intercropping) as they have fewer resources to fall back on in case of failure.

The elderly, infirm and disabled are particularly vulnerable to changes in socioeconomic conditions and livelihood activities such as those associated with reduced forest productivity or reduced productivity of agricultural resources and they often have reduced capability to forge a new lifestyle and accept changes to routines.

Mitigation measures to ensure vulnerable groups are not disproportionately impacted by the Project include:

- Ensure equity in employment programs to ensure that women, poor families and the elderly and disabled also receive access to employment;
- Ensure equity in the design and implementation of livelihood compensation programs, in intercropping scheme activities and Village Development Fund;
- Allow special consideration for single-headed households and the poorest households of surveyed villages to ensure that these households are not lost in the development process;
- Establish a Village Development Committee to oversee the VDF which will include full representation of women currently excluded from the decision making processes; and
- Target innovations at activities that are the responsibility of women such as small livestock.

1.6.11 Other Impacts

Other issues arising include:

- Communication issues. There appears to have been cases of miscommunication between the Project and local villages regarding issues such as duration of the land rental agreement for plantations in each village and the process for accessing the VDF monies.

Similarly, there seems to have been inconsistencies in the amount of information that villages have been provided about the positive and negative aspects of the Project, compensation which will be provided, as well as information provided regarding the village's right to refuse to participate in the Project.

- Varying capacity of village leadership. Village chiefs appear to vary greatly in their capacity to represent their village and presumably negotiate with the company for their land, mitigation measures and access to sustainable development opportunities.
- Village Development Fund. A VDF has been established in the Pilot phase, providing 30,000 kip per hectare per year (USD 3.55) to impacted communities for use on agreed community development activities.
- Organise a training course to develop the capacity of Project (and District) field staff in working with ethnic minority groups;
- Develop a communications pack which details how Project staff should communicate with villagers at different times throughout the Project cycle; and
- Develop a conflict register to ensure all conflicts between the Project and local villages are established in a transparent/open fashion.

Some comments from villagers regarding implementation of the VDF included concerns regarding the amount of the VDF, which many villagers noted that it is insufficient to support bigger investments in key village infrastructure. Some villagers noted their concerns about the complicated and time consuming administrative process that has to be undertaken to access funds. This process has been established by Stora Enso to ensure consistency with the District development plans and the work of other NGOs in these villages.

The issues identified above in the Pilot phase are likely to continue and be exacerbated in the Feasibility and Project Implementation phases as the area of plantations increases in individual villages and the number of villages participating in the Project increases.

Mitigation measures to address other impacts include:

- Capacity building activities targeting Village development committees and village chiefs;
- Ensure Katang/Makhong interpreters are always used when consulting with local villages to reduce the chance of miscommunication. It should be noted that it is difficult to find translators of these two (2) languages in the two (2) districts with the prerequisite translation skills;

1.6.12 Preliminary Cost Benefit Analysis

A preliminary cost benefit analysis has been prepared to compare the economic costs and benefits of the project's feasibility phase plantations on impacted villagers in the twelve (12) surveyed villages. Results of the analysis suggest an over project benefit (including national benefits across all twelve (12) surveyed villages of USD 312,316 compared to the business as usual situation without the Project. Excluding national level benefits of the land rental fee (USD 20,344), villages will receive a net benefit from the project of USD 291,973 or USD 24,331 per village.

1.7 Project Alternatives

The development of the Project can be considered from three policy option alternatives.

1.7.1 Not Proceeding with the Project Direct Impacts include:

- Land acquisition and potential impacts on swidden field agricultural productivity and NTFP collection will not occur;

- Any concerns about issues such as acquisition of agricultural land, livelihood impacts, increased traffic and influx of non-local people during and after the Project construction and implementation would be alleviated;
- No opportunities to benefit from increased agricultural productivity, modernised agricultural techniques and improved rates of rice deficiency and overall food security;
- No opportunities for villagers to obtain project based employment and a regular source of cash income;
- No opportunities to realise community benefits (including benefits to education, health and agricultural diversification) through the VDF;
- 35000 ha of potentially economically important land would not be cleared of UXO and would remain hazardous for villagers; and
- The broader direct benefits to Lao PDR, including taxes, royalties, training would not be realised.

Indirect impacts:

- Not proceeding with the Project would mean that the villages will continue to be dependent on agriculture and exploitation of forest products for raising cash income;
- Not proceeding with the Project would make it more difficult for the GoL to achieve its objectives relating to reduction of swidden agriculture, and the NGPES;
- The development of businesses and indirect work opportunities to support the Project and improvements in skills of villagers through on the job and formal training;
- The health and education (including literacy levels) status of villagers are unlikely to

change;

- The low development status of women in these villages is unlikely to improve without the Project and potentially worsen; and
- Improvements in community infrastructure such as roads and power are unlikely to occur.

1.7.2 Alternative Plantation Models

One alternative to the current plantation model is direct acquisition of a smaller area of land and the development of an out grower scheme.

The potential benefits of this alternative model are:

- Increased share of Project benefits to villages participating in the Project from sale of harvested trees;
- Improved support for the Project and increased willingness on behalf of villages to agree to provide land to the Project;
- A greater incentive for long term participation of villages in the Project as project partners and thus greater economic sustainability for the Project;
- A share for villagers in the increased land value and land capability associated with UXO clearance of this land; and
- Consistency with GoL policy including the National Socio-Economic Development Plans.

Constraints of this model include:

- Current capacity and financial constraints on behalf of villagers to independently establish and maintain plantations on their own land;
- Costs associated with clearance of UXO on villagers land;

- Current constraints of lack of land title for villagers over traditional village lands and the implications of this for investments in eucalypt plantations on this land;
- Reduced economic return for Stora Enso potentially affecting the viability of the Project; and
- Reduced resource security for Stora Enso.

1.7.3 Implementing the Project in a Sustainable Manner as per the Project Description

The socioeconomic impacts of this Policy option have been analysed, quantified and assessed in Chapter 8 of this report.

1.8 Social Management and Monitoring Plan

1.8.1 Social Management System

The Project should implement a Social Management System that is consistent with international standards (i.e. ISO14001) to provide a procedural framework for implementing, achieving, reviewing and maintaining the company's social policies and all social management targets.

1.8.2 Social Management and Mitigation Plan (SMMP)

It is recommended that a detailed SMMP is prepared as a separate document as part of Stage 2 of the SIA. The SMMP will provide a framework for developing flexible and readily updateable management procedures within the Project's formal Social Management System. The SMMP provides a link between policy and implementation, essentially acting as a planning document,

summarising social commitments (as outlined in the eventual full ESIA) and providing the management measures and monitoring programs to be undertaken to achieve these commitments. The SMMP could be integrated with an Environmental Management and Monitoring Plan and the resultant Environmental and Social Management and Monitoring Plan (ESMMP) would outline the proposed management and monitoring strategy for establishment and operation of the Project.

1.8.3 Auditing and Review

The Project should regularly commission routine internal and independent external audits of the ESMMP and environmental/social management system. Audits will investigate:

- The appropriateness of the ESMMP to the current development stage and operating practices of the Project;
- Workforce awareness of the ESMMP and all associated plans and procedures;
- The performance of managers and operators in implementing and maintaining the ESMMP strategies; and
- Whether sufficient time, resources and expertise are available for implementation of the ESMMP.

All audit recommendations will be discussed with the relevant Project managers.

Independent external audits should be conducted on an annual basis for the first two years of operation. The frequency of subsequent audits will be based on the results of the initial audits. Further, on a monthly basis, the Project should review social performance against the 'Continuous Improvement Targets' listed in the ESMMP. Key performance indicators will be developed to en-

able social performance to be assessed objectively and quantitatively.

1.8.4 Monitoring Plan

Social monitoring is integral to the avoidance, mitigation and management of Project impacts and required to identify and quantify the direct and indirect impacts of the Project on the surrounding community. The objectives of the social monitoring program are to:

- Provide early warning of potential impacts, validate impact prediction and identify any unforeseen impacts associated with Project activities;
- Confirm whether or not the Project is in compliance with relevant legislative and licensing commitments and the mitigation and management measures;
- Provide feedback on the adequacy of management measures and allow improved practices to be developed to continuously improve operations; and

- Detect and measure socioeconomic trends or changes and enable analysis of their cause.

Social monitoring for the Project should include:

- Monthly monitoring of: Local workforce statistics; Compensation payments; Local goods and services procured by the Project; and Road accidents involving Project staff (including contractor staff) and Project vehicles and local villages; and
- Annual monitoring of: Population growth rate; Extent of in-migration; Birth and death rates; Local attitudes toward the Project; and Incidence of sexually transmitted infections (STIs) and health statistics.

Additionally, all community grievances filed with the company should be recorded and addressed at weekly management meetings.



2 Recommendations

2.1 General

1. Implement the social mitigation measures as presented in this Report in conjunction with the Project's Procedures Manual and Stora Enso's Social Policies.
2. Ensure that all social mitigation measures are implemented in a manner that is consistent with Government of Lao and IFC/World Bank standards, particularly those relating to compensation for land acquired by the Project.

2.2 Impacts on Agricultural Land Use

3. Conduct further detailed land use classification of agricultural areas within target villages prior to feasibility plantation establishment. This classification should be carried out to classify available agricultural land into current and former swidden agriculture land. Resulting land use maps should be ground truthed and independently checked.
4. Review through cost-benefit analyses, the effectiveness of the intercropping scheme during the Pilot Phase to demonstrate if this actually contributes to improving livelihoods/food security over, at the very least, the seven (7) year rotational cycle, and develop a plan for offering and improving a similar system during the Feasibility Phase. This should be carried out in the second phase of the SIA.
5. Use the updated land use maps to analyse the

area of swidden agriculture currently used by households in each village per year and use this data to plan the final allocation of Feasibility and Project Implementation phase plantations across the target villages. At minimum, the Project should reconsider the allocation of Feasibility and Project Implementation phase plantations to ensure villages have enough agricultural land to allow a full seven (7) year rotation.

6. Conduct a detailed land and asset baseline study to register the nature and extent of impacts at the household and community level to assess appropriate compensation measures in advance of land acquisition. The scope of this study should include community level registration of swidden production.
7. Develop a dialogue with relevant Lao government, agencies and donors (including the UNDP) and other Project stakeholders to establish an equitable framework and clear guidelines for compensation associated with land acquisition for this Project as well as more generally for plantations projects across Lao PDR.
8. Review the actual availability of plantations for grazing of livestock in years 4-7 of the plantation cycle due to the impact of tree growth on grass cover.
9. Explore the feasibility of developing the implementation phase of the Project to include an out grower scheme as an integral component.

2.3 Impacts on Forest Resource Use

10. Conduct a detailed land and asset baseline study to register the nature and extent of impacts on forest resource use at the household and community level to assess appropriate compensation measures in advance of land acquisition. The scope of this study should include community level registration of NTFP/TFP resources.
11. Conduct further land use mapping work in the villages with disputed boundaries to define boundaries in relation to designated forest areas.

2.4 Impacts on Water Resource Use

12. Implement a baseline monitoring program of water quality/quantity in Project villages to quantify water resource impacts arising from the Feasibility and Project Implementation phase plantations, to enable impacts from the Project to be identified and measures taken to mitigate impacts identified during Project implementation.

2.5 Impacts on Employment and Cash Income

13. Continue to implement a biennial household survey to monitor key socioeconomic aspects including in-migration, employment and income levels. Use this data to identify vulnerable households who may require targeted livelihood assistance to improve their income generating capacity, production levels and standards of living.

2.6 Impacts on Community Health and Safety

14. Develop a detailed Occupational Health and Safety Plan prior to commencement of the Feasibility phase detailing the potential OH and S risk associated with each Project activity and strategies for addressing these risks.
15. Conduct a separate Noise study to determine baseline noise levels in the Project area, assess the potential impact of Project activities on villages and other sensitive receptors in the Project area against Lao and International standards and to identify specific mitigation and treatment measures to address these impacts.
16. Broaden the existing household surveys to determine background levels of health and nutrition in the Project area, assess the potential health impacts of Project activities in local villages and identify specific mitigation and treatment measures to address these impacts.

2.7 Impacts on Education

17. Continue the focus of the Village Development Fund on repair of existing school infrastructure and explore the possibility of establishing a scholarship fund to support local school children's access to secondary school education and university.

2.8 Impacts on Cultural Heritage

18. Conduct a separate archaeological survey of the area to develop a strong baseline on the presence of archaeological sites in the Project area, assess in detail the potential impacts of Project activities on these archaeological sites and suggest strategies that the Project can implement to mitigate these impacts.

3 Introduction

This Chapter provides a brief introduction to the proposed Project and the context for the Socioeconomic Assessment, describes the objectives of the study and the Scope of work.

3.1 Context for the Socioeconomic Assessment

Stora Enso is a large Finnish and Swedish paper, packaging and forest products company that is planning to establish 35,000 ha of Eucalyptus and Acacia plantations in Nong, Sepone, Ta oi, Vilabuly and Samuoi districts, within Savannakhet and Saravane provinces, Lao PDR (hereafter 'the Project'). Figure 3-1 shows the location of these five (5) districts.

The United Nations Development Program Lao PDR (UNDP Lao PDR) has an agreement with Stora Enso to carry out a Socioeconomic Assessment in regards to all village assets and land areas that may potentially be affected by the proposed Project development. UNDP Lao PDR agreed to be involved in the assessment for the Project to ensure the independence of the study, to provide a balanced social and economic assessment of the proposed Project in Lao PDR, and to ensure that these are integrated with the larger ESIA.

Earth Systems Lao has been contracted by the (UNDP Lao PDR) to conduct the Socioeconomic Assessment of the Project on its behalf.

3.2 Objectives of the Socioeconomic Assessment

The Socioeconomic Assessment for the Project will be undertaken in two (2) stages:

- Stage 1 (this study) will make a preliminary assessment of social impacts of the Project based on village-level field assessments, previous experience and existing knowledge and experience thus far in establishing 257 ha of plantations. The output of this stage will be a snapshot of the social and economic impacts of the existing 257 ha of plantations within a limited number of villages and a preliminary assessment of the potential impact of the 2022 ha plantation programme (the Feasibility phase) and the 35,000 ha Project Implementation phase.
- Stage 2 of the SIA will involve similar focus areas to Stage 1 with larger scope and will be based on the experience, framework and findings of Stage 1. The output of this stage will be a comprehensive report which includes full elements of a statutory SIA. The assessment under this stage will consider in greater depth the effectiveness of the interaction between the Company and the communities.

The findings of the Socioeconomic Assessment for the Project will be incorporated into the Project's overall Environmental and Social Impact Assessment (ESIA) being coordinated by Salwood Asia Pacific, an Australian based forestry consultancy company. In addition to this study, Stora

Enso has also engaged the International Union for Conservation of Nature, Lao PDR (IUCN Lao) to conduct a Rapid Biodiversity Assessment and the Swedish Agricultural University (SLU) to assess the Project's impacts on soil, water and carbon.

The ESIA for the Project will serve two (2) purposes:

1. To assist Stora Enso in assessing the feasibility of the Project against its environmental and social management policies in plantation establishment and management.
2. To gain approval to proceed to the Implementation phase of the Project from the Government of Lao PDR (GoL). An environmental certificate has already been issued by the Water Resources and Environment Agency (WREA) of the Government of Lao PDR (January 2009) allowing the Project to proceed to the Feasibility phase. This Socioeconomic Assessment Report will assist the GoL in its considerations regarding the approval of the Implementation phase.

3.3 Scope of Work

The Socioeconomic Assessment encompasses an assessment of the land, assets, and livelihood of communities living within and adjacent to the Project area that will be either directly impacted or indirectly impacted by the Project. In summary the scope of the Study includes:

- Background review of previous studies and socioeconomic data relating to the Project and villages in the Project area. Key Project studies include:
 - o The Baseline Survey for Private Forestry Plantation Investment in Nong district, Savannakhet Province (Burapha, 2006),
 - o A Socio-Economic Baseline Survey of Nong District, Savannakhet Province (Axelsson & Svensson Info. Consultants, 2007),
 - o Cash Income – Baseline Survey of Nong and Sepone Districts, Savannakhet Province (Axelsson & Svensson Info. Consultants, 2006),
 - o Socio-Economic Baseline Survey, Ta oi District, Saravane (Axelsson & Svensson Info. Consultants, 2007),
 - o Independent studies are those carried out by the IUCN (IUCN, 2007) and the Swedish Agricultural University (SLU) (SLU, 2007);
- Background review of the Legal and Policy Framework for plantation development and Social Impact Assessment in Lao PDR and globally;
- Interviews with Stora Enso employees in Vientiane and the Project area;
- Detailed village-level surveys of all potentially directly impacted villages in the Project area (see Chapter 6.2 for detailed methodology);
- Consultation with District and Provincial government representatives;
- Consultation with representatives from relevant Central level government, Non government and International Organisations in Vientiane; and
- Data analysis and report writing.

Figure 3-1: Location of the Project area



3.4 Report Structure

The Socioeconomic Assessment report is organised in the following Chapters which largely follow the tasks outlined in the Terms of Reference for the study:

Chapter 4. Provides a detailed description of the Project including plantation establishment and management, intercropping, Project roads, Project nursery and other Project infrastructure, employment, proposed social management measures and the Project's implementation schedule.

Chapter 5. Outlines the policy, legal and administrative framework for the Project and analyses the Project's stakeholders.

Chapter 6. Describes the methodology adopted to conduct the assessment.

Chapter 7. Provides a detailed analysis of the socioeconomic baseline of villages within the Project area including Project Setting in Lao PDR,

Historical overview, Demographic characteristics of surveyed villages, Land and livelihoods, Water Resource Use, Occupations, Cash incomes and expenditure, Housing, Community infrastructure, Cultural heritage, Health, Education, UXO and Other Projects in the Project area.

Chapter 8. Provides a discussion of the significant positive and negative economic and social impacts of the Project on local communities.

Chapter 9. Details alternatives available to the Project developer.

Chapter 10. Outlines a preliminary mitigation management and monitoring framework which analyses and recommends how the positive effects might be increased and the negative impacts reduced including through the development of a social and economic investments/development strategy.



4 Description of the Project

This Chapter provides a detailed description of the background to the Project and its three (3) development phases, describes the Project proponent, and describes major development activities associated with the Project's development. The information provided in this Chapter is primarily based on documentation provided by Stora Enso and interviews with Stora Enso staff during the field work for the SIA.

4.1 Project Background

Stora Enso plans to develop the Project in three (3) phases: the Pilot phase, the Feasibility phase

and the Project Implementation phase. The total area of the five (5) districts to be potentially impacted by the Project in its three (3) phases is approximately 35,000 ha. Project components to be located within the Project area include plantation areas, Project nurseries and supporting infrastructure and Project roads (see Figures 4.1-4.2). Development of the Project will take place over a number of years.

Table 4-1 outlines the areas to be occupied by plantations in each of the three (3) Project phases as proposed in April 2009 (Stora Enso 2009). These phases are described in more detail below.

Table 4-1: Areas to be occupied by Project components during each Project phase (ha)

Project component	Phase 1: Pilot	Phase 2: Feasibility	Phase 3: Project Implementation	Total area
Plantations, Nurseries and supporting infrastructure and Project roads	257	2022	32,720	35,000

4.1.1 Pilot Phase

Stora Enso currently operates a Pilot Eucalyptus plantation of 257 ha in Nong District, Savannakhet province and Ta oi district in Saravane province. The Pilot phase has the objectives of:

- Increasing the Company's understanding of the overall possibility of and the conditions for a larger agro forestry Project (35,000 ha), in the area;
- Developing participatory models for land use

and agro forestry production;

- Developing an understanding of laws, regulations and processes for obtaining land use agreements in Lao PDR; and
- Defining major issues that need to be addressed before possible implementation.

The Pilot phase began in 2005 and is planned to conclude in early or mid-2010.

Key results of the Pilot phase to date include:

- Development of a Pilot plantation of 257 ha, comprising 180.8 ha of plantations in Savannakhet and a further 76.2 ha in Saravane province; and
- Development of supporting infrastructure including Project offices in Nong and Ta oi districts and nursery facilities at the Sepone Agriculture and Forestry Training Centre (located in Sepone district, Savannakhet).

Current Pilot phase activities involve the maintenance of Pilot plantation areas, continued demonstration of the plantation model, species and provenance trials and surveying and planning for the larger 2,022 ha feasibility plantation area (discussed below).

4.1.2 Feasibility Phase

To further assess the feasibility of development of a large-scale plantation, Stora Enso has obtained approval from the GoL to expand its Pilot plantation area by developing an additional 2022 ha eucalypt plantation within the same districts of Savannakhet and Saravane provinces. The Feasibility phase will further test the viability of establishment of a larger plantation area using the agro forestry plantation model, including participation of farmers and village development activities. The Feasibility phase will also test UXO clearance on large areas and develop safe and cost-effective methods for this clearance. Depending on when approval to proceed is received from the GoL, the Feasibility phase is planned to end in late 2012.

4.1.3 Project Implementation Phase

If the Feasibility phase is successful in terms of plant growth, anticipated costs and market attractiveness, Stora Enso plans to approach the Government of Lao PDR to apply for a concession to accommodate the full 35,000 ha plantation program. Similar to the Feasibility phase plantations, the exact location of the Project Implementation phase plantation areas is not certain at this stage.

4.2 Description of the Major Development Activities associated with the Project

Major development activities associated with the Project can be divided into seven (7) major categories: Plantation land identification, establishment and management; intercropping; upgrading of Project roads; establishment of Project nurseries and other supporting infrastructure; employment; payments to government and the Village Development Fund. Each of these activities is described in this chapter to enable clear assessment to be made in subsequent chapters of impacts to date (from Pilot phase activities) and potential impacts from subsequent phases of the Project.

4.2.1 Plantation Land Identification, Establishment and Management

Establishment of Project plantation areas involves the following five (5) steps:

1. Land survey and land acquisition;
2. Bush clearing and unexploded ordnance (UXO) clearing;

3. Soil preparation and planting;
4. Weeding and fertilizing activities; and
5. Harvesting of eucalyptus trees for sale.

Land Survey and Land Acquisition

The process undertaken by Stora Enso to survey and acquire land for plantations is as follows:

- Signing of concession agreement between the Provincial and Central government and Stora Enso. Parallel with this a process of consultation takes place with the District and Village authorities.
- Socioeconomic surveying and Rapid Rural Appraisals (RRA) of more than 40 villages in the districts of Nong, Sepone and Ta oi. The objective of the surveys has been to develop an understanding of the socioeconomic situation in each village before the company starts to work in the village.

As part of the surveys, information is given about the Project, and, a socioeconomic survey is carried out. If the village is not interested, the team will leave the village and notify the District authorities and the village area will be not included in the Project.

- Field surveying of village lands by Stora Enso in participation with the local community (including surrounding villages) and District government officials to demarcate village boundaries, Spirit forests, Protected forest, Conservation forest and Productive forest as well as land used for permanent agriculture.
- Identification of suitable areas by overlaying field data with satellite imagery. Suitable areas are defined in terms of:
 - o Agricultural land use. Recent fallow land,

not current swidden land or paddy land.

- o Forest cover. Areas of degraded forest land where there is less than 30 m ha⁻¹ of all species of wood with a diameter of >15 cm.
- o Forest classification. Areas outside intact native forest (Protection Forests, Spirit Forest, Production Forests, National Biodiversity Conservation Areas (NBCAs).
- o Slope. Areas of land where the slope is less than 25 degrees;
- o Water resources. Proximity to streams (> 30 m).
- o Settlements and roads. Proximity to roads (> 50 m), settlement areas (> 100 m).
- o Cultural heritage. Proximity to well-preserved parts of Ho Chi Minh trail and other cultural, heritage and tourist sites (>100 m).
- o Overall size. Areas should be reasonably large (~150 ha), but the maximum extent of one plantation block shall not exceed 500 ha.
- Creation of village maps including all types of land that belongs to the village and showing land suitable for establishment of plantations.
- Presentation of map and discussion with villagers about which areas would be acceptable to the village to use. As a result of this process, areas of special significance for the farmers such as those with good soils that they want to keep for rice cultivation or because of traditional land use rights, are noted and removed from the suitable area category.
- Signing of land survey reports by Village authorities, confirming that Village authorities agree that areas deemed suitable plantation areas by Stora Enso can be proposed to District authorities as suitable plantation areas.

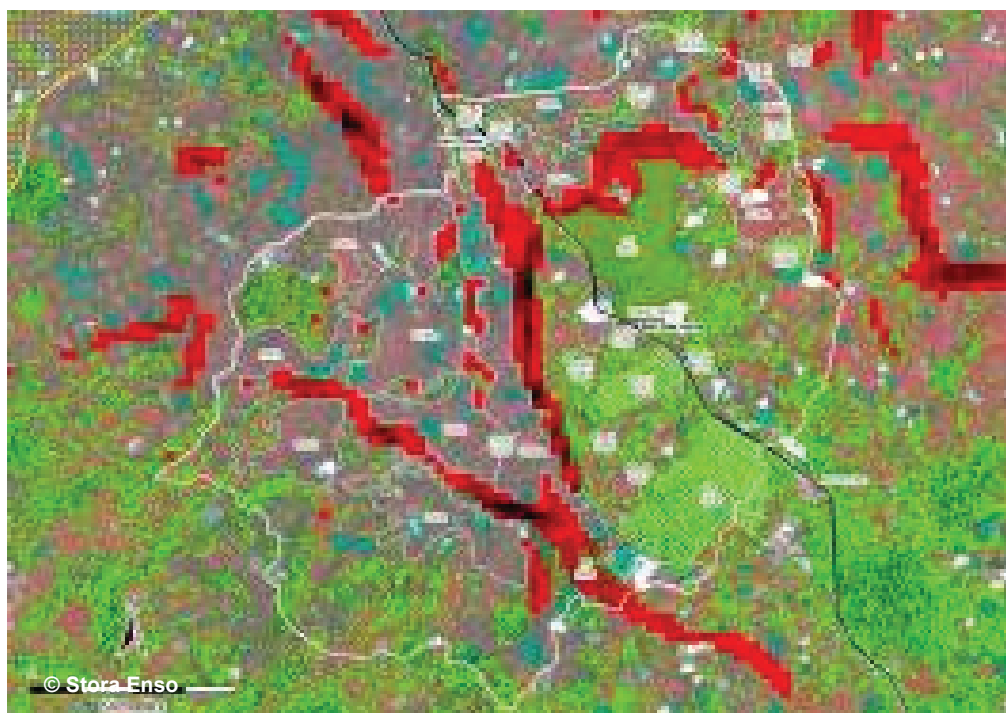


Plate 4-1 Example of village land use map

Land survey reports are then forwarded to Provincial authorities.

- Village land made available by villagers for plantations shall be divided into 6–7 areas of similar size to ensure annual and continuous work for the cluster.

An example of a village land use map produced by Stora Enso is offered in Plate 4-1. During the Pilot phase approximately 257 ha of plantation areas were identified and established following the process outlined above. The same process will be applied to the Feasibility and Project Implementation phases.

Bush Clearing and UXO Clearing

Once agreement is reached with each village and District authorities, the Company consults with villages regarding the location of known UXO and employs local villagers to clear the land of vegetation and to burn cleared vegetation. Burn-

ing of cleared vegetation is a prerequisite step in the UXO clearance process. This process is conducted under the supervision of at least one trained UXO technician. Any UXO found during bush clearing are disposed of by a certified UXO contractor. Prior to burning, all employees and villagers not absolutely needed for the operation shall be evacuated to a minimum distance of 1 km from the site.

It is the intention of the Project to continue to manually clear and burn vegetation in this manner until labour becomes a limiting factor. The Project is also currently investigating alternatives to burning vegetation recognising the loss of organic material associated with this practice.

Once burning is completed, Stora Enso contracts the UXO clearing to a private company certified by the National Regulatory Authority to conduct actual clearance of UXO from plantation areas. Once plantation areas have been cleared, the Contractor issues a signed UXO Clearing Cer-

tificate for the area. No soil preparation or other type of work involving disturbance of the soil shall take place on land before a signed UXO Clearing Certificate has been issued.

During the Pilot phase, 330 ha of plantation areas

and access roads have been cleared from UXO and over 1,200 UXO have been disposed of, at an estimated cost of USD 530,000.



Plate 4-2 Bush clearing and UXO removal activity

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Soil Preparation and Planting

Following on from UXO clearance activities, the soil is prepared for planting. Soil preparation is done taking into account the land type, slope steepness and direction.

Normal soil preparation involves:

- Tree planting line; sub-soil is ripped to 60 cm depth using a tractor. To prevent soil erosion on land with slopes > 15 degrees, ripping is carried out along the contour line. If this is not

possible, the ripping blade is lifted up after every 8–10 m to cut the line and thus prevent water from continuing to run down along the line. Manual hole digging takes place (50 x 50 x 50 cm) where ripping is not possible.

- Areas for agriculture between tree lines; ploughing using tractor.

All land to be used for intercropping of agricultural crops as well as planting of eucalypt trees is ploughed. Fertiliser is added to the soil at the

same time as it is ploughed to support growth of the tree plantations.

Eucalypt seedlings raised in the nursery are then transported to the plantation sites and planted by local villagers. Tree planting is done manually by villagers and is planned considering the traditional agriculture calendar.

Selection of tree species and clone shall depend on suitability to site-specific conditions (altitude,

soil type, soil humidity, micro-climate etc.). The main species used are Eucalyptus, Acacia and pines (higher altitudes). Teak and other indigenous species will be produced for special purposes.

Normal tree density is 1,100 trees/ha and normal spacing between tree lines is 9 meters to allow for planting of agriculture crops. If the area is absolutely unsuitable for agriculture crops or distant from the village, spacing shall be 3 x 3 meters.



Plate 4-3 Mechanical soil preparation and tree planting activity

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Plantation Maintenance

Maintenance of the plantations during their growth cycle involves periodic weeding and addition of fertiliser. Weeding is normally done manually by villagers. Chemical weeding is only used if manual weeding has failed or is deemed to be inadequate.

If old eucalypt tree stumps need to be removed after harvesting, stump treatment is done when stumps are expected to start coppicing (mainly Eucalyptus). Possible methods used for stump treatment include:

- Mechanical stump removal;
- Surface of stumps of eucalypts are brushed

or sprayed with Round Up (Glyphosate herbicide) immediately after tree felling; and

- “Pocketing” of the stumps – if the surface of the stump is dry the pocketing is the only way to kill the stump and prevent sprouts from growing.

Efforts are put towards the construction of fire control towers and firebreaks. Firebreaks are kept clean of weed and bushes and dry grass and branches. When plantations have a common border with farmers' land, a firebreak is constructed on the border. Attention is paid to the maintenance of plantation roads, as they form natural firebreaks.

It is likely that a network of Permanent Sample Plots will be established and maintained as a regular monitoring system for protection from diseases and pests. Decisions on suitable methods to minimize spread of possible diseases and pests shall be made in each single case.

Stora Enso does not use internationally banned chemical pesticides or herbicides and follows company safety regulations when poisonous ingredients are used.

The Company requires possible Contractors to follow the same rules and to provide adequate safety equipment for their labour when poisonous materials are used in the Project area. Company field managers are instructed to supervise and control the use of safety equipment and point out any negligence to the contractor.

Chemicals could be used in the following plantation processes:

- Weeding;
- Fertilization of trees and agricultural crops;
- Stump coppice treatment;
- Disease and pest control; and
- In the tree nursery.

Use of any kind of chemicals is especially controlled on slopes (>15 degrees) and close to rivers and water ponds.

Harvesting of Trees for Processing and Sale

The logging of eucalypts will start during the 8th year of the rotation. It is planned to use private contractors for harvesting and transportation of the wood to the customer. The productivity of the plantations once the Project is in full operation is

expected to be 24 m³ ha⁻¹ year⁻¹ producing a wood supply of 750,000–800,000 m³ per annum for the 35,000 ha plantation.

Plantation management will aim at producing the highest stump value rather than the highest volume. For the Feasibility phase of the Project, the intention is that wood produced from the plantations will either be processed in Lao at the existing Burapha factory in Vientiane or sold on the open market (e.g. to factories in Vietnam) based on prices on the local, regional and international markets.

4.2.2 Intercropping

Stora Enso's Plantation Model incorporates an agro-forestry model which, in addition to wood production, intends to improve the welfare of local communities and increase yields of rice and other food crops and minimises the slash-and-burn impact on the rest of the village land (including secondary forests). The agro-forestry model will only be implemented in plantations where villagers have expressed an interest in intercropping. Where plantations are far from villagers or where villagers already have sufficient land for agriculture, the agro-forestry model will not be utilised.

Key aspects of the model are that:

- It builds on a wide spacing of the trees (up to 9 meters), allowing for growing of agriculture crops between the trees (7 meters) (Figure 4-3).
- Food and cash crops grown by the farmers in the spaces between the eucalypt trees fully belong to them. Each participating family is provided 1 ha of land although this area can be increased dependent on the number of households participating from the village and the total land area.

- Plantations are managed on seven-year rotations, by dividing plantation land into seven equal parcels with one parcel planted each year. This ensures that the farmers have cash income and agriculture crops every year. After seven years, the cycle is repeated.
- Seventy percent of the plantation area will be used for food and cash crop production in the first year of the cycle, 50 percent in the second year and 20 percent in the third year of the cycle. In the fourth, fifth, sixth and seventh years of the cycle, no food and cash crops are produced but the plantation area is available for grazing of livestock.
- An agreement for the intercropping on land for which the Company has land use rights shall be signed with each and every participating village.
- Company staff shall define which land the village can use and the village is responsible for dividing and allocating this land to individual families. Company staff shall not be involved in this process.
- Crops shall not be planted closer than 1 meter from the tree stems.
- The Company will provide the farmers who participate in the Plantation Model for the first time with the following free of charge:
 - o Rice seed;
 - o Stumps for edible cassava;

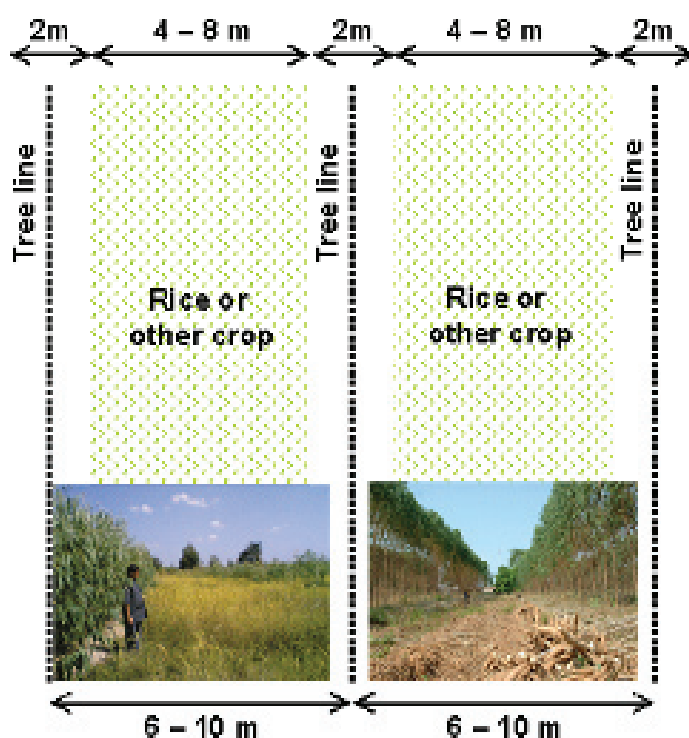


Figure 4-1: Spacing of eucalypt trees intercropping area in the Stora Enso plantation model

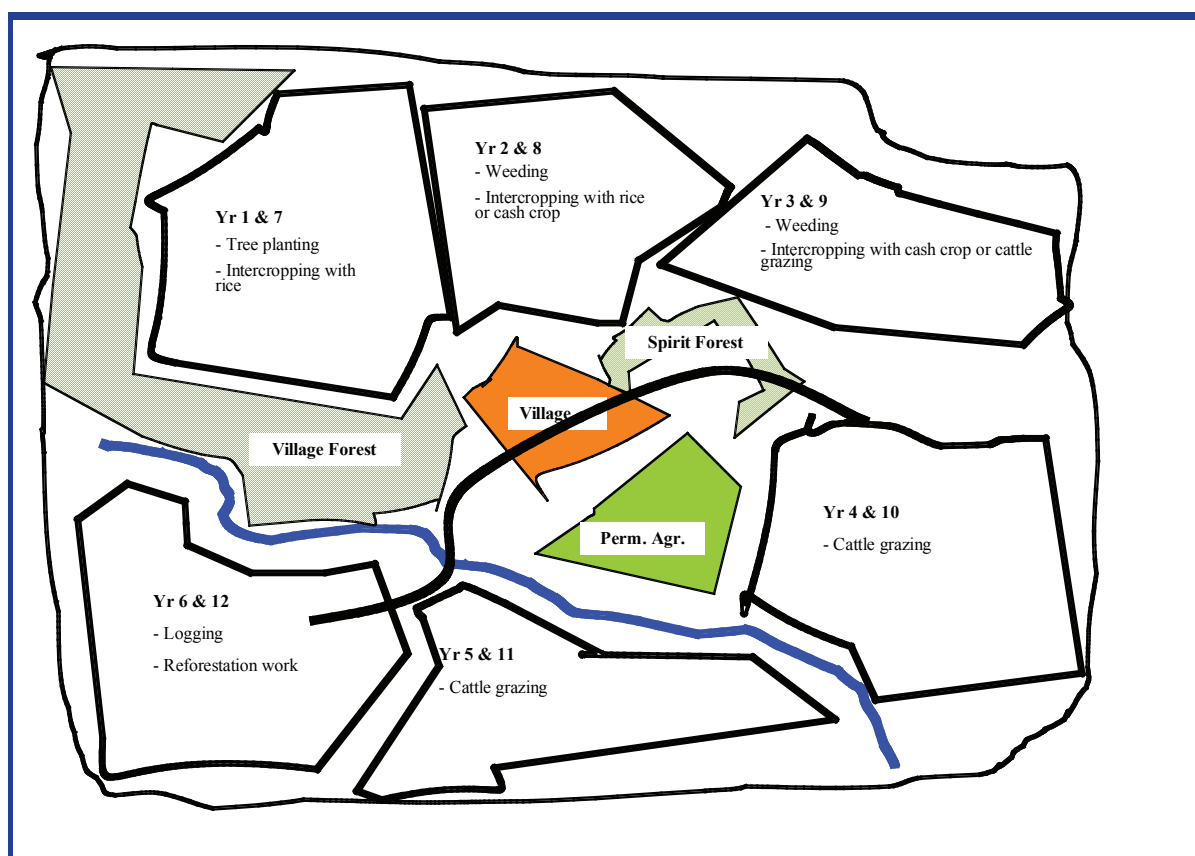


Figure 4-2: Illustration of the 7-year rotation cycle adopted as part of the Stora Enso plantation model

- o Edible corn seed; and
- o Other edible crops.
- The Project will not provide the farmers with the following:
 - o Banana seedlings, tree seedlings (e.g. Yang Bong), or planting material for any other cash crops; and
 - o Fertilizer (apart from that added to the soil when ploughing the soil initially).
- Crops with a rotation period longer than 12 months are not allowed to be used for intercropping.
- The Project will assist farmers with:
 - o Technical advice from an agronomist to select best crops to grow and define growth regimes and fertilization needs; and
 - o Market information especially price and quantity demanded.

4.2.3 Upgrading of Project Roads

During the Pilot phase, no new roads were established and existing roads were only improved where necessary to access village land with equipment to clear and prepare plantation areas.

During the Feasibility and Project Implementation phase, the Project will upgrade local village roads to support Project access to each plantation area.

Road construction will be conducted in a fashion to minimise erosion, and to respect community safety and health.

4.2.4 Establishment of Project Nursery and Other Project Infrastructure

During the Pilot phase, the tree nursery of the Sepone Agriculture and Forestry Training Centre was renovated and upgraded, and it is now used for production of seedlings and cuttings.

During the Feasibility phase, a tree nursery capable of producing 2 million cuttings per year will be established at Ban Takor, just outside Nong district centre to support the 2022 ha plantation area. A further satellite nursery will be established near Ban Houn in Ta oi district. The nurseries will have an appropriate scale to supply a sufficient number of quality cuttings and seedlings for annual planting needs, both for the Company and future out-growing schemes.

Personnel in charge of the nursery and workers will be adequately trained in nursery techniques. Use of chemicals within the nursery will be kept to a minimum, and internationally banned chemical pesticides or herbicides will not be used.

The Project has set up offices in Sepone, Nong and Ta oi districts to support Pilot phase activities and plans to establish a company main office and guesthouse at Ban Takor, Nong district co-located with the tree nursery during the Feasibility phase.



Plate 4-4 Tree nursery at Sepone Agriculture and Forestry Training Centre used during the Pilot phase

4.2.5 Employment

Employment associated with the Project includes work on each of the Project stages detailed in Section 4.1:

- Bush clearing and UXO clearing (when employed to clear the land of vegetation and to burn cleared vegetation by certified UXO clearance contractors);
- Soil preparation and planting;
- Plantation maintenance; and
- Harvesting of trees for processing and sale.

Key principles adopted by the Project regarding employment include:

- The majority of plantation identification, establishment and management tasks will be carried out by local villagers supervised by permanent Project employed staff. Subcontractors are used only in cases where work requires specific qualifications and machinery, e.g. UXO clearing and rented farm tractors. All sub-contractors are recommended to engage

villagers to the highest possible extent.

- It is a preference of the Project that labour is recruited only from the concerned villages through the village chief, and no “import” of labour from other districts will take place. The exception to this policy will be when plantation areas increase to the scale where local village labour is insufficient to meet the demands of the project in which cases the Project will seek additional labour from nearby villages.
- Villagers are recruited and trained as nursery and forestry workers and opportunities for training and promotion are given to those suitable.
- Local villagers are paid 25,000 kip per day (in 2009) for carrying out Project tasks.
- The company will not employ those who under the age of 15.
- Stora Enso supports the UN’s universal declaration on Human Rights and the core conventions of the International Labour Organization (ILO). The Company actively encourages all of its Contractors to respect international labour rights so that the following principles are taking into consideration in day-to-day work in the field: Working conditions, freedom of association, non-discrimination, free choice of employment, child labour, fair remuneration, and working hours. The company has adequate health and safety standards for operations and in particular hazardous operations, e.g., chemical usage and machine handling.
- Local communities are given preference, wherever practical, in training and contract opportunities. Shortfalls in available skills will be overcome through training within the local community.

4.2.6 Government Payments

The Project is required to pay the Government of Lao PDR a rental fee of USD 10 per hectare per year for the plantation areas. The Project is currently working for a system of dividing the land-lease fee between the Provincial and National government. Additional payments will be made during the Project’s Feasibility and Implementation phases in the form of corporate income tax, personal income tax and turnover tax.

4.2.7 Village Development Fund

A Village Development Fund (VDF) of 30,000 kip/ha/year (USD 3.55/ha/yr) has been established during the Pilot phase. The fund, which is paid for 5 years in advance (about USD 16/ha), is to be used for immediate and agreed needs in the village with focus on food security, sanitation and health care, and education.

The aim of the VDF includes the following:

- To support the villagers to identify the problems and enable the villagers to plan and manage activities by themselves;
- Support the village to use and manage the resources in a sustainable way;
- Develop a sustainable income generation mechanism through the support of a sustainable growth of small business development;
- Support the villagers in intercropping; and
- Support the development of local infrastructure Projects, including offices, accommodation, vehicle and fuel storage areas, processing facilities.

The process for allocating funds through the Village Development Fund involves the following steps:

1. A Village Development Fund Certificate is issued by Stora Enso and signed by the Village chief, the District and the Company to the village detailing the total amount of funds available for the 5 year period.

2. The village conducts an internal meeting and makes decisions regarding what the Fund shall be used for and prepares a proposal to the District and Project specifying the details of what they will use the Fund for, amounts requested etc. The village then signs and stamps the proposal and sends the proposal to the District and one copy to the Project.

3. Stora Enso and the District approve or reject the proposal. The District sign and stamps the VDF approval and the company sign and distribute one copy to the Village.

The Project has produced detailed guidelines (in Lao and English) for the Village Development Fund which further detail the operational procedures for the VDF including the roles and responsibilities of the Project, District authorities and villages.

4.3 Project Proponent

The proponent of this Project is Stora Enso (SE), an integrated paper, packaging, and forest products company, which is a global market leader in the production of publication and fine papers, packaging boards and wood products. In 2007, Stora Enso sales totalled close to USD 20 billion. Globally, the company has 38,000 employees spread across more than 40 countries in five continents. The company's annual production capacity is 13.1 million tonnes of paper and board and 7.5 million cubic metres of sawn wood products,

including 3.2 million cubic metres of value-added products. The Group has production facilities in Europe, North America, South America and Asia. Its modern production capacity and the good integration between raw material, energy, and efficient processes ensure production continuity.

Stora Enso's business model is predominantly focused on business-to-business customers through its own global sales and marketing network. Typical customers are large and small publishers, printing houses, and merchants, as well as the packaging, joinery and construction industries worldwide. The company's main markets are Europe, North America and Asia.

Stora Enso has made a commitment to developing its business towards ecological, social, and economic sustainability, a commitment demonstrated through its values and its environmental and social responsibility policies. Stora Enso is the only forest products company that has been included in the Dow Jones Sustainability Index (DJSI World) since it was launched in 1999. Stora Enso is also included in the FTSE4 Good index and other similar indices across Europe. Stora Enso's shares are listed on the stock exchanges in Helsinki, Stockholm, and New York.

Stora Enso has contracted Burapha Agro Forestry Co. Ltd (Burapha), a Lao-Swedish plantation and consultancy company to carry out activities in the Pilot and Feasibility stages of the Project, and in particular to:

- Initiate contact with communities and District/ Provincial and National governments;
- Gather information on the Project area; and
- Commence Pilot plantations on selected sites.

5 Policy, Legal and Administrative Framework and Stakeholder Analysis

This Chapter outlines Lao PDR's legislative and administrative framework relating to environmental and social impact assessment and plantations, and briefly describes the international framework for best practice in Social Impact Assessment (SIA) and plantation development and Stora Enso's Corporate Standards relating to Social Impact Assessment (SIA).

5.1 Legislative and Administrative Framework in Lao PDR

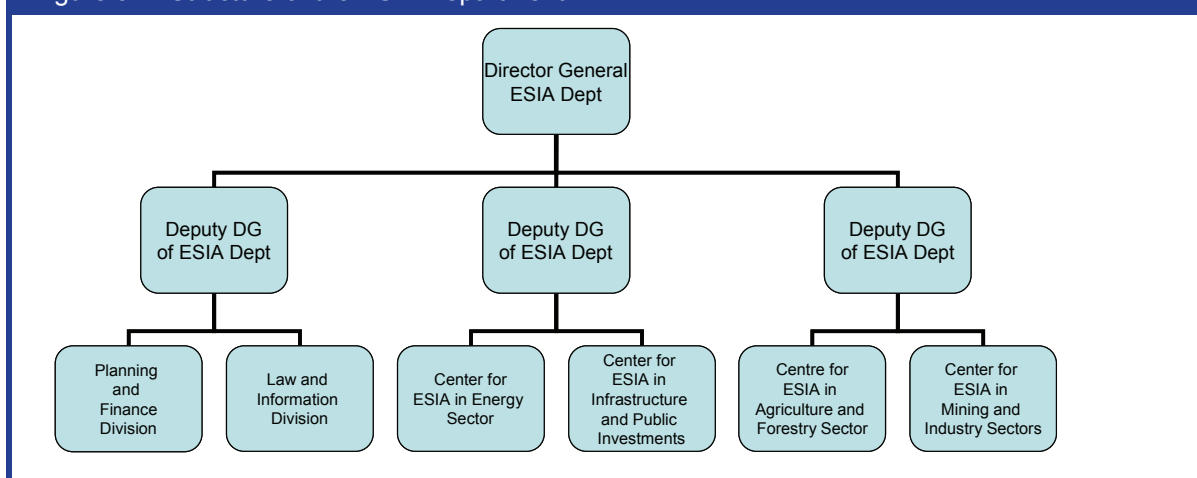
Stora Enso is committed to following the legal and administrative framework which controls its operations in Lao PDR. The following section outlines the legislative and administrative framework under which the Project must operate.

5.1.1 Administration of Environmental and Social Impact Assessment

Water Resources and Environment Agency (WREA), Department of Environmental and Social Impact Assessment

In 2008, the Water Resources and Environment Administration carried out internal restructuring, replacing the former Environmental Impact Assessment Division with the Environment and Social Impact Assessment Department. This new department is responsible for administering the Government's ESIA responsibilities, and managing the project approval process culminating in the issuing of an environmental certificate. The new ESIA Department currently has 73 staff across six divisions (see Figure 5-1) including the Centre for ESIA in the Agriculture and Forestry Sector.

Figure 5-1: Structure of the ESIA Department in WREA



Source: WREA (2009)

WREA is currently understaffed and faces severe capacity issues, particularly at district and provincial levels. For example in the two (2) districts where the pilot plantations are located, there is no representation from WREA.

The administration is drafting a Five-Year Strategic Integrated Capacity Building and Work Program for Strengthening Environmental Performance in WREA, Lao PDR (CBWP). This is relevant to the Stora Enso Project given the company's commitment to utilising and supporting government agencies.

Other agencies key to the social impact assessment, legislative and administrative process include:

- Ministry of Planning and Investment (MPI): tasked with leading the Government's socio-economic development planning and investment approval process. With the responsibility of assessing proposed development Projects and granting investment licences, MPI, under the Foreign Investment Law 2004, is required to ensure environmental protection and sustainable development through preventing investment which causes a negative impact on the environment, public health or culture/traditions; and placing requirements on investors in the areas of environment, labour, and social security. MPI coordinates initial screening (including environmental and social) of proposed investments.
- Ministry of Agriculture and Forestry (MAF): as the Government's lead agency in forestry and plantation development, MAF issues business licences to plantation companies. MAF

is responsible for post approval environmental (and social) inspection and evaluation of plantation Projects and has the authority to retract business licences on the grounds of poor performance in these areas. MAF and WREA are responsible for developing environmental protection and sustainable development regulations and laws for the plantation sector. At the district level in the 2 pilot districts, the District Agriculture and Forestry Office (DAFO) has played the lead role in working with the project from the early stages of project consultation with villages and has an ongoing role overseeing the day to day operations of the project on behalf of both the District Administration and the Provincial Agriculture and Forestry Department.

5.1.2 Legislation Relevant to Social Impact Assessment in Lao PDR

Unlike the hydropower and mining sectors, to date there has been little progress in the development of plantation-sector-specific policy and regulation for environmental and social impact assessment. Guidelines for ESIA in the plantation sector developed by WREA are expected to be available this year (2010).

General Social Impact Legislation

General social impact legislation in Lao is detailed in Table 5-1 below.

Table 5-1: Social Impact Legislation in Lao PDR

Policy/Legislation/Regulation	Year	Relevance to Social Impact Assessment
Environment Protection Law	1999	Provide basis for conducting Project-related Social Impact Assessment to reduce and mitigate socioeconomic impacts.
Regulation 1770/STEA on Environmental Impact Assessment	2002	Outlines process and requirements for social studies and impact assessments; social management plans and resettlement action plans.
Environmental Protection Law	2009	Confirms WREA's mandate in environmental and social impact assessment including: administration/coordination of the ESIA process; review of ESIA, Environmental Management and Monitoring Plans (EMMPs), Social Management and Monitoring Plans (SMMPs) and RAPs; drafting and issuing of Environmental Compliance Certificates; reviewing and proposing environmental and social obligations in Concession Agreements to the Minister of WREA; conducting/coordinating environmental and social monitoring and inspection activities; and disclosing information about ESIA to the public.
Decree 192 Compensation and Resettlement; Regulation 2432 Compensation and Resettlement; and Guidelines for Compensation and Resettlement	2005/ 2006	<p>This Decree 192/PM provides principles, rules, and measures to mitigate adverse social impacts and to compensate damages that result from involuntary acquisition or repossession of land and fixed or movable assets, including change in land use, and restriction of access to natural resources affecting community livelihood and income sources.</p> <p>This Decree 192/PM does allow for compensation in cash or in kind for an asset at replacement cost, an amount in cash or in kind needed to replace land, houses, infrastructure or assets on the land (crops, trees) and other assets (income) affected (Art. 3.b, 3.c, 6), and those affected must be provided with other assistance during the transition period, such as transport allowance, food allowance, and suitable development assistance (Art. 7), as well as economic rehabilitation such as sustainable income restoration measures enabling them to attain minimum pre-project livelihood levels (Art. 8).</p>

Requirements for Social Assessment, development of Social Management plans and Resettlement action plans (RAPs) are outlined within the overall environmental impact assessment requirements of the Regulation on Environmental Impact Assessment 2002. This piece of legisla-

tion is environmentally focused, since its approval of social impact assessment and management requirements have evolved, largely due to experiences in the hydropower and mining sectors.

WREA is currently conducting a review of its environmental and social legislative framework. The

Environmental Protection Law is being amended and a new ESIA Regulation has been drafted. Both these documents were passed by the Government in 2009. The revisions confirm WREA's mandate in environmental and social impact assessment including: administration/coordination of the ESIA process; review of ESIA's, Environmental Management and Monitoring Plans (EMMPs), Social Management and Monitoring Plans (SMMPs) and RAPs; drafting and issuing of Environmental Compliance Certificates; reviewing and proposing environmental and social obligations in

Concession Agreements to the Minister of WREA; conducting/coordinating environmental and social monitoring and inspection activities; and disclosing information about ESIA's to the public.

Other Significant Lao Social Legislation

Lao PDR has a comprehensive policy and legislative framework governing socioeconomic and cultural aspects. Table 5-2 outlines the policies and legislation most relevant to the Stora Enso Project.

Table 5-2: Social and Cultural legislation in Lao PDR relevant to the Project

Policy/Legislation/Regulation	Year	Purpose
Constitution of Lao PDR	1991 (revised 2003)	Defines the country's political regime, the socioeconomic system, fundamental rights and duties of the citizens, the national assembly, the right and duties of the country's president, the government, the local administrations, and the judicial organs.
National Growth and Poverty Eradication Strategy (NGPES) (2003);	2003	The strategy provides the framework under which all of the Government's future growth and poverty eradication programmes are mandated for development and implementation. The NGPES has dual objectives: promote sustainable growth and alleviate poverty, particularly in the 72 poorest districts (from which 47 are priority districts) within four main sectors (Agriculture, Health, Education and Infrastructure). Lao PDR's MDG goals and targets were localized to fit with the NGPES priorities.
Sixth National Socio-Economic Development Plan 2006-2010 (NSEDP)	2006	The NSEDP plays a crucial role in achieving the overall targets outlined in the Ten-Year Socio-Economic Development Strategy (2001-2010) approved by the 7th Party Congress (2001) and the directions set by the 8th Party Congress (2006). The NSEDP will subsume the operationalization of the NGPES and thus the MDGs.
Law on the Promotion of Foreign Investment	2004	Seeks to ensure environmental protection and sustainable development through 1) preventing investment which causes a negative impact on the environment, public health or culture/traditions; 2) placing requirements on investors in the areas of environment, labour, social security and healthcare; 3) promoting investment activities in agriculture, forestry and environmental/biodiversity protection.

Policy/Legislation/ Regulation	Year	Purpose
Labour Law	1994	The purpose of the law is to regulate employment relationships and, to make the best use of workers' abilities to ensure national social and economic development.
Law on the Protection of Human Rights and Interests of Children	2006	Defines principles, rules and measures relating to the administration, monitoring and inspection of the implementation of the protection of the rights and interests of multi-ethnic children, including measures against those committing offences towards children. This Decree limits the voluntary contribution to cases where the impact on productive income generating assets is less than 20 percent, without assessing displacement, income, employment and businesses (Art. 11.2).
Law on the Development and Protection of Women	2004	Defines principles, rules and measures relating to the development and protection of women.
Land Law	2003	Determines the rules relating to the management, protection and use of land. It outlines the rights of government, villages and individuals to use the land. The law also outlines concession granting authority: <ul style="list-style-type: none"> • Districts: 3 ha or less • Provincial: 100 ha or less • Central: 10 000 ha or less • National Assembly: over 10 000 ha
Agricultural Law	1998	Determines principles, rules, and measures regarding Lao PDR's agricultural production. Aims include: to encourage, promote, and expand agricultural production to guarantee the food supply and [to guarantee] commodity production; to create favourable conditions for building and expanding agro-industrial processing; to contribute to national economic growth; to make people wealthy; to strengthen the nation; and to avoid damaging and endangering the environment.
Forestry Law (2005 amended 2007)	2007	Determines the basic principles, regulations and measures on inventory survey, management planning, management, conservation, development and utilization of forest resources and forest land; promotion of regeneration; tree plantation; and increase of forest resources in Lao PDR.
Law on National Heritage	2005	Determines the principles, regulations and measures for the administration, use, protection, conservation, restoration, and rehabilitation of the national heritage, and also determines the rights and duties of the State, social organisations and individuals to preserve the value of the national cultural, historical and natural heritage.

5.1.3 Administrative Framework relating to Forest Plantations/Land Concessions

Plantations and Land Concessions

Land reform in Lao PDR is changing the legislative, policy and administrative framework for the governance of land concessions. Recent developments which affect the Stora Enso Project include:

- The establishment of the National Land Management Authority (NLMA) in 2006, now the lead government agency in the implementation of the country's land laws. The NLMA is responsible for the drafting of policies, strategic plans and legislation in relation to land management and development in the Lao PDR. The authority also takes the lead role in land classification and land use planning activities mandated by the Land Law 2003 in coordination with other government entities from the local to the central level. Under the NLMA, provincial land authorities, district land authorities and village land units are to be established throughout the country. The provincial authority is in charge of registration and issuing titles or land survey certificates, district in charge of conducting surveys and putting together necessary documentation for registration, and village units in charge of gathering data/evidence for the land file and assisting with conflict resolution at the grassroots level. The NLMA is also primarily responsible for managing construction land throughout the

country, including issuing regulations on the management, protection, development and use of this land.

- An indefinite moratorium on land concessions over 100 ha for industrial trees, perennial plants and mining was announced by Prime Minister Bouasone Bouphavanh at a national land conference in May 2007. Provincial authorities have the right to approve Projects under the 100 hectares limit. Projects needing larger areas must seek approval from the central government;

5.1.4. Legislation Relevant to Plantations, Land Concessions and Land Titling in Lao PDR

- According to the Land Law 2003, land is owned by the national community and the State is charged with its management. The Government has a range of instruments with which it can allocate land rights and ownership of land and forests to villages and individuals (see Table 5-3). These instruments provide varying rights to holders. Most relevant to the Stora Enso Project are the Village Land and Forest Management Agreements (VLFMA). Through these agreements, the Lao Government recognises the rights of villages to protect, use, benefit from, inherit, and to be compensated for land within the village boundary.

Table 5-3: Land documents and corresponding user rights

Type of Land Documents	Term of Use	Rights	Type of lands	Owner/ User
Land title issued by the Provincial or Municipal Land Management authority	Permanent land use right	1. Right to protect; 2. Right to use; 3. Right to benefit; 4. Right to transfer, 5. right to inherit; 6. right to compensation	Construction land, Permanent agricultural land, rice field, fruit garden	Villagers
Land Map Sheet registered at Land Management Agency of the Province/City or of the District/Municipality	Permanent land use right	1. Right to protect; 2. Right to use; 3. Right to benefit; 4. Right to transfer, 5. Right to inherit; 6. right to compensation	Construction land, permanent agricultural land, rice field, fruit garden	Villagers
Temporary Land Use Certificate (through the land use planning and land allocation process and request by villager); Issued by the District government.	Land use deed for 3 years and then can apply for the land title	1. Right to protect; 2. Right to use; 3. Right to benefit (no collateral), 4. Right to inherit; 5. right to compensation	Temporary production land: slash and burn cultivation areas; degraded forest use for regeneration of forest and tree planting.	Villagers
Certificate for Original Acquisition of Land issued by the agriculture and forestry sector	Permanent land use right	Show the historical evolution of the protection and use of the land	Temporary production land: slash and burn cultivation areas; degraded forest use for regeneration of forest and tree planting.	Villagers
Land Development Attestation issued by the agriculture and forestry sector	Permanent land use right	Attest that the concerned parcel has already been developed. Required for forming the land file for applying for land registration.	Temporary production land: slash and burn cultivation areas; degraded forest use for regeneration of forest and tree planting.	Villagers
Village Land and Forest Management Agreement (through the land use planning and land allocation process), issued by the District government.	Considered on a case by case basis.	1. Right to protect; 2. Right to use; 3. Right to benefit, 4. Right to inherit; 5. right to compensation	Forest land within the village's administrative boundaries.	Villagers
Land Lease Contract	Not more than 30 years	Right to use, right to enjoy mutual interests.	Degraded forest land and barren land.	Lao citizen

Source: Department of Forestry 2007

- Plantation forests are promoted through the Law on Forest Investment 2004, Forestry Strategy 2006 and Forestry Law 2005 (amended 2007).
- A Draft Prime Ministerial Decree on Land Lease Concessions No. 135/PM has been drafted by the NLMA which will provide guidelines to concession approval processes across Lao PDR. The decree is under review by the Prime Minister and it is understood that land lease rates will remain low to attract foreign investment. The decree seeks to close a number of loopholes in the current approval process at the provincial level outlining clearer requirements for the Provincial Government grants of small to medium sized concessions. This draft also outlines compensation requirements and recommends taking the assessed value of the agricultural land and adding the estimated value of the harvest in a normal year multiplied by 5 (Art. 13.1) or 10 for orchards, or 3 for cattle raising.
- The Lao Government is currently implementing a long-term policy on the establishment of village development groups (Guideline No. 09/PBPCC of the Political Bureau of the Party Central Committee, 2004; and Prime Minister's Order 13/PM, June 2008). This policy, linked closely with the NGPES and Sixth NESDP 2006-2010, is aimed at addressing rural development and poverty reduction targets through the introduction of an administrative grouping of villagers – referred to as village development groups or Kumban pathana. Village development groups provide a structure in which villagers can gain access to development services and be assisted in the movement towards rural commercialisation and income generating activities. Results of the village surveys indicate that none of the twelve (12) surveyed villages have been impacted by this policy or are likely to in the near future.
- The National Socio-Economic Development Plan (NSED) through the Ministry of Agriculture & Forestry (MAF) has developed a Strategic Vision with 4 Goals and 13 Measures which are expected to deliver the goals of the 8th Party Congress and the National Socio-Economic Development Plan (NSED). These 4 goals are:
 1. Food Production: increase the sector's growth rate by 3.4 percent per annum;
 2. Commodity Production: supply agriculture and forestry products to the industrial sector (agro-processing);
 3. Slash-and-burn Cultivation: end shifting cultivation focusing on the 47 poorest districts (this includes Nong and Ta oi); and
 4. Sustainable Forest Management: increase forest cover from the current 41.5 percent to 53 percent by the year 2010.

5.2 International Framework for Best Practice SIA and Plantation Development

In addition to adhering to the legal requirements for plantation development in Lao PDR, Stora Enso has committed to following international best practice social impact assessment and management for the Project. International policies, principles and guidelines relevant to the Project are outlined below.

5.2.1 International Guidelines on Social Impact Assessment

International Association for Impact Assessment (IAIA)

The IAIA is a membership forum with the aim of advancing best practice impact assessment.

- International Principles for Social Impact Assessment (2003): Guiding principles for analysing, monitoring and evaluating the social impacts of development including a) core values of SIA; b) fundamental principles for development; c) principles specific to SIA practice; and d) other principles (e.g. the precautionary principle and intergenerational equity).

World Bank/International Finance Corporation (IFC)

World Bank/IFC policies and guidelines potentially relevant to the social management of the Stora Enso Project include:

- IFC Policy on Social & Environmental Sustainability (2006) - The Policy outlines the eight (8) performance standards IFC uses to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. Together, the eight Performance Standards establish standards that the client is to meet throughout the life of an investment by IFC or other relevant financial institution.

- IFC Performance Standards on Social and Environmental Sustainability (2006)
 - o Performance Standard 1: Social and Environmental Assessment and Management System
 - o Performance Standard 2: Labour and Working Conditions
 - o Performance Standard 3: Pollution Prevention and Abatement
 - o Performance Standard 4: Community Health, Safety and Security
 - o Performance Standard 5: Land Acquisition and Involuntary Resettlement
 - o Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management
 - o Performance Standard 7: Indigenous Peoples
 - o Performance Standard 8: Cultural Heritage
- IFC Safeguard Policies
 - o OP 4.01 Environmental Assessment (1998)
 - o OP 4.02 Natural Habitats (2001)
 - o OP 4.10 Indigenous Peoples (July 2005)
 - o OP 4.12 Involuntary Resettlement (2002)
 - o OP 4.11 Physical Cultural Resources (2006)
 - o OP 4.36 Forests (2002)

A description of the current IFC Safeguard Policies presented in Table 5-4.

Table 5-4: Description of relevant World Bank/IFC Safeguard Policies

Policy	Description
OP 4.01 Environmental Assessment	Environmental Assessment is used to identify, avoid, and mitigate the potential negative environmental impacts associated with lending operations. The purpose of Environmental Assessment is to improve decision making, to ensure that Project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted.
OP 4.04 Natural Habitats	Natural Habitats operational policy refers to the protection, maintenance, and rehabilitation of natural habitats and their functions. Borrowers are expected to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.
OP 4.10 Indigenous Peoples	The Indigenous Peoples operational policy underscores the need to identify indigenous peoples, consult with them, ensure that they participate in, and benefit from Bank-funded operations in a culturally appropriate way - and that adverse impacts on them are avoided, or where not feasible, minimized or mitigated.
OP 4.11 Physical and Cultural Resources	The operational policy on Physical and Cultural Resources seeks to avoid or mitigate, adverse impacts on cultural resources from development Projects.
OP 4.12 Involuntary Resettlement	The Involuntary Resettlement operational policy is applied wherever land, housing or other resources are taken involuntarily from people. It sets out the objectives to be met and procedures to be followed for carrying out baseline studies, impact analyses, and mitigation plans when affected people must move or lose part or all of their livelihoods. The policy prescribes compensation and other resettlement measures to achieve its objectives which are to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement.
World Bank OP 4.36 Forests	The World Bank operational policy for Forests outlines the requirements for the management, conservation, and sustainable development of forest ecosystems and their associated resources, which are essential for lasting poverty reduction and sustainable development. This policy applies to plantation Projects.

Equator Principles

The Equator Principles are a voluntary framework for the assessment and management of environmental and social issues associated with Project financing. They provide a means for financial institutions to ensure that the Projects they finance are developed in a manner that is socially responsible and consistent with sound environmental management practices.

Financial institutions that have adopted the Equator Principles will first categorise the risk of a Project based on existing IFC environmental and social impact criteria. Before a financial agreement is secured, all high-(Category A) to medium-(Category B) risk Projects are required to complete an Environmental Assessment which identifies and addresses key environmental and social impacts associated with the Project.

The Stora Enso Project SIA should address the criteria required by the Equator Principles.

The Tropical Forests Dialogue (TFD)

The Forests Dialogue is a group of various stakeholders from different regions that are committed to the conservation and sustainable use of forests. Stora Enso participates in TFD and has a member on the steering committee.

World Business Council for Sustainable Development (WBCSD), Sustainable Forest Products Industry Working Group: Membership Principles and Responsibilities (2007)

The WBCSD is a global association of over 200 companies which “provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organisations”(WBCSD 2009).

Stora Enso and 15 other companies in the forest product sector have committed to 9 sustainable development and corporate responsibility principles including:

1. Management and governance
2. Resource management
3. Fibre sourcing
4. Eco-efficiency and emissions reduction
5. Climate change mitigation
6. Health and safety
7. Community well-being and stakeholder engagement

8. Human rights and labour standards
9. Reporting

Stora Enso is a member of the WBCSD and co-chairs the Council’s Sustainable Forest Products Industry (SFPI) working group.

International Standards Organisation (ISO)

The International Standards Organisation is currently developing voluntary guidelines for social responsibility. These will be published in 2010. Stora Enso is currently chairing the Finnish ISO working group and participating in the development of this new standard.

5.2.2 International Guidelines on Management of Social Aspects of Plantation Developments

Responsible Management of Planted Forests: Voluntary Guidelines (United Nations’ Food and Agriculture Organization)

These guidelines were prepared by the FAO through a participatory stakeholder process. Their aim is to outline a set of guiding principles for planted forest management. Social and cultural principles include:

- o Recognition of social and cultural values;
- o Maintenance of social and cultural services; and
- o Management of landscapes for social, economic and environmental benefits.

All three principles are relevant to the operations of Stora Enso through the Project.

The Forest Stewardship Council principles for sustainable forest stewardship

The FSC has developed the following principles for sustainable forest stewardship:

- o Principle 1: Compliance with laws and FSC Principles
- o Principle 2: Tenure and use rights and responsibilities
- o Principle 3: Indigenous peoples' rights
- o Principle 4: Community relations and workers' rights
- o Principle 5: Benefits from the forest
- o Principle 6: Environmental impact
- o Principle 7: Management plan
- o Principle 8: Monitoring and assessment
- o Principle 9: Maintenance of high conservation value forests
- o Principle 10: Plantations

While all principles are relevant to the Stora Enso Project, Principle 10 on plantations specifically refers to social impact monitoring, requiring all plantations to monitor impacts on local welfare and social well-being.

International Tropical Timber Organisation (ITTO) guidelines for the establishment and sustainable management of planted tropical forests

ITTO guidelines cover different stages in the Project life cycle including feasibility assessment, establishment of planted forest, and post-establishment management.

Social aspects most relevant to the Stora Enso Project include:

- o Principle 22 on the engagement of local communities and recommendations to carry out comprehensive ESIA; diversification of crop types and promotion of intercropping; and inclusion of market evaluations in feasibility studies.
- o Principle 23 on supporting strong national and local institutions to ensure environmentally sustainable plantations.

International Labour Organization (ILO) Convention, C169 Indigenous and Tribal Peoples Convention

The company supports the International Labour Organization (ILO) Convention, C169 Indigenous and Tribal Peoples Convention which states that: 'These peoples shall have the right to retain their own customs and institutions, where these are not incompatible with fundamental rights defined by the national legal system and with internationally recognized human rights' (Article 8.2) and 'the social, cultural, religious and spiritual values and practices of these peoples shall be recognized and protected' (Article 5a). The company will work to support and protect the local language and dialects.

5.3 Stora Enso Corporate Standards relating to SIA

Stora Enso has a strong internal environmental and social policy and framework, including the Stora Enso Code of Business Conduct, Stora Enso Sustainability Policy and its constituent set of principles for Environment, Social Responsibility and Sustainable Wood and Fibre Procurement and Land Management, all of which inform the way the company conducts its business. The following are extracts from these standards which are of relevance to the Project.

5.3.1 Stora Enso Code of Business Conduct

The Stora Enso Code of Conduct acts as a set common game rules for everyone working at Stora Enso. The Code of Conduct ensures that as a global organisation we always take responsibility for our actions, and comply with local laws and regulations. It also ensures that every one of our employees has an equal right to a work place that is safe, healthy and free of discrimination (Stora Enso 2009).

A full extract of the code of conduct is available at <http://www.storaenso.com/sustainability/ourgame-rules/Code%20of%20Conduct/Pages/default.aspx> .

5.3.2 Stora Enso Sustainability Policy

Stora Enso's sustainability policy forms the cornerstone for the Group's social and environmental work and is the basis of the company's sustainability management. The sustainability policy describes the three pillars of sustainability; economic, environmental and social responsibility. (Stora Enso 2006)

5.3.3 Stora Enso Environmental Principles

The company's Environmental Principles are:

All operations are carried out in harmony with the environment and nature. Laws and regulations on environmental protection and decisions, orders and instructions issued by courts and authorities are strictly adhered to. In accordance with Stora Enso's environmental policy, we also aim, where possible, to exceed the environmental standards set for us.

5.3.4 Stora Enso Principles for Social Responsibility

The company's Principles for Social Responsibility are:

- Stora Enso is global, local and responsible.
- Stora Enso's aims are long-term profitability and value creation through business excellence.
- Respect for the individual and responsibility in business are important in running and developing our company. That applies especially to our participation in ongoing structural changes in the forest products industry.
- We comply with the principles of sustainable development, including social, environmental and economic aspects.
- Stora Enso follows the Principles for Social Responsibility and we expect our stakeholders to do the same. (Stora Enso October 2007)

5.3.5 Stora Enso Principles for Sustainable Wood and Fibre Procurement and Land Management

The company's Principles for Sustainable Wood and Fibre Procurement and Land Management, outline the way in which the company seeks to manage its plantations.

- Stora Enso's tree plantations are intensively managed, primarily for specific commercial purposes. In our view, sustainably managed plantations are economically profitable, enhance local welfare and have an important role in the conservation of native ecosystems.
- We recognize the increasingly significant role of tree plantations in global industrial wood production and actively promote sustainable plantation development.
- We apply a holistic approach in establishment, development and management of tree plantations.
- We design and manage plantations in a landscape context by recognizing them as part of local land use.
- We do not convert natural forests, protected areas or areas in the official process of designation for protection into plantations unless that is clearly in line with the conservation regulations.
- We recognize indigenous peoples' legitimate rights to traditional land and land use.
- We use environmental and social impact assessments and other participatory tools in seeking sound land-use decisions.
- We consider an open dialogue with all stakeholders as fundamental (Stora Enso, 2005).

5.3.6 Stora Enso Group Executive Team (GET)

The Stora Enso Group Executive Team (GET) is responsible for all strategic and policy decisions relating to sustainability.

The sustainability management team and its task forces handle day-to-day management and preparation of the proposals for sustainability policies. The sustainability management team and task forces include representatives from the Group functions, Stora Enso's four business areas, the Wood Supply service unit and the regional organisations in Latin America and China. The task forces are established as necessary to meet specific needs.

Stora Enso's business areas are responsible for the operational management of sustainability.

The Group Sustainability function's role is to "develop, support and follow-up Stora Enso's sustainability strategy, and ensure that policies, agreed targets and priorities are duly realised."

Further information is available on the SE company sustainability site (<http://www.storaenso.com/sustainability>).

5.3.7 Stora Enso Lao PDR's Project Policies

In June 2009, Stora Enso published a Project Manual for its plantation project in Lao PDR. This manual describes in detail the Project, SE's Sustainability Policy, Environmental Principles and Principles for Social Responsibility and how these will be applied to the Lao project.

6 Description of the Assessment Methodology

This Chapter outlines the methodology adopted to conduct the preliminary Socioeconomic Assessment, including definition of the Study area and methodology used to review previous studies and define the focus areas of the study, conduct field preparation, conduct field surveys and analysis of data.

6.1 Study Area

The study area for the preliminary Socioeconomic Assessment includes Nong and Ta oi districts which have been impacted by Pilot phase activities and will potentially be directly or indirectly impacted by the Project activities in the Feasibility phase and the Project Implementation phase. The Districts of Vilabuly and Sepone in Savannakhet province and Samuoi in Saravane province will also potentially be impacted by the Project Implementation phase but have not been included in this Stage 1 Socioeconomic Assessment.

6.2 Methodology

The methodology used to conduct the Socioeconomic Assessment is described in sections 6.2.1 to 6.2.4 below.

6.2.1 Review of Previous Studies and Definition of the Focus Areas for the Study

ESL's Project team compiled and reviewed key

secondary references relating to best practice for Social Impact Assessment generally and specifically for plantations, from international sources including the Food and Agriculture Organisation (FAO), International Finance Corporation (IFC), International Association for Impact Assessment (IAIA), the International Labour Organisation (ILO), and other sources.

The review also extended to National legislation, policy and the administrative framework on SIA pertaining to plantations in Lao PDR using key secondary references and translation of original legislation and policy documents.

Review of International and National standards enabled ESL to define the focus areas of the assessment for the field components of the study and the subsequent SIA report.

These areas are:

- Demography (including migration issues);
- Agricultural and forest land use, livelihood and food security (including agricultural production, livestock, Non-Timber Forest Products);
- Water resource use;
- Cultural heritage;
- Employment and labour issues;
- Community infrastructure;
- Community health and safety; and
- Process for Project engagement with impacted villages and other key stakeholders.

Consultations have been conducted with Stora Enso representatives in Lao PDR (in Vientiane, Nong district, Savannakhet and Ta oi District, Saravane) to obtain detailed information about the proposed plantation Project and Stora Enso's corporate policies on social impact assessment and corporate social responsibility. This information was cross-checked and verified with information obtained directly from the field during the field assessment.

6.2.2 Field Preparation

ESL's Project team prepared three (3) detailed questionnaires which formed the basis for field assessments. These included:

- A questionnaire designed to obtain quantitative village level data relating to the key focus areas of the social assessment;
- A questionnaire designed to obtain specific gender-related data including information on women's roles and women's perceptions of Project impacts; and
- A questionnaire designed to obtain village level qualitative data on change in key focus areas including Project-related impacts (both positive and negative) and perception of social mitigation measures implemented by the Project to date.

Questionnaires were pilot tested in Paloy village, Nong District, Savannakhet province to ensure village representatives understood all questions

being asked, a consistent approach to asking questions by the interview team was devised and the time taken to conduct the three (3) sets of questionnaires was tested.

6.2.3 Field Surveys

Village Consultation 1

The focus of the village consultations were those villages that will be directly impacted by the Project in the Project's Feasibility phase. Identification of Project-affected villages was based on the initial Project brief provided to ESL by Burapha at the commencement of the study.

Ten (10) villages were identified as having land resources that will potentially be directly affected by the Project in the Feasibility phase, six (6) villages in Nong District and four (4) villages in Ta oi district. Villages surveyed in Nong district were Ban La-ou, Ban Saloy Mai, Ban Tamloung, Ban Hou, Ban Loe and Ban Takor. Villages surveyed in Ta oi district were Ban Choravieng, Ban Tene, Ban Kang and Ban Lapeung.

One (1) additional village in Nong district (Ban Poun Nhang) and one (1) village in Ta oi (Ban Houkayo), which had not been impacted by the Project to date, were surveyed to serve as control villages to enable comparison with impacted villages.

Table 6-1 lists all villages which were surveyed as part of the Project. The table also shows where previous data exists on each of these villages from socioeconomic studies conducted by Stora Enso in 2007.

Table 6-1: Villages surveyed for the Socioeconomic Assessment and previously surveyed for the 2007 Socioeconomic Survey

Village Name/Location	Data sources	
	2007 Socioeconomic survey	Village Level Survey 2009
Nong district		
Ban Takor	✓	✓
Ban Tamloung	✓	✓
Ban Houp	✓	✓
Ban La-ou	✓	✓
Ban Loe	--	✓
Ban Saloy Mai	✓	✓
Ban Poun Nhang	--	✓
Ta oi district		
Ban Choravieng	✓	✓
Ban Kang	✓	✓
Ban Lapeung	✓	✓
Ban Tene	✓	✓
Ban Houkayo	--	✓

The above villages were surveyed over a period of 12 days from the 23rd of March until the 4th of April, 2009.

The objectives of ESL's village consultation program were to:

- Obtain baseline village-level socioeconomic data on impacted villages to supplement that already available from previous studies;
- Assess how the villages in the 257 ha Pilot plantation area have been impacted by establishment and operation of the Pilot phase of the Stora Enso plantation and to determine the nature and extent of the impact to date;
- Assess (to a preliminary level) how villages in the Project area are likely to be impacted by development of the larger 2022 ha Project;
- Identify the issues and concerns of the village in relation to the proposed Project;
- Review social mitigation measures imple-

mented by the Project in each village to date; and

- Obtain information from villagers on how social mitigation measures could be improved or expanded, and ideas for new measures.

The format for village consultation consisted of semi structured focus group discussions. At each village, after an initial introduction to the survey team and the aims and objectives of the social assessment and village survey, two focus groups were formed. The first comprised the village chief, village elders and other key village representatives to complete questionnaires one (1) and three (3). The second village focus group comprised women from the village including Lao women's union representatives to complete questionnaires two (2) and three (3).



Plate 6-1 Village leadership group, and women's group consultation.

Village Consultation 2

Follow up surveys were carried out in February 2010 in a total of four (4) villages, two (2) in Nong district (Ban Takor and Ban Tamloung) and two (2) in Ta oi district (Ban Choravieng and Ban Lapeung).

The objective of these follow up surveys was to:

- Clarify some information obtained during the first round of village surveys; and
- Allow the representative from UNDP to visit the villages impacted by the Pilot stage of the Project, develop an understanding of the socioeconomic status of the villages, impacts of the pilot stage success of mitigation measures and potential impacts of the feasibility phase.

The format for village consultation consisted of semi structured focus group discussions with the village chief, village elders and other key village representatives to complete questionnaire four (4).

For the follow up surveys, a second village focus group was formed with women representatives from two (2) villages in Nong district (Ban Takor and Ban Along) also to complete questionnaire four (4).

District, Provincial and Central Level Consultation 1

In addition to village consultations, two (2) meetings were held with officials from the Savannakhet and Saravane provincial, and Nong and Ta oi district Departments of Agriculture and Forestry, Land Management Authority, Department of Culture and the Lao Women's Union as well as Provincial and District administration representatives. The first of these meetings was held in Nong district (for Savannakhet province and Nong district officials) and the second in Ta oi district (for Saravane province and Ta oi district officials). The objectives of these meetings were to:

- Discuss the roles/responsibilities of Provincial and District offices in relation to the Project (planning, implementation and monitoring);
- Discuss the agencies perceptions of positive and negative social impacts associated with the Project that they have identified to date;
- Discuss the effectiveness of Social Mitigation measures implemented so far by the Project; and
- Assess the availability of district and provincial resources to monitor the social impacts of the Project in the Implementation phase.

Additional meetings were held in Vientiane with Central government agencies including Water Resources and Environment Agency (WREA), the Ministry of Agriculture and Forestry (MAF), the Ministry of Planning and Investment (MPI) and the National Land Management Authority (NLMA). NGOs working in the Project area, including Village Focus International and Oxfam Australia, the Government of Lao's Poverty Reduction Fund (funded by the World Bank and other donors) are also active in these two (2) districts and were also consulted.

District Consultation 2

Two follow up consultation meetings were carried out in February 2010 with District officials from the District Administration office, District Land department and District Agriculture and Forestry Office in Nong district and Ta oi district.

The objective of these follow up meetings was to:

- Clarify some information obtained during the first round of district meetings; and
- Allow the representative from UNDP to visit

the district representatives and obtain their perspective of the impacts of the Pilot stage of the Project, success of mitigation measures and potential impacts of the feasibility phase.

6.2.4 Data Entry and Analysis

Data obtained from the field surveys was entered into electronic format for analysis and alongside key secondary data, provides the basis for Chapters 9 and 10 of the social assessment report.

6.2.5 Survey Team

For the first village consultation stage, the Earth Systems Lao field survey team comprised four (4) ESL staff members, two (2) of whom were fluent in the Lao language. Village consultations were conducted in the Lao, Katang and Makhong languages. The survey team also comprised two (2) locally hired Katang-and-Makhong speaking interpreters (1 from each District). Two (2) of the team members leading the village level focus group discussions were women. Nong and Ta oi district government officials also accompanied the survey team for some portions of the field surveys to assist with logistics of the surveys and make the relevant introductions to the ESL survey team.

For the second stage, the Earth Systems Lao field survey team comprised two (2) ESL staff members, one (1) of whom was fluent in the Lao language. Village consultations were conducted in the Lao, Katang and Makhong languages with the assistance of locally hired Katang-and-Makhong speaking interpreters (1 from each District). Nong and Ta oi district government officials also accompanied the survey team for some portions of the field surveys to assist with logistics of the surveys and make the relevant introductions to the ESL survey team.

7 Socioeconomic Baseline

This Chapter of the report provides a summary of baseline socioeconomic conditions within the twelve (12) surveyed villages – seven (7) located in Nong district, Savannakhet Province and the remaining five (5) villages in Ta oi district, Saravane Province. This Chapter draws upon data from National, Provincial and District statistics, Stora Enso's 2007 baseline studies (Axelsson & Svensson Info. Consultants, 2007), and quantitative and qualitative data obtained during the 2009 and 2010 village surveys. Data is presented in this Chapter according to village location (Nong or Ta oi district), accompanied by summary tables to illustrate particularly important data.

7.1 Project Setting in Lao PDR

7.1.1 Lao PDR

The Stora Enso Project is located in Southern Lao PDR, in the Provinces of Savannakhet and Saravane.

7.1.2 Savannakhet Province

Savannakhet province is the largest province in Lao PDR in geographical area (21,774 km²) stretching from the Annamite mountain range on the Vietnamese border to the east and the Mekong River and the Thai border to the west, and bounded by Khammouane and Saravane provinces to the north and south, respectively. In population terms, Savannakhet is the second largest in Lao PDR with a population of 824,662 people

(NSC, 2005). The province is divided into 15 districts and has a total of 1543 villages and 132,301 households, with an average household size of 6.3 people. The average land area of each village in Savannakhet is 14 km².

7.1.3 Saravane Province

Saravane province covers an area of 10,691 km². Similar to Savannakhet, Saravane stretches across Lao PDR from the Annamite mountain range on the Vietnamese border to the east and the Mekong River and the Thai border to the west. The province is bounded by Savannakhet Province to the North and Sekong and Champasak Provinces to the south. Saravane has a population of 324,470 people (NSC, 2005). Saravane is divided into eight (8) districts and has 724 villages and 53,141 households, with an average household size of 6.1 people. The average land area of each village in Saravane is 15 km².



Plate 7-1 Typical terrain in the Project area

7.1.4 Target Districts

The Project's five (5) target districts - Nong, Sepone, Vilabuly, Ta oi and Samuoi are located along Savannakhet and Saravane's eastern border, adjacent to the Vietnamese border (Figure 3-1). The general terrain of the Project's target districts is characterised by undulating and fallow landscapes interspersed with large pockets of re-growth and remnant forest, surrounded by mountains consisting largely of secondary, evergreen, semi-evergreen and montane rainforest (IUCN, 2007).

The districts of Nong and Ta oi (focus of this assessment) are recognised as amongst the 72 poorest in Lao PDR and the 47 listed as priority for Government of Lao intervention in 2003-2005 (NGPES, 2003).

Criteria provided by the GoL for identifying villages as poor in the NGPES, include

- Districts where over 51 percent of the villages are poor.
- Districts where over 40 percent of the villages do not have local or nearby schools.
- Districts where over 40 percent of the villages do not have a dispensary or pharmacy.
- Districts where over 60 percent of the villages are without an access road.
- Districts where over 40 percent of the villages do not have safe water.

Within Nong district, 93.8 percent of villages were reported to be poor, and 86 percent of all households. Similarly within Ta oi, 63 percent of villages were reported to be poor and 83 percent of all households poor (NGPES, 2003).

The United Nations World Food Programme, also describes Nong and Ta oi Districts as highly vulnerable to food insecurity in its District Vulner-

ability Analysis report (WFP, 2005), Vulnerability is defined in the report as:

- "The full range of factors that place people at risk of becoming food-insecure. The degree of vulnerability of individuals, households or groups of people is determined by their exposure to the risk factors and their ability to cope with or withstand stressful situations."

Eight (8) indicators were included in the analysis including rice production per capita, cropping diversity, livestock ownership, access to forested areas, access to roads and rivers, malaria incidence, UXO impact and education.

7.1.5 Project Area

All of the twelve (12) surveyed villages are located in clearly defined settlements, with village lands occupying an area of between 491 and 3470 ha. Villages vary greatly in their proximity to services and community infrastructure. Ban Poun Nhang (Nong district) and Ban Houkayo (Ta oi district) are located in close vicinity to Nong and Ta oi district centres, whereas the majority of the villages in both districts are located further away (5-20 km) from the two (2) district centres in rural areas, but areas still accessible by motorbikes and cars at most times of the year. Two (2) of the surveyed villages, Ban La-ou and Ban Houp (both in Nong district) are located in very isolated mountain areas, only accessible by walking or by motorbike as a result of very poor road infrastructure.

7.2 Historical Overview

During the Indochina war from 1964 to 1973, Lao PDR became one of the most heavily bombed countries in history. The Project's five (5) target districts were particularly heavily bombed and im-

pacted by the use of defoliants, as they are intersected by the Ho Chi Minh trail, which was used by the North Vietnamese army as a transport route between northern and southern Vietnam.

Between these years, it is estimated that, 1.1 million tonnes of bombs were dropped on the trail (Robbins 2000), leading to villages being deserted or destroyed by bombs and fires. Livestock was killed and village populations were forced to take refuge in the forests. Agricultural production was reduced to a minimum because of this and

because of the American use of defoliants such as Agent Orange and Agent Blue (NSR 2001).

Discussions with villagers during village surveys indicate that after the war (from 1975 onwards); village life has been more stable, enabling villages to re-establish and rebuild. Most surveyed villages have been at their current locations since this time, with the exception of three villages: Ban Tamloung, Ban Houph and Ban Tene which have a history extending for more than 100 years.



Plate 7-2 War remnant near Ban Choravieng, and preserved section of the Ho Chi Minh trail, Nong district

7.3 Demographic Characteristics of Surveyed Villages

7.3.1 Population

A total of 582 households containing approximately 4,016 persons were present in the twelve (12) surveyed villages. Villages range in population size from the largest village, Ban Choravieng, located in Ta oi district, with a population of 588 to the smallest village, Ban Saloy Mai located in Nong district, with a population of 160.

The average household size in surveyed villages is 6.9 persons per household, which is higher than the country average of 5.9 persons per household (NSC, 2006). Of the surveyed villages, Ban La-

ou in Nong district has the lowest average household size at 5.4 persons while Ban Choravieng, in Ta oi district has the highest average household size at 9.6 persons.

In terms of population density, the average across all surveyed villages was 22 persons/km². This compares to 38 persons/km² for Savannakhet, 30 persons/km² for Saravane and 24 persons/km² for Lao PDR as a whole. The highest population density of 35 persons/km² was found in Ban Houkayo, while the lowest population density was found in Ban Tene at 16 persons/km².

Table 7-1, provides more information on the demographic characteristics of each individual surveyed village including population, sex, number of households and average household size and population density.

Table 7-1: Demographic characteristics of surveyed villages

District/Village	Population			Total households	Average household size	Population Density (km ²)	
	Female	Male	Total			Land Area (km ²) ⁽³⁾	Density (km ²)
Nong District	10,561	10,545	21,106	3,340		1,506	14
La-ou	110	110	220	41	5.4	12.98	17
Saloy Mai	88	72	160	26	6.2	4.91	33
Tamloung	224	345	569	83	6.9	25.38	22
Houp	107	103	210	31	6.8	12.67	17
Poun Nhang	125	126	251	43	5.8	N/A	
Loe	136	125	261	43	6.1	10.95	24
Takor	118	141	259	46	5.6	14.28	18
Subtotal	908	1,022	1,930	313	6.2	81	
Ta oi District	11,871	12,039	23,910	3,074		2,346	10
Choravieng	237	351	588	61	9.6	34.70	17
Tene	250	252	502	73	6.9	30.90	16
Kang	228	207	435	63	6.9	15.65	28
Lapeung	125	132	257	31	8.3	15.07	17
Houkayo	151	153	304	41	7.4	8.75	35
Subtotal	991	1,095	2,086	269	7.8	105	20
Total	1,899	2,117	4,016	582	6.9	186	22



Plate 7-3 People in the Project area participating in village consultations

Sex Ratios

Sex ratios in surveyed villages indicate that there are slightly more men than women in village populations, with an overall sex ratio of 1.1 (Table 7-2), suggesting a higher male population than the national ratio for Lao PDR of 0.98 (NSC, 2006). The higher proportion of men to women is consistent with findings from other in areas of the world where health services are poor, and can probably be attributed to high death rates of women during child birth.

Sex ratios were similar in villages in both Nong district (1.13) and Ta oi District (1.11) suggesting that there is no correlation between sex ratio and the different ethnic groups in these two districts.

Table 7-2: Sex ratios in surveyed villages

District/Village Name	Sex ratio
Nong District	
La-ou	1.00
Saloy Mai	0.82
Tamloung	1.54
Houp	0.96
Poun Nhang	1.01
Loe	0.92
Takor	1.19
Subtotal	1.13
Ta oi District	
Choravieng	1.48
Tene	1.01
Kang	0.91
Lapeung	1.06
Houkayo	1.01
Subtotal	1.10
Total	1.11

There was considerable variation in sex ratios between villages. In Nong district for example, Ban Tamloung has the highest ratio of men to women (1.54) while Ban Saloy Mai has the lowest at 0.82. In Ta oi district, Ban Choravieng has the highest ratio of 1.48, while Ban Kang has the lowest sex ratio of 0.91.

No data is available on dependency ratios as key informants at the village level were unable to provide population data disaggregated by age.

Population Trends

According to the results of 2009 village surveys the populations of surveyed villages increased by 36 people in 2008 or 0.9 percent. This rate of population growth is considerably lower than that for Savannakhet (2.1 percent) and Saravane provinces (2.4 percent).

Discussions with key informants during village surveys suggest that natural growth has contributed to the majority of the increase in the population of the surveyed villages over the last year, with key informants in each village reporting that there were a total of 96 births and 59 deaths in the villages in 2008, a net increase of 37 people.

The survey results also suggest that surveyed villages have not been significantly influenced by inward and outward migration (31 immigrants and 32 emigrants in total resulting in a net decrease of 1 person). Migration of people in the surveyed villages was minimal in the majority of surveyed villages apart from a large inward migration of 21 people (3 households) in Ban Lapeung and outward migration of 18 people (3 households) in Ban Tamloung over the last year. In both these cases, the reasons given for the movement of people into and out of the two (2) villages were

families moving to be closer to their extended families. Findings from the village surveys suggest that any movement of people to work for the Project was only temporary in nature to carry out their days work before returning to their home vil-

lage at night. For example, in Ban Lapeung, villages noted that at the time of land clearance, villagers from the nearby villages of Beng and Hala also came to work but returned home at the completion of the land clearance work.

Table 7-3: Reasons for changes in village populations in 2008

District/Village Name	Natural growth			Migration			Total Change	% change in 2008
	No. of births	No. of deaths	Net change	Number of people moving in	Number of people moving out	Net migration		
Nong District								
La-ou	5	7	-2	3	-	3	1	0.46
Saloy Mai	11	4	7	1	-	1	8	5.26
Tamloung	5	9	-4	-	18	-18	-22	(3.72)
Houp	5	4	1	-	4	-4	-3	(1.41)
Poun Nhang	10	-	10	-	-	-	10	4.15
Loe	9	4	5	-	-	-	5	1.95
Takor	4	6	-2	6	5	1	-1	(0.38)
Subtotal	49	34	15	10	27	-17	-2	(0.10)
Ta oi District								
Choravieng	4	5	-1	-	3	-3	-4	(0.68)
Tene	12	4	8	-	-	-	8	1.62
Kang	7	3	4	-	-	-	4	0.93
Lapeung	16	12	4	21	2	19	23	9.83
Houkayo	8	1	7	-	-	-	7	2.36
Subtotal	47	25	22	21	5	16	38	1.86
Total	96	59	37	31	32	-1	36	0.90

If the 0.9 percent growth rate is used to calculate the population in 50 years time (the length of the Stora Enso concession), excluding any other factors such as immigration, the population will be approximately 6,286 people. Using the average household size for each village, this population equates to approximately 911 households.

7.3.2 Ethnicity

Lao PDR is considered to be one of the most ethnically diverse countries with more than 50 listed ethnic groups. Successive Lao PDR governments since the 1950s have referred to three main ethnic groups in Lao PDR mainly based on the perceived relationship of different groups to the land, these groups are the:

- Lao Loum: the lowland (plains) Lao people, including the Tai Kadai-speaking groups such as the Lao and the Phou Thai.
- Lao Theung: the upland (hill) Lao people including all the Mon Khmer-speaking groups such as the Makhong, Katang, Tri (or Chali) and others.
- Lao Soung: the highland (mountain) Lao people including all the Sino-Tibetan speakers such as the Hmong. The Lao Soung is the only group not resident in the two (2) Project Districts.
- This classification of ethnic groups has recently fallen out of favour with the Lao PDR Government, consistent with their efforts to maintain solidarity between ethnic groups in the Lao PDR.

Ethnic groups in Lao PDR are now divided into four main language families; the Lao-Tai, Sino-Tibetan, Hmong-lu Mien and Mon-Khmer. Within these four language families, the Mon-Khmer has the highest and most variable number of sub groups at 32. However, in terms of population number the Lao-Tai group represents the highest with about 55 percent of the population at the national level, followed by the Khmou (20 percent) under the Mon-Khmer family, and Hmong under the Hmong-lu Mien family (20 percent).

The ethnic makeup of surveyed villages is divided along District lines. Within the surveyed villages of Nong district, village populations are largely homogeneous in ethnic makeup with almost 100 percent of the villagers from the Makhong ethnic group (Mon Khmer or Lao Theung classification) with the exception of one villager from the Phou Thai ethnic group (Lao Tai or Lao Loum classification) in Ban La-ou. Similarly, in Ta oi district, approximately 96 percent of the villagers are from the Katang ethnic group (Mon Khmer or Lao The-

ung classification), and the remaining villagers are from the Lao Loum ethnic group (Lao Tai or Lao Loum classification).

The Makhong and Katang people from Nong and Ta oi districts share the same Mon-Khmer myth about an original flooding that covered the earth and a water gourd where the first human originated from. The ancestors of this family also mentioned that, they used to have their own written script, however, as it was carved on a buffalo skin, which easily got wet was consumed by dogs. Thus, this carving was destroyed and explains the myth why people in this area are mostly illiterate (Daviau, 2004).

The ancestors of the Makhong used to live in mountain areas between Lao PDR and Vietnam, however, for the past two generations many have moved to the lowlands and integrated with the local people. In terms of religion, the Makhong are mainly animist. They believe in forest and ancestral spirits, and they make regular sacrifices of food and harvested products to pay their respects throughout the year. The Makhong are often viewed as one people with other Mon Khmer groups the So and the Bru (Brao) people as their languages are similar, however, they have their unique ethnic identity.

The Katang people live broadly throughout Southern Lao PDR, the majority live in mountainous areas of Atsaphangthong, Thapangthong, Xanbouri, Pin, Songkhon and Champon districts of Savannakhet province, and in Khonxedon, Ta oi, Toumian, Saravane, Laongam and Vapi districts of Saravane province. In recent years, many Katang villages have moved from mountains to lowland areas. In more remote areas, the Katang people traditionally lived in longhouses with roofs made from braided leaves. Longhouses were often up to 100 meters long and inhabited by large numbers of different families.



Plate 7-4 Cultural traditions in Ban Chora vieng (Ta oi district)

7.4 Land and Livelihoods

7.4.1 Land Ownership

In recent years the Ministry of Agriculture and Forestry has commenced its LAFA program in Nong district, however in Ta oi district the LAFA program is yet to begin. Despite the fact that the villagers have no ownership on land, villagers have the right to use the land for their daily livelihood activities, particularly for agriculture practices and NTFP collection. For the land use for agriculture practices, villagers must pay annual land use tax to the government.

Despite the presence of land allocation program in some villages, results of the village surveys indicate that disputes over land boundaries are still common, with all villages except Ban La-ou, Ban Saloy mai, Ban Houp and Ban Choravieng villages noting that they are currently in dispute with their neighbouring villages regarding village boundaries.

Within all surveyed villages, land is held communally with the exception of rice paddies and land in the immediate vicinity of houses in the village settlement areas.

7.4.2 Agriculture

The two (2) districts are primarily dependent on a subsistence economy with agriculture as the main occupation and livelihood of much of the districts' populations, with a focus primarily on rice cultivation and animal husbandry, supplemented by consumption of Non Timber Forest Products (NTFPs). According to the 2006 census, agriculture and livestock, represents up to about 96 percent of Nong economy and 97.5 percent of Ta oi economy (NSC, 2006). This is typical for Lao PDR in general where subsistence agriculture, dominated by rice, accounts for half of the gross domestic product (GDP) and provides 80 percent of total employment (CIA, 2006).

There appears to be a trend in both districts away from complete reliance on agriculture for economic development. In the most recent report from the Ta oi District, Investment Planning Office, 2008 for example, income from agriculture represents about 89 percent while other activities including trading and handicrafts make up the remaining 11 percent (Ta oi District, Investment Planning Office, 2008, unpublished document).

Some limited diversification was observed in some surveyed villages such as Ban Poun Nhang where villagers have adopted new livelihood opportunities such as planting their own plantations of Yang bong (*Persea kurzii*) trees for bark extraction and sale to Vietnamese traders. Similarly in Ban Takor, villagers expressed their view that they would like to spend money from the Project's Village Development Fund to invest in establishing Yang bong plantations. Villages in Ban Kang

noted an increase in the amount of cassava planted in the village. Some villages noted that there was some improvement in agricultural technologies being adopted by villages (e.g. Ban Loe noted that there had been an increase in tractor usage for paddy field preparation). A small rice mill was noted to be present in one (1) village (Ban Tamloung).

Independent of the villages, there are at least two known rubber plantations being established within the districts as well as eucalypt plantations being established by other companies and a Jat-ropha plantation.

Availability of Agricultural Land

Table 7-4 details the existing agricultural land

area and household in surveyed villages using available land use data generated from satellite imagery by Stora Enso (Stora Enso 2009). For the purposes of this analysis, agricultural land is defined as all village land with the exception of spirit forests, conservation forests, production forests and settlement areas. This is consistent with the analysis of swidden cultivation cycles of the Makhong ethnic group by Daviau (2004) who suggests that all land within a village's land boundaries with the exception of these areas can be considered as available for swidden agricultural production. No data is available on the area of paddy fields nor is detail available on the type of swidden agricultural land (e.g. whether the land is currently being used for swidden agriculture or the land is former swidden land).

Table 7-4: Agricultural resources in surveyed villages

District/Village name	Village land area (ha)	Available agricultural land (ha)	Percentage of village lands	Agricultural land availability per household (ha)	Agricultural land availability per household per year for swidden rotation [^] (ha)
Nong District					
Ban Sang Chien	706.3	633.3	90%	*	*
Ban Takor	1457.1	1273.0	87%	27.7	3.95
Ban Tamloung	2537.6	2201.0	87%	26.5	3.79
Ban Houph	1267.0	1175.3	93%	37.9	5.42
Ban La-ou	1298.1	1260.2	97%	30.7	4.39
Ban Loe	1095.3	1033.6	94%	24.0	3.43
Ban Saloy Mai	490.5	415.3	85%	16.0	2.28
Ban Saloykao	584.3	569.3	97%	*	*
Subtotal	9436.3	8561.1	91%	31.7	4.5
Ta oi Disfrict					
Ban Choravieng	3492.0	3477.7	100%	57.0	8.14
Ban Kang	1564.6	1548.7	99%	24.6	3.51
Ban Lapeung	1506.7	1486.8	99%	48.0	6.85
Ban Tene	3090.5	3071.6	99%	42.0	6.01
Subtotal	9653.8	9584.9	99%	42.0	6.0
Total	19,090	18,146	95%	36.4	5.2

*Data not available at time of report preparation, ^ Assumes 7 year rotation as an optimal fallow period

Table 7-4 indicates that villages in Nong district have between 415.3 and 2,201 ha of agricultural land with the smallest area in Ban Saloy Mai and largest area in Ban Tamloung. In terms of agricultural land availability per household in villages in Nong district, Ban Saloy Mai has the smallest area (15.97 ha) and Ban Houph the largest area per household (37.91 ha).

In Ta oi district, villages have between 1486.8 and 3477.7 ha of agricultural land with the smallest area in Ban Lapeung and largest in Ban Choravieng. In terms of agricultural land availability per household in Ta oi, Ban Kang has the smallest area per household (24.6 ha) and Ban Choravieng the largest (57.01 ha).

Agricultural Production

The two basic forms of agricultural land use in surveyed villages in the two (2) districts are rotational swidden cultivation of glutinous or sticky rice as well as other upland crops such as corn and cassava (sometimes referred to as 'slash-and-burn' or 'shifting cultivation') and rice grown in permanently cultivated fields, i.e., paddy rice.

Swidden Cultivation

Swidden cultivation is known as hai (or ray) cultivation in Lao PDR. The swiddens are cultivated for one season only, as the fertility of the soil is usually exhausted after a single crop. Since the Lao PDR law prohibits villages to clear primary forest for hai cultivation, swiddens are primarily cleared on slopes with secondary regrowth. Swidden cultivation cycles begin in February with the clearing of land. The cleared vegetation is then left to dry until the first burning which typically takes place in April. A subsequent second burning and then planting takes place in Mid May and the fields are then fenced to keep out domes-

tic and wild animals. After the swidden crops are harvested in late October-November, ideally, the swidden fields should be left fallow for about eight years, but in surveyed villages, survey results suggest that the fallow period is rarely more than three or four years. The reason for this is that although land is plentiful overall, the amount of legally available land for swidden production in surveyed villages is not. The amount of land needed for continuing hai cultivation is at least three or four times the area actually cultivated at any given moment.

All surveyed villages tended swidden fields in 2008 and this is recognised as their main source of agricultural production. The swidden area tended by each individual village in the preceding year is difficult to ascertain in the absence of detailed land use maps for the villages, which have digitised the area of swidden fields cultivated in 2008. This is due largely to the difficulty of village informants in accurately estimating the swidden area.

During the second round of village interviews, village informants noted that an average household would tend between 1-2 ha of swidden fields per year. Using two (2) ha per household as a conservative figure, and available data on number of households in each village, it was possible to estimate that approximately 1164 ha of swidden fields were tended in total in 2008 and the average area of swidden fields tended in each of the twelve (12) villages was 97 ha (Table 7-5). No information is available from village surveys on villager's preference for different areas of swidden agricultural land within their village boundaries.

The productivity of the hai fields is modest, and in 2008, results of village surveys indicate that the average yield in the two (2) districts was approximately 1,182 kg of rice per hectare. This yield is lower than the published average yield for swidden rice production in Nong district of 1,500 ki-

lograms per hectare (DPI 2008), and that of Savannakhet Province (1,560 kg/ha) and Lao PDR 1,610 kilograms per hectare. (Lao-IRRI, 2000). Productivity is considered to vary considerably

according to the length of the previous fallow period(s) as well as with the steepness of the slopes and the persistence of the kinds of weeds growing in the field.

Table 7-5: Approximate area of swidden fields and yields of upland rice in 2008

District/Village Name	Estimated area of swidden fields (ha)*	Approximate yield of shifting cultivation (kg/ha/yr)	Production (kg)
Nong District			
La-ou	82	2500	205000
Saloy Mai	52	1200	62400
Tamloung	166	900	149400
Houp	62	1050	65100
Poun Nhang	86	1500	129000
Loe	86	450	38700
Takor	92	600	55200
Subtotal	626	8200	704800
Ta oi District			
Choravieng	122	2000	244000
Tene	146	480	70080
Kang	126	500	63000
Lapeung	62	2000	124000
Houkayo	82	1000	82000
Subtotal	538	5980	583080
Total	1164	14180	1287880
Average	97	1182	107323

*Assuming 2 ha of swidden fields are tended by each household in the village



Plate 7-5 Swidden agriculture fields in villages in the Project area

The Lao government has a policy goal to reduce, and eventually eradicate swidden cultivation in the country as a whole (Lao PDR 1997) (See Chapter 5 for more details). This policy is pursued primarily for ecological reasons, i.e. to protect the forest cover which has diminished significantly over the past decades, both as a consequence of swiddening and excessive commercial logging.

Paddy Rice Production

Paddy cultivation is not as extensive as swidden in the two (2) districts, due to the limited availability of suitable land for permanent paddy fields which require flat or gently sloping land.

The paddy cultivation cycle starts with the preparation of seed-beds for seedlings in February. In April, the previous year's stubble is burnt and the fields are then ploughed when the soil is sufficiently moist, usually in late May. Fields are ploughed for a second time in June after which the field is harrowed, to remove the weeds uprooted by the ploughing. In the two (2) districts, buffaloes have traditionally been used as draft animals for ploughing and harrowing. Hand tractors are often used in other districts of Savannakhet and Saravane and elsewhere throughout the

country and it can be expected that their use will increase in the two (2) districts in the future.

Six (6) of the twelve (12) surveyed villages farmed rice paddies in 2008, with a total area of 93.1 ha, predominantly in Ta oi district. Comparing the two (2) districts, villages in Ta oi district have the largest area of paddy fields (91.6 ha) with only a negligible area in Nong district (1.5 ha). The largest areas were held by Ban Choravieng (40 ha) and Ban Kang (37 ha), both in Ta oi district (Table 7-6). In these villages, rice paddies were introduced into the area by NGOs and the Government of Lao PDR departments over the last 10 years to encourage the termination of slash and burn cultivation and implement more sustainable and environmental friendly farming practices.

According to the village survey, the productivity of paddy fields in 2008 was less than that of swidden fields reported at an average of 865 kg/ha over the six (6) villages. This level of paddy rice productivity is low for Lao PDR where average yields for highland rain fed paddy are reported as 2040 kg/hectare (MAF, 2007). A small number of households in the area raise fish within small ponds typically within the area used for paddy production.

Table 7-6: Approximate area of paddy fields and yields of paddy rice in 2008

District/Village Name	Approximate area of rice paddies (ha)	Approximate yield of rice paddies (t/ha/yr)	Production (kg)
Nong District			
La-ou	-	-	
Saloy Mai	-	-	
Tamloung	-	-	
Houp	-	-	
Poun Nhang	1	600	600
Loe	0.5	450	225
Takor	-	-	
Subtotal	1.5	1050	825
Ta oi District			
Choravieng	40	2100	84000
Tene	2	540	1080
Kang	41.6	500	20800
Lapeung	8	1000	8000
Houkayo	-	-	
Subtotal	91.6	4140	,
Total	93.1	5190	114,705
Average	16	865	19,118

Household Gardens

Within surveyed villages, small fenced plots for growing vegetables in the dry season are established along the river banks and close to the small streams that are usually running through the villages or in small plots within the village settlement area. The crops grown include lettuce, pumpkin, cucumber and similar greens, mustard, and condiment greens like coriander, garlic and chillies. The gardens are usually watered either by carrying buckets of water from the river or,

where the garden plots are right on the river bank, simply by splashing water directly from the river onto the garden. Vegetables for daily use (e.g. onions), are also grown in elevated beds next to villager's houses.

Household gardens in surveyed villages were regarded as primarily for domestic consumption but representatives from some villages (e.g. Ban Tene) commented that they could produce an excess but are constrained as they don't have access to a market in which to sell them.



Plate 7-6 Vegetable gardens in old bomb casings in the Project area

Rice Deficiency

Villages in the Project area are still highly susceptible to rice deficiency. Across all villages in Nong and Ta oi districts, on average, only seven (7) percent of households had an excess amount of rice for the whole year, with 30 percent of households having enough for 9-12 months consumption, and 44 percent of villages having enough for only 6-9 months consumption. The remaining 19 percent of households only had enough rice to consume for 3-6 months. Levels of rice deficiency varied greatly across Project villages. In Nong district, more households for example, had a rice surplus (11 percent) than in Ta oi (1 percent).

In terms of individual villages, Ban Houp and Ban Saloy Mai reported the greatest proportion of their households as having rice surplus (23 and 32 percent respectively). In contrast, Ban Loe and Ban Lapeung reported the greatest proportion of their households as being without rice for 6-9 months (58 and 55 percent respectively).

Results of village interviews indicate that the numbers of households experiencing annual rice

deficiency have increased in recent years due to lower production levels as a result of unstable weather patterns, inadequate water supply and poor soil quality.

Levels of rice deficiency in surveyed villages are much higher than those for Lao PDR as a whole, where it is estimated that in normal conditions, around one third (33 percent) of the population of Laos experiences rice shortfalls for two to six months a year (WFP, 2005). The WFP study also suggests that the upland population, which is largely comprised of ethnic minorities, is among the poorest and most food insecure and increasingly traditional coping mechanisms such as the use of forest and non-rice carbohydrate foods and wage labor are becoming inadequate to fill the food gap. The WFP study also introduces some of the health impacts of food insecurity which it notes are, "40 percent of children under five are underweight, 15 percent are moderately or severely wasted, and 41 percent are stunted. Maternal mortality (530/100,000) and under-five mortality rates (107/1,000) are among the highest in the world".

Table 7-7: Numbers of households in surveyed villages reporting to have a rice surplus or rice deficit in 2008

District/Village Name	Total HH in 2009	Surplus of rice		HH with rice for 9 – 12 months		HH with rice for 6 - 9 months		HH with rice for 3 - 6 months	
		% of HH	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH	No. of HH
Nong District									
La-ou	41	15%	6	73%	30	12%	5	0%	-
Saloy Mai	26	23%	6	38%	10	38%	10	0%	-
Tamloung	83	8%	7	18%	15	30%	25	43%	36
Houp	31	32%	10	23%	7	16%	5	29%	9
Poun Nhang	43	12%	5	23%	10	65%	28	0%	-
Loe	43	0%	-	0%		42%	18	58%	25
Takor	46	0%	-	9%	4	83%	38	9%	4
Subtotal	313	11%	34	24%	76	41%	129	24%	74
Ta oi District									
Choravieng	61	7%	4	93%	57	0%	-	0%	-
Tene	73	0%		41%	30	45%	33	14%	10
Kang	63	0%	-	11%	7	71%	45	17%	11
Lapeung	31	0%	-	13%	4	32%	10	55%	17
Houkayo	41	0%		0%		100%	41	0%	-
Subtotal	269	1%	4	36%	98	48%	129	10%	28
Total	582	7%	38	30%	174	44%	258	19%	112

7.4.3 Livestock

For the majority of farmers in Lao PDR, animal husbandry represents a source of animal protein. More importantly, domestic animals are also a source of cash income, mainly for buying rice during the months when there is a rice deficit. At the National level in 1997/1998 for example, approximately 30 percent of cash income from agriculture was from livestock sales. In addition, farmers also raise livestock for capital or wealth accumulation and use them to help in cultivation and for transportation. Livestock prices were con-

sidered more stable than those for cash crops (Stur, et al., 2002).

The buffalo is used as the draft animal where paddy cultivation is practiced. In all surveyed villages, livestock are raised as a major or backup source of income for the villagers. When faced with rice-shortages, a cow or buffalo will be sold and the obtained cash will sustain the household for at least a year. The buffalo is also the prime sacrificial animal among the Katang and Makhong people. Cattle, pigs and chickens are kept for both meat and sale, and chickens are also

raised for their eggs. Pigs and chickens further serve as sacrificial animals for the spirits. Domestic animals raised in surveyed villages in the two

(2) districts include buffaloes, cattle, pigs, goats and poultry (Table 7-8).

Table 7-8: Average numbers of livestock of different types in surveyed villages in 2008

District/Village Name	Domestic animals per household				
	Buffalo	Cow	Goat	Poultry	Pigs
Nong District					
La-ou	0.07	0.15	0.12	0.98	0.98
Saloy Mai	0.92	1.85	0.77	0.00	2.00
Tamloung	0.36	1.20	0.36	0.00	0.24
Houp	0.90	1.13	0.32	10.16	0.81
Poun Nhang	1.05	0.74	1.33	7.16	1.16
Loe	0.58	0.93	0.47	4.65	1.05
Takor	0.41	0.20	0.15	3.26	1.00
Average	0.56	0.86	0.48	3.24	0.89
Ta oi District					
Choravieng	0.82	1.15	0.16	0.00	0.98
Tene	1.23	0.82	0.00	3.07	0.82
Kang	1.25	0.70	0.00	0.00	0.00
Lapeung	2.26	1.06	1.61	9.68	1.29
Houkayo	2.20	2.46	0.66	0.00	0.49
Average	1.41	1.14	0.32	1.95	0.67

Populations of livestock in surveyed villages appear highly variable with some large decreases reported over the last year, with chicken and pig numbers particularly impacted. Villagers from Ban Choravieng for example noted that they had recently lost 40 buffalo and 5-6 cows from disease, and Ban Takor noted that they had lost 20 cows. Villagers from Ban Choravieng also noted that they have recently benefited from a district government program which assisted them to plant good rice for their cattle and provided technical advice to farmers on livestock raising.

The main reasons given for reductions in livestock numbers were animal diseases, which had wiped out many of the livestock numbers, and rice-shortages which had forced villagers to sell their livestock for cash income. The ADB's Participatory Poverty Assessment (2006) noted that across Lao PDR, the second most frequently identified cause of poverty was livestock disease, mainly due to lack of veterinary assistance and availability of livestock vaccinations.



Plate 7-7 Villagers feeding livestock in the Project area

7.4.4 Forest Resources (including Hunting/Fishing)

Forests form a crucial economic base for rural communities in Lao PDR, particularly those located in remote areas such as most of the surveyed villages. Forests provide a variety of products for local villages including Timber Forest Products (TFPs) for house construction heating and cooking, and Non-Timber Forest Products (NTFPs). As a source of NTFPs forest resources, both as an important supplementary subsistence for household consumption and usage, and source of traditional medicines play a crucial role in the health and livelihood of local villagers and form a resource base that can provide long-term livelihood security. NTFPs, through their trade, also provide a valuable source of cash income, which is used to buy rice in times of rice deficits (de Beer and McDermott 1989).

Results of a research pilot project conducted from 1995-2000 by the Forestry Research Centre (FRC), Department of Forestry, and IUCN, NTFPs were attributed to the following values:

- Social mitigation by supporting poverty alleviation, food security, gender and social equity;

- Protection and Conservation of forest, biodiversity and landscapes/watersheds; and
- Development of sustainable forest-based commerce and industry.

Further studies by FAO (2005) suggest that collection of NTFPs provides a greater economic value per hectare compared to rice or crop cultivation in upland areas. The World Bank (2007) further suggests that this could equate to an average Lao rural family consuming an equivalent of USD 280 of NTFPs per year. The value of NTFPs to villages in the vicinity of the Project area was confirmed by Daviau (2004) who reported that villages rely heavily on forests for supplemental food, medicinal plants and wood for fuel and shelter.

Availability of Forested Land

Table 7-9 details the area of existing forest resources in surveyed villages using available land use data generated from satellite imagery by Stora Enso. Forest areas within surveyed villages have been classified as spirit forests, conservation forests and production forests. This classification is limited, as aside from classification into forest category, no information is provided on cur-

rent forest condition within these designated forest areas, or information on villager preferences for collection of NTFPs from different forest areas. Across all surveyed villages, villagers had access to 1161.8 ha of designated forest areas, 1107 ha in Nong district and 54.9 ha in Ta oi District. The

largest forested area in Nong district is found in Ban Tamloung (329.8 ha) with forest areas in all other villages ranging from 13.7 to 263.7 ha. In Ta oi district, the largest forested area is found in Ban Lapeung (18.07 ha) with forest areas in all other villages ranging from 10.2 to 16.1 ha).

Table 7-9: Forest resources in surveyed village in Nong and Ta oi district villages

District/Village name	Village land area (Ha)	Village spirit forest		Village Conser- vation forest		Village Production Forest		Total	
		Area	%	Area	% of	Area	%	Area	%
Nong District									
Ban Along	2307.9	240.4	10.4	23.3	1	0	0	263.7	11.4
Ban Sang Chien	706.3	39.9	5.6	21.3	3	0	0	61.2	8.7
Ban Takor	1457.1	148.9	10.2	34	2.3	0	0	182.9	12.6
Ban Tamloung	2537.6	207.7	8.2	100.5	4	21.6	0.9	329.8	13.0
Ban Houp	1267	66.3	5.2	23.5	1.9	0	0	89.8	7.1
Ban La-ou	1298.1	33.8	2.6	0	0	0	0	33.8	2.6
Ban Loe	1095.3	40	3.7	18.6	1.7	0	0	58.6	5.4
Ban Saloy Mai	490.5	73.5	15	0	0	0	0	73.5	15.0
Ban Saloykao	584.3	13.7	2.3	0	0	0	0	13.7	2.4
Subtotal	11744.1	864.2	7.4	221.0	1.9	21.6	0.2	1107	9.4
Ta oi District									
Ban Choravieng	3492	10.6	0.3	0	0	0	0	10.6	0.3
Ban Kang	1564.6	10.2	0.7	0	0	0	0	10.2	0.7
Ban Lapeung	1506.7	18.1	1.2	0	0	0	0	18.1	1.2
Ban Tene	3090.5	16.1	0.5	0	0	0	0	16.1	0.5
Subtotal	9653.8	54.9	0.6	0.0	0.0	0.0	0.0	54.9	0.6
Total	21397.9	919.2	4.3	221.0	1.0	21.6	0.1	1161.8	5.4

Timber and Non-Timber Forest Products (NTFPs)

NTFPs are of crucial importance to the majority of surveyed villages, ranking from 1-3 in importance in terms of employment (Section 7.7.1). The only village where NTFPs did not rank highly was Ban Houkayo in Ta oi district, which is located near the Ta oi district centre, and only has a small forest area within its boundaries. Ban Houkayo also has a higher than average rice yield (1500 kg/ha) (see Table 7-5) and access to a wider range of sources of cash income than other more remote

villages, and therefore less dependence on NTFPs as a source of food and cash income. In the surveyed areas, women and children were reported to play a major role in NTFPs collection, with young children often accompanying mature women to the forests to collect NTFPs. A large range of NTFP types were collected in surveyed villages including bamboo, rattan, wild vegetable, mushroom, wild fruit and flowers. Bamboo shoots and rattan were the two most important products, consistent with the assessment done by IUCN which placed these products in the top ten of all NTFPs collected across Lao PDR (MAF & STEA, 2004).

Table 7-10: The main types of NTFPs collected in surveyed villages

District/Village Name	Ranking of Main NTFPs collected						
	1st	2nd	3rd	4th	5th	6th	7th
Nong District							
La-ou	Bamboo	Rattan	Vegetable	Palm			
Saloy Mai	Bamboo	Rattan	Vegetable				
Tamloung	Bamboo	Rattan	Vegetable	Mushroom			
Houp	Rattan	Vegetable	Bamboo	Mushroom			
Poun Nhang	Rattan	Bamboo	Vegetable	Mushroom			
Loe	Bamboo	Rattan	Vegetable	Mushroom			
Takor	Bamboo	Vegetable	Mushroom				
Ta oi District							
Choravieng	Vegetable	Rattan	Bamboo	Mushroom	Herb		
Tene	Bamboo	Vegetable	Rattan	Root Vegetable	Palm	Grass	Yang bong
Kang	Vegetable	Rattan	Agar	Fruit	Vine		
Lapeung	Fruit	Rattan	Agar	Grass	Orchid	Mushroom	
Houkayo	Vegetable	Rattan	Bamboo	Mushroom			

In surveyed villages, most women in surveyed villages will collect NTFPs almost every day with the exception of Ban La-ou which will collect only 2-3 days per week and at Ban Poun Nhang where NTFPs are only collected once per month. This can potentially be attributed to the higher than average rice yields in these two (2) villages 2500 kg/ha and 1500 kg/ha respectively which has reduced their dependence on NTFPs as a source of food and cash income.

Surveyed women at Ta oi district report collecting the NTFPs at designated protected forest areas more than in degraded forest areas. This differs from the situation in Nong district, where women reported collecting more NTFPs from degraded forests in preference to other designated protected forest areas. Most of the collected NTFPs were for household consumption although this varied across villages, some villages (e.g. Ban Houph, Lapeung and Ban Houkayo) reported collecting a larger proportion of NTFPs for sale than

other villages). Important NTFPs for sale include bamboo shoots, and semi-wild crops such as broom grass, which villagers reap from the swidden fallows once a year to make brooms for sale to Vietnamese traders.

Most villages reported a decline in NTFP products compared to the past both in terms of types of products and amount collected which has resulted in villagers having to walk further and spend a longer time collecting to get the same amount. Villagers attribute this change to the increased numbers of people collecting NTFPs, reduction in overall forest area and an increase in collection of NTFPs for sale. Three (3) of the villages surveyed (Ban Choravieng, Ban Loe and Ban Houkayo) reported no change in the types or amount of NTFPs collected by villagers.

Although not noted as an important source of income by villagers, it was apparent to the author during the two (2) field visits that a trade (sometimes illegal) exists in timber forest products to neighbouring Vietnam.



Plate 7-8 NTFP collection in villages in the Project area

Hunting and Fishing

While women play a major role in NTFPs collection, men have important roles in hunting and fishing. Hunting has direct economic value for Lao people, especially those who live in remote areas. Part of their livelihood depends on bartering or selling wildlife, which includes the trade of medicines made from wildlife organs, wildlife meat, and zoo specimens, in exchange for rice and income generation (MAF & STEA, 2004). Within the Project area, hunting and fishing are conducted mainly for household consumption.

During village surveys, villagers noted a decline in the amount of wildlife that could be hunted or fish that could be caught in recent years. The main reasons given for the decline were the decreased area, quality of forests, and animal habitat and an increase in the number of hunters.

7.5 Water Resource Use

Surveyed villages use water from a wide variety of sources including:

- Rivers and streams (e.g. Xelanong river and its tributaries);
- Ground water wells (both shallow and deep drawing water by hand or using hand pumps);
- Gravity flow water systems;
- Rainwater tanks; and
- Freshwater springs.

The main river flowing through the two districts is the Xelanong river. Many surveyed villages including Ban La-ou, Ban Tamloung, Ban Houp, Ban Loe, Ban Choravieng, Ban Tene, Ban Kang, Ban Lapeung and Ban Houkayo reported using water from the Xelanong and its tributaries as a major source of water for household consumption including drinking. River water was particularly important for Ban Houp as it represented this villages' only source of water. All other surveyed villages had a combination of different water sources. Many of the villages noted that current sources of water are not reliable and most of them cannot be used throughout the year, forcing villagers to travel further distance to other running streams or other water supply sources to access water.

Results from the 2001 National Health Survey showed that 52 percent of households had access to safe drinking water (75.5 percent in urban areas and 37.6 percent in rural areas). Safe water is defined as water supplied by the following methods: piped, public taps, tubewells, protected dug wells or springs, bottled water, rainwater and gravity fed systems.

Villages in the Project area have recently received support from several NGOs and international Projects to improve water supply, including Oxfam Australia, the Poverty Reduction Fund and the Asian Development Bank (ADB). These organisations provided an underground water pump for all surveyed villages in Nong district except for Ban Houp and Ban La-ou. Ban Takor villagers also noted that Stora Enso had provided a water pump to improve their village's water supply.

Table 7-11: Existing water supply in the surveyed villages

District/Village name	River/Stream		Nam Lin (tap) (gravity flow)		Open well/ bore		Rain water (tanks)		Pumps		Spring/Under ground Water	
	No.	Drink, Y or N?	No.	Drink, Y or N?	No.	Drink, Y or N?	No.	Drink, Y or N?	No.	Drink, Y or N?	No.	Drink, Y or N?
Nong District												
La-ou	4	Y									2	Y
Saloy Mai	1	N			1	Y			2	Y		
Tamloung	2	Y			3	Y			3	Y		
Houp	1	Y										
Poun Nhang	3	N			1	Y	7	Y	5	Y		
Loe	2	Y							1	Y		
Takor	3	N			3	Y			3	Y		
Ta oi District												
Choravieng	3	Y			1	Y						
Tene	3	Y	1	Y								
Kang	2	Y										
Lapeung	2	Y										
Houkayo	1	Y									2	Y

In terms of toilet ownership, of the twelve (12) surveyed villages, only households at Ban Poun Nhang owned toilets. There is also one at Ban Takor, which is built at a school area, and one at Ban Kang which is broken and can't be used.

In more recent times, villagers noted an overall improvement in the availability and quality of water resources, largely as a result of NGOs working in the area (e.g. World Vision, the Poverty Reduction Fund and Oxfam). The Project also built a water well at Ban Takor.



Plate 7-9 Water resources in villages in the Project area

7.6 Occupations, Cash Incomes and Expenditure in Surveyed Villages

7.6.1 Occupations in Surveyed Villages

The majority of the villagers in surveyed villages are self-employed farmers (Table 7-12) who produce only enough rice for personal consumption (see section 7.4.1), with a minority producing a surplus of rice which they can sell and raise livestock for sale when cash income is required. Besides working as farmers, villagers also collect NTFPs (for both consumption and sale) and produce handicraft work such as woven cotton clothing, baskets made from rattan and cleaning brushes made from broom brush. In addition to these livelihoods villagers also provide labour

work for plantation companies and other households on an intermittent basis. Of the surveyed villages, only villagers from Ban Tamloung, Ban Houp and Ban Poun Nhang villages reported having residents who work within the government sector. The presence of small size trading shop, selling small grocery and household consumption products was observed in two of the surveyed villages (La-ou and Tamloung). During village interviews it was noted that some changes in the availability of employment has occurred in recent years including:

- A decrease in scrap metal collecting as an occupation due to increased awareness of safety issues; and
- Improved level of trade in livestock and NTFPs to Vietnamese traders.

Table 7-12: The main occupations reported in surveyed villages

District/Village Name	Main sources and range of important of employment for people in surveyed villages					
	1st	2nd	3rd	4th	5th	6th
Nong District						
La-ou	Agriculture	Handicraft	NTFPs	Fishing	Retail	Hunting
Saloy Mai	Agriculture	NTFPs	Fishing	Plantation	-	-
Tamloung	Agriculture	Handicraft	NTFPs	Gov't	Plantation	Retail
Houp	Agriculture	Plantation	NTFPs	Plantation	Fishing	Gov't
Poun Nhang	Agriculture	NTFPs	Handicraft	Fishing	Gov't	
Loe	Agriculture	Handicraft	NTFPs	Laboring		
Takor	Agriculture	Laboring	NTFPs	Fishing	Plantation	
Ta oi District						
Choravieng	Agriculture	Plantation	Fishing	Plantation	Handicraft	Retail
Tene	Agriculture	NTFPs	Laboring	Plantation	Fishing	
Kang	Agriculture	NTFPs	NTFPs	Plantation	Fishing	
Lapeung	Agriculture	NTFPs	Fishing	Handicraft	Plantation	
Houkayo	Agriculture	Livestock	Handicraft	Laboring	Retail	Fishing

7.6.2 Sources of Income in Surveyed Villages

In 2008, the total annual income reportedly generated in surveyed villages was about 210 million LAK, ranging from 8 million LAK (USD 940) in Ban Tamloung to 40 million LAK (USD 4730) in Ban Chora-vieng, or an average of 17,250,000 LAK per year (USD 2040) (Table 7-13). On a per household basis, Ban Saloy Mai had the highest average annual income per household (USD 90) and Ban Tamloung the lowest (USD 11).

Table 7-13: Estimates of cash income for surveyed villages in 2008

District/Village name	Total cash income for the village in 2008	Average cash income per household	
		LAK	USD(8500KIP/USD)
Nong District			
La-ou	20,000,000	487,805	57
Saloy Mai	20,000,000	769,231	90
Tamloung	8,000,000	96,386	11
Houp	10,000,000	322,581	38
Poun Nhang	20,000,000	465,116	55
Loe	10,000,000	232,558	27
Takor	20,000,000	434,783	51
Subtotal	108,000,000	345,048	41
Ta oi District			
Choravieng	40,000,000	655,738	77
Tene	10,000,000	136,986	16
Kang	9,000,000	142,857	17
Lapeung	10,000,000	322,581	38
Houkayo	30,000,000	731,707	86
Subtotal	99,000,000	368,030	43
Total	207,000,000	355,670	42

The main source of cash income in all surveyed villages is from sale of their livestock, followed by selling of NTFP products and manual labour. Collection of scrap metal from unexploded ordnance was also mentioned by some villagers as still being important as was production of handicrafts for sale (Table 7-14). This trend has not changed since 2007 where livestock were recognised as a crucial source of income for majority of the households at the surveyed villages (Axelsson et al 2007).

Table 7-14: The main sources of cash income in surveyed villages

District/Village Name	Sources and range of important of activities that contribute to above income			
	1st	2nd	3rd	4th
Nong District				
La-ou	Domestic Animal	NTFP	Scrap metal	
Saloy Mai	Domestic Animal	NTFP	Scrap metal	
Tamloung	Domestic Animal	Government work	Labor	Scrap metal
Houp	Domestic Animal	NTFP	Hunting	
Poun Nhang	Domestic Animal	NTFP	Hunting	
Loe	Domestic Animal	Labor	NTFP	
Takor	Domestic Animal	Labor	Scrap metal	Sale of surplus crops
Ta oi District				
Choravieng	Domestic Animal	NTFP	Labor	Hunting
Tene	Domestic Animal	NTFP	Labor	Plantation
Kang	Domestic Animal	NTFP	Handicraft	Labor
Lapeung	Domestic Animal	NTFP	Handicraft	Crops
Houkayo	Domestic Animal	Labor		

In terms of income level, across all surveyed villages, slightly more than 50 percent of the households can be categorized as low income (earning 300,000 LAK/USD 35.48 or less annually), about 33 percent of the households as middle income (310,000 LAK/USD 36.66 to 600,000 LAK/USD 70.96), and about 15 percent of the households as higher income (610,000 LAK/USD 72.14 to greater than 750,000 LAK/USD 88.71) (Table 7-15). Income categories were decided upon using our experience working in Mon Khmer communities in Southern Lao PDR.

Across the two (2) districts, the proportion of households falling into each income category was similar but income levels varied considerably across surveyed villages. In Ban La-ou for example, 73 percent of villagers were reported to have lower income levels, and no households reported as fitting in the higher income category. This compares to 35 percent of households reported to be at lower income levels in Ban Poun Nhang and 12 percent at the higher income category.

Table 7-15: Categories of cash income in surveyed villages

District/Village name	Number of household under each income levels (thousand LAK) (2009)											
	Lower Income				Middle Income				Higher Income			
	<150	%	150-300	%	310-450	%	460-600	%	610-750	%	>750	%
Nong District												
La-ou	10	24	20	49	10	24	1	2	0	0	0	0
Saloy Mai	6	23	10	38	4	15	3	12	3	12	0	0
Tamloung	0	0	54	65	20	24	7	8	1	1	1	1
Houp	0	0	0	0	13	42	13	42	3	10	2	6
Poun Nhang	15	35	0	0	23	53	0	0	0	0	5	12
Loe	30	70	5	12	4	9	3	7	1	2	0	0
Takor	0	0	25	54	0	0	10	22	6	13	5	11
Subtotal	61	19	114	36	74	24	37	12	14	4	13	4
Ta oi District												
Choravieng	10	16	20	33	12	20	10	16	6	10	3	5
Tene	31	42	10	14	7	10	10	14	5	7	10	14
Kang	26	41	12	19	20	32	4	6	1	2	0	0
Lapeung	17	55	0	0	10	32	0	0	0	0	4	13
Houkayo	0	0	6	15	10	24	0	0	20	49	5	12
Subtotal	84	31	48	18	59	22	24	9	32	12	22	8
Total	145	25	162	28	133	23	61	10	46	8		6



Plate 7-10 Sources of employment and cash income in villages in the Project area

7.6.3 Main Sources of Expenditure in Surveyed Villages

With the cash income that villagers earn, their main expenditure is on rice, followed by cooking ingredients (salt, MSG, chillies), clothing and

medicine (Table 7-16). During village surveys villagers noted that the types of expenditure haven't changed in recent years although the price of goods has increased.

Table 7-16: Major sources and range of expenditure for households in surveyed villages

District/ Village name	Major sources and Range of expenditure for households in surveyed villages				
	1st	2nd	3rd	4th	5th
Nong District					
La-ou	Rice	Seasoning*	Lighting fuel	Clothing & Bedding	
Saloy Mai	Rice	Seasoning*	Clothing & Bedding	Lighting fuel	Cigarettes, alcohol
Tamloung	Rice	Seasoning*	Clothing & Bedding		
Houp	Rice	Seasoning*	Medicine		
Poun Nhang	Rice	Seasoning*	Medicine		
Loe	Rice	Seasoning*	Clothing		
Takor	Rice	Seasoning*	Medicine	Clothing	
Ta oi District		Seasoning*			
Choravieng	Rice	Seasoning*	Clothing	Other household items	
Tene	Rice	Seasoning*	Clothing		
Kang	Rice	Seasoning*	Clothing		
Lapeung	Rice	Seasoning*	Clothing		
Houkayo	Rice	Seasoning*	Clothing		

*Including chilli and salt.

7.6.4 Wealth Profile of Surveyed Villages

Focusing on the wealth profile of the surveyed villages, more than 90 percent of households were considered to be poor with some land use rights and access. The remaining 10 percent of households were considered sufficiently well off that they have sufficient rice to consume, and

owned numbers of livestock. No households in the surveyed villages were considered very well off or poor with no land use rights or access. Ban Saloy Mai had the largest proportion of "well off" households while Ban Houp and Ban Loe had the least number, with all of the households in their respective villages considered to be poor.

7.6.5 Disadvantaged Households in Surveyed Villages

Approximately 10 percent of surveyed village populations can be considered disadvantaged, either with a single female head of the household, a household with no labour, a household with infirm or elderly members or a landless household (Table 7-17). Single female headed households were the most common of disadvantaged category (7 percent of all households), followed by households with infirm or elderly members (2 per-

cent) and households with no labour (1 percent). No households in the surveyed villages were classified as disadvantaged because they didn't have access to land, consistent with the communal land ownership system still in place in all surveyed villages. There was considerable variation amongst surveyed villagers in terms of numbers of disadvantaged households, with the highest proportion occurring in Ban Tene (25 percent) and lowest in Ban Houp and Ban Houkayo, where no households were classified as disadvantaged.

Table 7-17: The numbers of disadvantaged households of different categories in surveyed villages

District/Village name	Numbers of disadvantaged household of different categories						
	Single female head	With no labour	With infirm/elderly members	Landless	Other	Total	Percentage
Nong District							
La ou	6	-	2	-	-	8	20%
Saloy Mai	2	-	-	-	-	2	8%
Tamloung	-	-	3	-	1	4	5%
Houp	-	-	-	-	-	-	0%
Poun Nhang	1	-	2	-	-	3	7%
Loe	2	-	2	-	-	4	9%
Takor	2	2	-	-	-	4	9%
Subtotal	13	2	9	-	1	25	8%
Ta oi District							
Choravieng	-	-	1	-	-	1	2%
Tene	17	1	-	-	-	18	25%
Kang	10	-	2	-	-	12	19%
Lapeung	2	-	-	-	-	2	6%
Houkayo	-	-	-	-	-	-	0%
Subtotal	29	1	3	-	-	33	12%
Total (%)	42(7)	3(1)	12(2)	0	1(0.2)	58	10%

7.7 Housing

Houses in the Project area are generally constructed of natural materials from the surrounding forests including wood, bamboo, plywood, grass and in some cases imported modern materials such as concrete and bricks and zinc sheeting. Bamboo and rattan also serve as material for weaving of floor mats and baskets.

In the Project area, more than 60 percent of the houses are considered semi-permanent houses, where the main house structure is made from hard wood, with walls and roof are made from bamboo, plywood, grass or zinc sheeting (Table 7-18). This compares to approximately 10 percent of the private households throughout Lao PDR as a whole, 10 percent in Saravane and 14 percent in Savannakhet (NSC, 2006). The re-

maining houses in the Project area can be classified as temporary structures where the foundation poles are constructed of timber but the main house structure is made from bamboo and the roof constructed from thatched grass. The status of housing across surveyed villages varied considerably with some villages, e.g. Ban Saloy Mai, and Ban Houkayo having a large percentage of houses constructed of more robust materials (wood) with improved roofing materials (zinc sheeting). This compares to some villages such as Ban Tamloung where a large proportion of houses were constructed of bamboo materials. Villagers in the surveyed villages reported an improvement in the condition of housing in recent years. Ban Houkayo has the only two (2) houses in all surveyed villages which can be classified as permanent, i.e. constructed from cement and bricks with a zinc roof.

Table 7-18: Status of housing in surveyed villages

District/Village name	Number of house with the main house structure constructed from															
	Cement/bricks ¹				Wood ²				Wood + Bamboo ²				Bamboo ³			
	zinc	%	hay	%	zinc	%	hay	%	zinc	%	hay	%	zinc	%	hay	%
Nong District																
La-ou					15	37	26	63								
Saloy Mai					16	62	10	38								
Tamloung						0							59	71	24	29
Houp						0			4	13	27	87				
Poun Nhang					2	5			28	65	13	30				
Loe						0			5	12	38	88				
Takor					2	4			15	33	29	63				
Subtotal	0	0	0	0	35	11	36	12	52	17	107	34	59	19	24	8
Ta oi District																
Choravieng					15	25									46	
Tene					12	16									61	
Kang					11	17					52	83				
Lapeung						0			4	13	27	87				
Houkayo	2	0			23	56									16	
Subtotal	2	1	-		61	23	-	0	4	1	79	29	-	0	123	46
Total	2	0.34			96	16	36	6	56	10	186	32	59	10	147	25

1. Classified as permanent, 2. Classified as semi permanent, 3. Classified as temporary

Results of the village surveys indicate that generally most villages acknowledged an improvement in housing status as compared to recent years, with more houses now being constructed out of wood and cement and using zinc roofing materials. Most villagers attributed this change to increased income from livestock while Ban Kang also recognised the contribution of Oxfam who had provided training for villagers in carpentry enabling them to construct their own houses



7.8 Community Infrastructure

The majority of the surveyed villages are located away from the central district centres of Nong and Ta oi, and do not have access to key community infrastructure. In terms of buildings, this is mostly limited to one primary school building at each village. In two (2) villages, village offices (Ban Kang) and teacher accommodation (Ban Lapeung) have also been constructed.

In terms of road infrastructure, the majority of the surveyed villages have dirt roads but only seven (7) of the twelve (12) villages have all year access, with transport to other villages constrained by flooded streams and impassable road conditions (Table 7-19). However, for villages, like, Ban Houp and Ban La-ou accessibility is impossible all year round by car as the villages are located in very remote areas. Most villages acknowledged an improvement in road infrastructure in recent years.

Plate 7-11 Status of housing in villages in the Project area

For electricity infrastructure, the only surveyed village with access to electricity is Ban Houkayo in Ta oi district, where 60 percent of the households are able to access the grid. There is an electricity grid run, which runs through Ban Tam-loung in Nong district, however, to date none of the households in the village have had electricity installed. Without electricity, the majority of the villagers in surveyed villages use lamps and battery as their primary light sources. Two (2) villages at Ta oi district Ban Choravieng and Ban Tene also use solar panels and Ban Choravieng also has a small hydro energy supply source.

Table 7-19: Status of community infrastructure in surveyed villages

District/Village name	All year round access to the village		Electricity	
	YES	NO	YES	NO
Nong				
La ou		√		√
Saloy Mai	√			√
Tamloung		√		√
Houp		√		√
Poun Nhang	√			√
Loe	√			√
Takor	√			√
Ta oi				
Choravieng		√		√
Tene		√		√
Kang	√			√
Lapeung	√			√
Houkayo	√		√	



Plate 7-12 Status of road infrastructure in villages in the Project area

7.9 Cultural Heritage

Both the Makhong and Katang ethnic groups are animist who believe in forest spirits and their ancestors, which results in specially protected areas. The most important powers in the spirit world in Mon Khmer communities are the spirit forest and territorial spirits that influence a large area around a village or group of villages. These spirits receive annual offerings (buffalo, pigs, turtles or chickens along with alcohol and other items) before the start of the agricultural season in February and sometimes following harvest. Territorial spirits are important at the local level, for those villages which are located within the spirit boundary.

The most important cultural sites present in the surveyed areas are the cemetery and spiritual sites and caves. Traditionally, the ethnic minority groups inhabiting the Project area, such as the Makhong and Katang, buried their dead. Cemeteries are typically located on elevated and forested land, on the outskirts of the village. Villagers are not permitted to hunt or extract forest products from this area. In fact, villagers generally avoid approaching the area for fear of disturbing their ancestral spirits. The majority of the villages surveyed have more than one cemetery usually located within the village boundaries no more than 3 km away from the village centre. Some of the cemeteries are also co-located within spiritual sites and village protected forests.

Other spiritual sites typically include unique natural features, such as caves, rock outcrops, grasslands, or water sources, which through the course

of generations have become part of the cultural landscape for the local villages. Caves are mostly located at spiritual sites, thus, are considered important in terms of their religious activities as well. None of the areas reported having any ancient carvings and/or painting or items of prehistoric value. However, at Ban Kang at Ta oi district, the caves are located in spiritual sites and entry is restricted in these areas.

In the Project area, the main cultural difference observed between these two ethnic groups is the major ceremonies observed by villages. For the Makhong ethnic group there are two main ceremonies: The Nga ceremony which is held around December to January and is the celebration for paying respect to the villagers' ancestors before consuming their newly harvested rice each year. Another ceremony is called Tra which is celebrated around August. This celebration is held to also pay respect to their ancestors before consuming rice from their storage. These celebrations are practiced at the village level and are major events for all villagers.

The Katang ethnic group also celebrates the Nga ceremony in a similar fashion to the Makhong.

By moving to the lower land or flat areas, villagers in the Project area have assimilated and changed their traditional livelihood to the Lao loun culture and language. One major change reported during village surveys was the change in traditional ceremonies over time away from the use of traditional musical instruments such as the Khene and traditional folk singing to CD players and modern Lao songs.

7.10 Health

7.10.1 Mortality

Within surveyed villages, using results from village surveys, the crude death rate was calculated at 13.74 per 1000 inhabitants during the year preceding the survey, which is higher than the estimated 2006 national rate of 11.55 (CIA, 2006). The crude death rate for surveyed villages in Nong district of 13.47 per 1000 inhabitants was lower than that for Nong district as a whole which was reported as the highest of all districts in Savannakhet Province at 19.2 persons per 1,000 persons (NSC, 2007). Similarly, the crude death rate of surveyed villages in Ta oi of 14.03 per 1000 inhabitants was lower than that for Ta oi district as a whole which was reported as the highest of all districts in Saravane Province at 27.3 persons per 1,000 persons (NSC, 2007).

Within surveyed villages in Nong district, the major cause of death reported during village sur-

vey over the last five (5) to ten (10) years was diarrhoea followed by dengue and malaria (Table 7-20). Over the last 12 months, a total of four (4) deaths were reported to have resulted from diarrhoea in four (4) of the surveyed villages and; another five (5) deaths resulted from malaria. Five (5) cases of infant mortality rate were reported in two (2) of the surveyed villages. Another twelve (12) villagers across the surveyed villages were reported to have died from different types of illnesses, for example, coughing and lung infection.

Within surveyed villages in Ta oi district, the major cause of death over the over the last 5 to 10 years was similar to the villages in Nong district, diarrhoea followed by dengue and malaria (Table 7-20). Over the last 12 months, a total of fourteen (14) people were reported to die from diarrhoea, over half of these were from Ban Lapeung. Five (5) people died from malaria in this village over the same period.

Table 7-20: Number of deaths attributable to each cause of death and estimated crude death rate in surveyed villages

District/ Village name	Number of deaths attributable to each cause of death						Crude death rate
	Malaria	Dengue	Diarrhea	Infant mortality	Lung infec- tions	Total	
Nong Dis- trict							
La-ou	6	0	1	0	0	7	31.82
Saloy Mai	0	0	0	0	4	4	25.00
Tamloung	0	0	1	0	0	1	1.76
Houp	4	0	0	0	0	4	19.05
Poun Nhang	0	0	0	0	0	0	0.00
Loe	0	0	1	3	0	4	15.33
Takor	3	0	1	2	0	6	23.17
Subtotal						26	13.47
Ta oi Dis- trict							
Choravi- eng	0	0	5	0	0	5	8.50
Tene	1	0	3	0	0	4	7.97
Kang	0	0	3	0	0	3	6.90
Lapeung	5	0	7	0	0	12	46.69
Houkayo	0	0	1	0	0	1	3.29
Subtotal						25	14.03
Total						51	13.74

7.10.2 Health Facilities

Health facilities in the surveyed villages are very limited. None of the twelve (12) villages surveyed had a Health Centre, with facilities at the village level limited to a village medicine box overseen

by a village health volunteer (Table 7-21). Villages also reported regular visits from government vaccination teams who visited each surveyed village at least once and up to three times in some villages during 2008.

Table 7-21: Health infrastructure and services available to the village (location of nearest clinics, hospital and pharmacy, availability of nurses and doctors, accessibility to households in the village)

District/ Village name	Hospital		Village Souk-sala (Health Center)		Village health volunteer		Village medicine box		No. of government vaccination team visited village in the last 12 months
	Y/N	Distance (km)	Y/N	Distance (km)	Y/N	Distance (km)	Y/N	Distance (km)	
Nong District									
La-ou	Y	Central district (>20km)				Within village	Y	Within village	3
Saloy Mai	Y	Central district (>20km)	Y	6 km t Dong, Nakong villages	3	Within village	Y	Within village	3
Tamloung	Y	Central district (20km)	Y	1.5 km	3	Within village	Y	Within village	3
Houp	Y	Central district (>20km)	Y	Nakong village	3	Within village	Y	Within village	2
Poun Nhang	Y	Central district (3km)			2	Within village	Y	Within village	3
Loe	Y	Central district (8km)			3	Within village	Y	Within village	1
Takor	Y	Central district (6km)			1	Within village	Y	Within village	3
Ta oi District					3				
Choravi-eng	Y	Central district, (17km)				Within village	Y	Within village	
Tene	Y	Central district, (16 km)				Within village	Y	Within village	3
Kang	Y	Central district, (8km)			3	Within village	Y	Within village	3
Lapeung	Y	Central district, (6km)			3	Within village	Y	Within village	3
Houkayo	Y	Central district, (2km)			3	Within village	Y	Within village	2

In the absence of formal medical facilities, sick villagers within the Project area generally sought treatment at home using traditional medicines mostly taken from roots of specific plant types or in the village with the assistance of the village health volunteer (Table 7-22). Due to the distance of the district hospitals from most surveyed villages, villagers only travel to hospital with serious illnesses. The exceptions to this are the villages of Takor and Loe (Nong district) and Lape-

ung and Houkayo (Ta oi) who reported using the District hospital as the place they mostly go for medical treatment. For some villagers, particularly from Ban Houp and Ban La-ou travel to the central health care facility is very difficult as they are located in very mountainous areas. The major mode of travel is by foot or motorbike (during dry season only) and they are totally isolated during the raining season.

Table 7-22: Places where villages seek medical treatment in surveyed villages

District/Village name	Place where people mostly go for medical treatment		
	a. Treat at home	b. Village health volunteer	c. Hospital
Nong District			
La-ou	√		
Saloy Mai		√	
Tamloung		√	
Houp		√	
Poun Nhang	√		
Loe			√
Takor			√
Ta oi District			
Choravieng	√		
Tene		√	
Kang	√		
Lapeung			√
Houkayo			√

Within Nong district, there is one District hospital with ten (10) beds, five (5) Health Care Centres with 15 beds, 49 and 31 medicine boxes and bags, a total of 35 doctors and nurses and eight (8) volunteers (Nong District Administrative Office, unpublished document, 2009).

In Ta oi district, there is also only one District hospital, three (3) Health Care Centres (Souksala), 13 and 40 medicine boxes and bags, a total of 18 doctors and nurses (Ta oi District Strategy plan for social and economic in 2008 – 2010, unpublished document, 2009).

Overall, the death rate in both districts and areas is still very high compared to other districts. The causes of the high death rate for both districts is likely to be due to poor levels of hygiene (e.g. there are no latrines in most villages), inadequate food supply, and limited, difficult and costly access to health care facilities for many villages, which are located in very remote areas. Villagers who live at villages located close to the central district are better off, although some still face difficulties due to poverty and they lack money to pay for medical treatment or medicines. Potential cultural barriers also exist including a preference to use traditional medicines, miscommunication (or lack of communication) between villagers and health providers due to language barriers and cultural/social customs such as reluctance to seek outside assistance.

The lack of facilities and low level of medical care in the surveyed villages has further implications in that formal medical records are likely to be incomplete and inadequate, many diseases are likely to go undiagnosed (hence the large reporting of diarrhea as a cause of death rather than the actual disease), and facilities for the diagnosis of more complex diseases do not exist.

Results of the village interviews indicate that health indicators have improved in recent years as a result of visits by Government health care teams and vaccination programs as well as the work of other NGO groups (e.g. providing mosquito nets). Road improvement has also led to improvements in access to health care at the District centres in most villages. Some villages (e.g. Ban Saloy mai), noted that an increase in cash income has enabled villagers to buy more medicines when sick.



Plate 7-13 Signboard advertising government health program in villages in the Project area

7.11 Education

7.11.1 Educational Qualifications and Literacy

Levels of formal educational achievement among adults in the surveyed villages are very low with 80 percent of the population of education age reported as having no educational qualifications at all (Table 7-23). There was a reported difference between men and women in terms of educational qualifications, with more women (88 percent) than men reporting to have had no education. The proportion of households in each village having no educational qualifications was on average slightly higher in Nong district (83 percent) than Ta oi district (78 percent). Significant variability in the level of education qualifications obtained existed within villages, with Ban Saloy mai in Nong district having the highest percentages of households with no educational qualifications (94 percent), and Ban Houkayo in Ta oi have the lowest (54 percent).

Table 7-23: Levels of educational qualifications in surveyed villages

District/ Village name	No schooling				Finish Primary school			Finish High school (lower)			Finish High school (upper)		
	Total #	%	Fe- male	%	To- tal #	%	Fe- male	To- tal #	%	Fe- male	To- tal #	%	Fe- male
Nong Dis- trict													
La-ou	197	90	105	95	1	0.5	0	1	0.5	0	0	-	0
Saloy Mai	150	94	87	99	1	0.6	0	0	-	0	0	-	0
Tamloung	441	78	190	85	10	1.8	0	0	-	0	1	0.18	0
Houp	174	83	94	88	1	0.5	1	0	-	0	0	-	0
Poun Nhang	211	84	112	90	7	2.8	2	3	1.2	0	0	-	0
Loe	221	85	136	100	0	-	0	0	-	0	0	-	0
Takor	216	83	111	94	0	-	0	0	-	0	0	-	0
Subtotal	1,610	83	835	92	20	1.0	3	4	0.2	0	1	0.05	0
Ta oi Dis- trict													
Choravieng	493	84	223	94	30	5.1	1	5	0.9	0	0	-	0
Tene	399	79	210	84	1	0.2	0	0	-	0	0	-	0
Kang	352	81	212	93	7	1.6	1	3	0.7	1	1	0.23	0
Lapeung	211	82	107	86	5	1.9	0	0	-	0	0	-	0
Houkayo	165	54	88	58	27	8.9	14	13	4.3	6	0	-	0
Subtotal	1,620	78	840	85	70	3.4	16	21	1.0	7	1	0.05	0
Total	3,230	80	1675	88	90	2.2	19	25	0.6	7	2	0.05	0

The low levels of educational qualifications in most surveyed villages have resulted in correspondingly low rates of literacy within surveyed villages of 39 percent (Table 7-24). This is low compared to the literacy rate for Lao PDR as a whole (73 percent) as well as the provincial literacy rates for Savannakhet and Saravane respectively (69 and 62 percent) (NSC, 2006). Across all villages, women's rates of literacy were less than the whole population at 9 percent. Across the two (2) districts, literacy rates were higher in

villages in Ta oi district (51 percent) than those in Nong district (26 percent). According to the National census data, the literacy rate for Nong was only about 20 percent, while in Ta oi the literacy rate was approximately 26 percent (NSC, 2007). Within surveyed villages literacy rates were lowest in the villages of La-ou and Saloy mai (Nong district) (10 percent and 11 percent respectively) and highest in the villages of Ban Houkayo and Ban Kang (Ta oi district) (73 percent and 67 percent respectively).

Table 7-24: Levels of literacy and ability to understand and read Lao language in surveyed villages

District/Village name	Literacy percentage in the village (2009)		% of adult villagers can fully understand the Lao language as spoken by outsiders, such as government officials	
	%	% of female	% Men	% Women
Nong District				
La-ou	10%	2%	50%	0%
Saloy Mai	11%	1%	11%	2%
Tamloung	29%	6%	50%	30%
Houp	19%	6%	10%	5%
Poun Nhang	42%	14%	50%	40%
Loe	16%	4%	40%	30%
Takor	47%	3%	30%	5%
Subtotal	26%	5%	21%	1.5%
Ta oi District				
Choravieng	40%	17%	50%	30%
Tene	50%	18%	50%	20%
Kang	67%	3%	50%	3%
Lapeung	21%	7%	40%	0%
Houkayo	73%	19%	50%	10%
Subtotal	51%	13%	34%	7%
Total	39%	9%	27%	4.3%

In addition to limitations with basic literacy, village surveys indicated that the percentage of individuals in surveyed villages able to fully understand and comprehend Lao language as spoken by outsiders (e.g. the Stora Enso coming to villages to introduce the project concept) was also very low at 27 percent for men and only 4.3 percent for women.

7.11.2 Current Enrolments

Large numbers of children in surveyed villages were still reported as not attending school, largely due to poverty related factors, which forces children to help with family housework, farming activities and income generating activities. Beside these factors, some of the children and families have not known the importance of education and children are not encouraged to attend school. The lack of teaching and learning material is a further factor restricting children from attending school (Table 7-25).

Table 7-25: Reasons provided for children not attending school

District/Village name	Help the family with house-work	Help the family with income generating	Must help the family with farming activity	No teaching material at the school	Don't know the importance of education	No money to buy materials	School facilities are not sufficient
Nong District							
La-ou	√2		√3		√1		
Saloy Mai						√1	
Tamloung		√1	√2			√3	
Houp	√1	√3	√2	√4			
Poun Nhang	√1	√3	√2			√4	
Loe	√1	√3	√2				
Takor	√1		√2	√4		√3	
Ta oi District							
Choravieng					√1		
Tene		√3		√1			√2
Kang	√1						
Lapeung	√2		√3		√1		
Houkayo	√2	√1					

7.11.3 Educational Facilities

Every surveyed village has a primary school, either within their village settlement area or within a short distance (<100 m) of the village. Most schools were noted to have been constructed in the last 2-3 years through the Poverty Reduction Fund. Primary schools mostly only provide an education up to grade 2 or 3 level. To continue their education at higher grade, children must travel to nearby villages, which have all 5 grades of primary school, and to district for secondary school. School facilities are limited and many lack basic

equipment such as blackboards, desks and chairs.

Results of the village surveys pertaining to education indicate that access to educational facilities has improved in recent years thanks to the school construction program and increased understanding about the value of education amongst villagers. Villagers noted that there are still issues with the costs of sending their children to school, and the need for some families to keep the children back to help at the farm or in the house.



Plate 7-14

Educational facilities in surveyed villages

7.12 UXO

Lao PDR is one of the most heavily bombed countries in the world with over 2 million tonnes of bombs dropped on the country during the Indochina War between 1963 and 1974. During this conflict, Lao PDR suffered some of the heaviest aerial bombardments ever, with over 500,000 bombing missions recorded. Almost 30 percent of UXOs (Unexploded Ordnance) failed to explode. The country remains littered with UXO's including big bombs, mortar, cluster munitions and sub munitions, and landmines. Up to 50 percent of Lao PDR is still affected by UXO more than 25 years after the end of the Indochina War. Since 1973, approximately 12,000 UXO-related accidents have occurred in Lao PDR. More than 50 percent of the victims are children and more than 81 percent are male. The major causes of accidents relating to UXO are from moving UXO to farm agricultural land, through scrap metal collection to sell or involuntary and unintentional (for example, sub-surface intact with UXO while farming) (UXO, 2006).

Within Lao PDR, Savannakhet is ranked as the most UXO-contaminated province in the country and the one that also suffers the most UXO-related accidents, with 1,366 deaths and 1,341 injuries having occurred between 1973 and 1997. Sepone is the worst affected district within the

province due to heavy bombing, as it was used by the North Vietnamese army as a staging point. Other districts of Savannakhet severely contaminated by UXO are Nong, Vilabuly, Phine, Atsap-hangthong, Thapangthong and Ataphone (Handicap International 1997).

The Project area is characterised as an area highly contaminated by UXO. In Nong district, the World Food Program ranked the UXO impact as moderate at 4.1, while in Ta oi the district was considered to have a high rating of 6.1 (WFP, 2005).

In surveyed villages, the presence of UXO was acknowledged by all villagers. There has been previous UXO clearance in ten (10) of the twelve (12) surveyed villages by government and NGO clearance teams as well as more recently by the Project. Ban La-ou and Ban Houp are the only two villages where land has not yet been cleared.

Across all surveyed villages there have been 50 UXO incidents over the past three (3) years, including 22 deaths and 28 injuries (Table 7-26). The incidence of injury and death as a result of UXO is particularly prevalent in six (6) of the generally surveyed villages (in decreasing order of deaths), Ban Tamloung (7 deaths), Ban Choravieng (5 deaths), Ban Saloy Mai (4 deaths), Ban Poun Nhang (2 deaths, 6 injuries), Ban Tene (2 deaths, 2 injuries), Ban Houkayo (2 deaths, 7 injuries), and Ban Kang (7 injuries).

Table 7-26: Degree of impact of UXOs in surveyed villages

District/Village Name	Is any land within the village boundaries affected by UXO?		If YES, has there been any UXO clearance conducted on the land?		What is the number of individuals deceased/hurt due to UXO? (for the last 3 to 5 years)	
	Yes	No	Yes	No	No. Deceased	No. hurt
Nong District						
La-ou	√			√	-	-
Saloy Mai	√		√		4	1
Tamloung	√		√		7	8
Houp	√			√	-	-
Poun Nhang	√		√		2	6
Loe	√		√		-	-
Takor	√		√		-	-
Sub-total					13	15
Ta oi District						
Choravieng	√		√		5	1
Tene	√		√		2	2
Kang	√		√		-	3
Lapeung	√		√		-	-
Houkayo	√		√		2	7
Sub-total					9	13
Total					22	28

Plate 7-15

UXO in the project area utilised as foundations of a rice storage hut



7.13 Gender Issues

Studies of the role of women in Katang and Makhong communities in Saravane and Savannakhet provinces (Daviau 2004 and 2006) and studies by the World Bank (2005) and FAO (2005) have concluded the following regarding the role of women in these Mon Khmer communities:

- Women currently have extremely poor formal educational opportunities.
- Women have very limited access to health care and lose many of their children in their infancy through disease.
- The patrilineal tradition is very strong among these communities and most of the decision-making is carried out by men (although important decisions are made jointly).
- Land ownership and inheritance patterns also generally follow patrilineal customs. Even in situations where matrilineal inheritance is practiced and in the case of mutually-owned land, documents are registered in the husband's name.
- Women and girls perform the majority of chores relating to the household, including fetching water, pounding, soaking, steaming, serving the rice, cooking the meals, looking after children, feeding small animals, gardening for consumption and collection of forest products (including food and forest products), and relating to agricultural production (weeding, planting of all crops, watering, and harvest). Men perform only the hard work such as land preparation and hunting.

- The main source of cash income from which a family meets most of its financial needs is the husband's earnings. This income is obtained through rice sales, selling animals, cutting timber and paid work. However, women contribute to the main income through weaving, selling vegetables, poultry, forest products and grass roofing.

The status of women in surveyed villages is consistent with the results of above mentioned studies, with women generally having lower levels of literacy and school enrolment (Chapter 7.11).

In terms of women's role in agriculture and management of the household, women in surveyed villages reported participating in land preparation before cultivating, sowing agricultural crops, weeding and harvesting. At the household, women must also collect water for household consumption or usage, collect firewood or fuel and take care of small livestock. Women also take the role in marketing, selling their agriculture products, which contribute to household income in combination of selling their weaving, petty trade, wage labour and bamboo baskets where and when possible.

Some women in surveyed villages also reported taking the role in handling and managing family income.



Plate 7-16

Women's role in agriculture in villages in the Project area

7.14 Other

Due to their low development status, and presence on the GoL's list of priority poor districts, Nong and Ta oi districts, have in the past, and continue to receive much assistance and support from different development Projects from government organisations and non-government organisations. Some of the prominent organisations that have continuously supported the areas are:

- Oxfam Australia has supported the communities through small-scale irrigation, sustainable agriculture, income generating Projects and capacity building. The organisation has supported some of the surveyed villages in Ta oi, for example, the organisation has provided training to villagers at Ban Houkayo on how to fix motorbikes, and in woodwork and handi-craft work. The organisation has also provided the village with two water pumps (Oxfam, 2009).
- The Poverty Reduction Fund (PRF) has supported the communities through infrastructure

development that will improve villager's access to services. It also provided support in capacity building to empower poor villages to make their own decision in using the fund for the activities which villagers concern to be high priority and important for them. The organisation has supported several villages in the Project area, particularly at Nong district, where it has built schools and upgraded roads at Ban Takor and Loe, and constructed water supply sources at Ban Poun Nhang (PRF, 2003).

- World Vision has also supported the area through health care and education development. The organisation has provided a water pump for Ban Tamloung.
- United Nations World Food Programme has supported some of the villages through its Food for Work Programme.
- Village Focus International (VFI) has supported villages in the Project area through capacity building activities.

The common goal of above organisations is to assist and support people, who have fewer opportunities and live in very remote and vulnerable areas, particularly the ethnic minority communities, through improved and better livelihoods. Thus, in the longer term, they are able maintain sustainable and sufficient livelihoods.

8 Significant Social and Economic Impacts and Development Considerations

This Chapter of the report assesses the nature and extent of Project impacts on agriculture, forest and water resources in the Project area and direct impacts on communities in the Project area as a result of employment and changes to cash income, economic development, in-migration, community health and safety, education, and impacts on cultural heritage. The last section of the Chapter discusses impacts on vulnerable groups and other social impacts determined to date and potentially arising from the Project in the future.

8.1 Impacts on Agriculture

8.1.1 Impacts to Date from the Pilot Phase

The pilot phase of the Project has resulted in acquisition of agricultural land for plantation development and introduction of new cropping techniques through the intercropping system. Both of these changes have the potential to impact (both positively and negatively) on agricultural production in the surveyed villages.

Impacts of Land Acquisition

In the Pilot phase, the Project acquired an estimated 257 ha of land in seven (7) villages, 180.8 ha in Nong district and 76.2 ha in Ta oi district. This area accounts for between 1.1-6.3 percent of available agricultural land of three (3) villages in Nong district and between 0.5-1.8 percent of available agricultural land of a further four (4) villages in the Ta oi District. The villages with the

most agricultural land affected by the Project include Ban Takor (6.3 percent) and Bam Sang Chien (4.5 percent) in Nong District and Ban La-peung (1.8 percent) and Ban Kang (0.8 percent) in Ta oi District (Table 8-1).

Simple comparison of the area required to enable swidden agriculture to continue at current levels (2 ha per household per year as described in Section 7.4 for the optimum rotation period of seven (7) years or 14 ha) with the area of agricultural land remaining in each village (Table 8-1), suggests that all of the villages continue to have sufficient agricultural land and that Pilot phase plantations are unlikely to have reduced swidden agricultural production in surveyed villages.

Despite this apparent availability of agricultural land, during village surveys two (2) of the villages (Ban Takor and Ban Tamloung) noted that they are currently constrained by a land shortage, and that they felt that as a result of the Project villagers now have less land to use for shifting cultivation. In the second stage of village consultation (March 2010), the villagers from Ban Takor noted that this was the reason for not agreeing to allocate more land to the Project in 2010.

This apparent discrepancy between calculations on paper and reality on the ground in the villages is an important issue for the Project to resolve as it could lead to conflicts between the Project and villagers in the future. One way that this can potentially be achieved is through adopting more detailed land use assessments at the village level

and classifying village agricultural land into areas currently used for shifting cultivation, potential shifting cultivation areas and other areas (areas which appear to be suitable for this use but for some reason are not). This classification will pro-

vide more accurate information on land capability within each village's boundaries and enhance the Project's ability to predict impacts when agricultural land is acquired for use by the Project.

Table 8-1: Estimated proportion of agricultural land acquired by the Project in surveyed villages in Nong and Ta oi districts during the pilot phase

District/Village name	Phase 1: Pilot phase			
	Land area acquired (ha)	% of agricultural land impacted	Agricultural land availability per household (ha)	Agricultural land availability per household per year for swidden rotation [^]
Nong District				
Ban Sang Chien	28.8	4.5	*	*
Ban Takor	80.7	6.3	25.9	3.7
Ban Tamloung	24.7	1.1	26.2	3.8
Ban Houp	0	0	37.9	5.4
Ban La-ou	0	0	30.7	4.4
Ban Loe	0	0	24.1	3.4
Ban Saloy Mai	0	0	16.0	2.3
Ban Saloykao	0	0	*	*
Subtotal	180.8	1.7	26.9	3.8
Ta oi District				
Ban Choravieng	22.2	0.6	56.7	8.1
Ban Kang	12.2	0.8	24.4	3.5
Ban Lapeung	26.3	1.8	47.1	6.7
Ban Tene	15.4	0.5	41.9	6.0
Subtotal	76.2	0.79	41.7	6.0
Total	257	1.3	39.4	5.6

Table 8-2: Intercropping areas established by the Project in surveyed villages in Nong and Ta oi districts during the pilot phase including the number of families participating

District/Village name	Number of families participating in intercropping	
	2008	2009
Nong District		
Ban Along	0	33
Ban Sang Chien	7	7
Ban Takor	17	42
Ban Tamloun	14	3
Ban Hou	0	0
Ban La-ou	0	0
Ban Loe	0	0
Ban Saloy Mai	0	0
Ban Saloykao	0	0
Subtotal	38	85
Ta oi District		
Ban Choravieng	0	1
Ban Kang	1	6
Ban Lapeung	12	16
Ban Tene	0	2
Subtotal	13	25
Total	51	110

Impacts of Intercropping

The intercropping scheme introduced by the Project has had the following positive benefits on agricultural production in surveyed villages:

- Positive impacts on crop production for 51 families, from five (5) villages participating in intercropping initiatives in 2008 and 110 families in 2009. The extent of the increased production as a result of intercropping, however, is unclear due to the lack of independent baseline data on food production and nutrition data for each household participating in the scheme. Anecdotal evidence from village surveys indicates that families who have participated in the intercropping scheme have higher production levels (per ha) and lower levels of rice deficiency and higher levels of cash income.
- Some villagers from Ban Takor and Ban Lapeung noted that they found planting rice through the intercropping scheme easier to do as it required less labour to clear and plough the land prior to planting crops as compared to their traditional swidden farming system. Women from Ban Takor and Ban Along noted that the time that they saved enabled them to produce more handicrafts for sale, resulting in an increase in household income.

- There is some evidence of farmers adopting use of improved farming systems outside the land allocated for intercropping. For example some farmers in Ban Takor noted that they had planted excess rice seed not required for intercropping sites in their traditional swidden fields and obtained improved production levels. Other villagers (e.g. from Ban Lapeung) noted that they would like to use this seed in their fields outside the plantations but that there was not enough surplus to enable them to do this. They also noted that they would like to adopt some of the same techniques used in the intercropping scheme but are constrained by a lack of equipment (tractors) and knowledge.
- During the village surveys, villagers in Ban Takor expressed their desire for continued and expanded participation in the intercropping scheme suggesting villager satisfaction with the results of the scheme.
- Given the positive impacts of intercropping noted above, the fact that villagers from Ban Takor are still reluctant to give up more swidden land to the Project (as mentioned in Section 8.1.1) suggests that farmers still have some underlying concerns with the intercropping model. Potential reasons why villagers are reluctant to take up the new technologies and farming systems introduced by the Project are most likely related to their risk-averse nature and lack of surplus savings to buy rice for personal consumption in the event that the new farming system fails. Another potential reason for the reluctance to participate in the scheme is that the full seven (7)-year cycle of the intercropping system has not yet been demonstrated in any village in the Project area making it difficult for farmers to conceptualise the positive and negative impacts potentially

associated with the scheme and leading them to err on the side of caution. The risk averse nature of these villagers could potentially result in a slow uptake of the system overall and/or restrict participation in the system to only the more financially secure farmers.

Village surveys also identified the following specific concerns with the intercropping model during village consultations:

- Villagers from Ban Tamloung noted that the Project recommended that they plant pineapple and banana plants but that these crops did not survive as they were planted at the wrong time of year. The Project notes that the villagers did not want to plant rice at the beginning of the season, but then they changed their mind and wanted to plant banana and pineapple. At that time, the eucalypt trees had already been planted, meaning it was too late to plough the land for them, but they decided to plant anyhow. So the villagers missed a crucial benefit that the company offered: soil preparation.
- Villagers from Ban Lapeung noted that there are risks with the scheme if rice is planted too late in the season (as occurred in their village during 2008) resulting in a poor (low yielding) rice crop
- Villagers from Ban Takor mentioned that as well as benefitting from crops planted within rows, they also want to share from the benefits of the trees when they are harvested.
- Villagers from Ban Tamloung reported that last year three (3) families from the village planted rice in the intercropping scheme but did not obtain a good rice harvest for unknown reasons. As a result only two (2) families will plant this year (2010).

- Villagers from Ban Along (participating in the women's focal group), noted that the yield of last year's crop was low and as a result the Project provided them with rice as compensation. The Project notes that the reason that the yield was poor was that villagers insisted on planting the rice crop in the third year of tree establishment when trees were large and shaded the rice crops for part of the day. The Project noted that it now has a policy to allow farmers to plant rice only in the first and second year since the yield of the third year is not good.

Impacts on Livestock

Impacts on livestock production as a result of Pilot phase activities have been minimal as the agricultural land effectively lost due to Project activities represents an insignificant proportion of the total land available for grazing. In addition, observations by the author during the field visit suggest that livestock access to plantation areas does not seem to have been restricted in most villages. Some villages have benefitted from purchase of vaccinations for their livestock through the Village Development Fund.

8.1.2 Issues to be Addressed during the Feasibility and Project Implementation Phases

Further Acquisition of Village Agricultural Land

Table 8-3 indicates the extent of village lands and associated land areas that will potentially be utilised for the Feasibility and Project Implementation phases. It is important to note that, as mentioned earlier in Section 4.1, the exact location of feasibility and project implementation phase plantation areas is not yet certain and is subject to change depending on the outcome of discussions with potentially impacted villages, and agreement from these villages and the District government authorities to proceed with plantations in these areas.

The figures provided in the table below are 'best guess' estimates based on the availability of suitable land and the development targets of the Project provided by Stora Enso in April 2009 (Stora Enso 2009). Even though they represent "best guess" estimates, the author considers that it is important for the integrity of the Socioeconomic Assessment to include detailed analysis of potential land acquisition at the individual village level to give an indication of the potential scale of impacts on land resources at through the different project phases.

Current data only exists for Nong and Ta oi districts and these two (2) districts will form the focus of the discussion in this section of the report.

Table 8-3: Estimated acquisition of village land (ha) in Nong and Ta oi districts for the Project

District/Village name	Phase 2: Feasibility	Phase 3: Project Implementation	Total area (3 phases)
Nong District			
Ban Along	0.0	0.0	46.7
Ban Sang Chien	0.0	269.6	298.3
Ban Takor	0.0	0.0	80.7
Ban Tamloung	412.0	333.2	769.8
Ban Houp	314.0	243.7	557.8
Ban La-ou	121.8	349.8	471.6
Ban Loe	280.7	249.1	529.8
Ban Saloy Mai	81.4	164.2	245.6
Ban Saloykao	0.0	358.3	358.3
Subtotal	1209.9	1967.9	3358.6
Ta oi District			
Ban Choravieng	110.2	0.0	132.5
Ban Kang	276.9	0.0	289.2
Ban Lapeung	190.2	0.0	242.6
Ban Tene	235.2	26.1	250.6
Subtotal	812.5	26.1	914.8
Total	2022.4	1994.0	4273.4

In the Feasibility phase, an estimated area of 2022 ha in nine (9) villages will be acquired by the Project, 1210 ha in Nong district and 813 ha in Ta oi district. Villages that will be impacted by this acquisition of land are Ban Tamloung, Ban Houp, Ban La-ou, Ban Loe and Ban Saloy Mai in Nong district and Ban Choravieng, Ban Kang, Ban Lapeung and Ban Tene in Ta oi district (Table 8-3). The proposed development will have no direct impact on paddy fields or riverbank gardens. In Ban Takor, it is assumed that the Project nursery and other associated infrastructure will be constructed on land already cleared during the Pilot phase, and that no further land will be required for this infrastructure.

This area accounts for between 9.7 and 27.2 percent of available agricultural land of five (5) villages in Nong district and between 3.2 and 17.9 percent of available agricultural land of a further four (4) villages in the Ta oi District.

The villages with the most agricultural land to be acquired for the Feasibility phase of the Project include Ban Loe (27.2 percent) and Ban Houp (26.7 percent) in Nong District and Ban Kang (17.9 percent) and Ban Lapeung (12.8 percent) in Ta oi District (Table 8-4).

Once the exact location of the Stora Enso feasibility and implementation phase plantations areas has been decided by the company, it is important

that the same methodology is used as for the pilot stage assessment (Section 8.1.1), to compare the remaining agricultural land area in each surveyed village after development of the feasibility and project implementation phases, with the area required for each household to continue swidden production at current levels for a full swidden rotation (14 ha) (Table 8-4). . Indications at this early stage for example at the Feasibility phase suggest that eight (8) of the villages surveyed will

have more than the 14 ha per household required for a full seven (7) year rotation, and that the Feasibility Phase plantations are unlikely to reduce swidden agricultural production in these villages. One (1) village, Ban Saloy Mai, with an estimated 12.8 ha of agricultural land per household remaining after development of the feasibility phase plantations, will not have enough agricultural land to complete a full seven (7) year swidden rotation (Table 8-4).

Table 8-4: Estimated proportion of agricultural land to be acquired by the Project in surveyed villages in Nong and Ta oi districts

District/Village name	Phase 2: Feasibility phase			
	Land area to potentially be acquired	% of agricultural land impacted	Remaining agricultural area per household	Agricultural area per household for each year of the swidden cycle (ha)
Nong District				
Ban Sang Chien	*	0	*	*
Ban Takor	0	0	25.9	3.7
Ban Tamloung	412	18.7	21.3	3.0
Ban Houp	314	26.7	27.7	4.0
Ban La-ou	121.8	9.7	27.8	4.0
Ban Loe	280.7	27.2	17.5	2.5
Ban Saloy Mai	81.4	19.6	12.8	1.8
Ban Saloykao	0	0.0	*	0
Subtotal	1209.9	11.4	22.4	3.2
Ta oi				
Ban Choravieng	110.2	3.2	54.8	7.8
Ban Kang	276.9	17.9	20.0	2.9
Ban Lapeung	190.2	12.8	40.1	5.9
Ban Tene	235.2	7.7	38.6	5.5
Subtotal	812.5	8.5	38.1	5.5
Total	2022.4	10.0	29.6	4.2

*No data available, #, area per household calculations do not take into account increasing numbers of households over time, Shaded areas indicate area of agricultural land per household per year which are less than the 2 ha required for each household to maintain current levels of agricultural production.

The acquisition of swidden agricultural land in Ban Saloy Mai in particular and all villages to varying extents is likely to increase pressure on remaining agricultural land, exacerbating the trend towards shorter rotational cycles and reducing productivity of the remaining agricultural land with potentially adverse impacts on future food security. These pressures are likely to be exacerbated as village populations and household numbers increase over the Project's concession period.

During village surveys, the impacts of shorter rotations (noted to have transpired without the presence of the Project) on agricultural production were noted to include reduced yields, poorer soil quality and increased weed growth (requiring greater labour inputs to control).

Additional areas of agricultural land are likely to be acquired to make way for enlarged road right of ways to accommodate greatly increased traffic to support the project operations, and will be potentially disturbed (e.g. through sediment deposition from road runoff), further impacting on availability of agricultural land in these villages.

It should be noted that reduction of the area of swidden agriculture across the two (2) districts, in favour of more permanent forms of agriculture is consistent with the policy of the Government of Lao PDR as noted in their Sixth National Socio-Economic Development Plan 2006-2010 (NSED) (NSED, 2006) (see Section 5.1.1 for more detail). Related to this GoL policy, the Asian Development Bank's most recent Participatory Poverty Assessment (ADB, 2006), noted that across Lao PDR, limited access to cultivation land, especially for rice cultivation is the primary cause of poverty amongst villagers (with livestock disease rated the second cause). The report also reported that limited access to cultivation land was mostly caused by "...local officials to carry

out land reform (Land and Forest Allocation), consolidate villages, and to reduce or eradicate swidden cultivation. These policies have led to population pressure and scarcity of land resources". In the same ADB report, the author provided a case study of a Makhong village in Nong District, who attribute their poverty status to the Land and Forest Allocation program which has led to a reduction in their agricultural production, at the same time as supplies of forest products for consumption or for sale have declined.

Replacement Land through Inter-cropping

The acquisition of agricultural land used for swidden cultivation will be partially offset by land returned to villagers by the Project through its inter-cropping scheme, where the Project proposes to enable villagers to plant agricultural crops within rows of the eucalypt trees (see Section 4.2 for details).

For individual villages in the Project area, this equates to average intercropping areas ranging in size from 15.9 to 80.5 ha in Nong district and 11.8 to 29.7 ha in Ta oi district per year. In Nong district, Ban Tamloung will have the largest average intercropping area (80.5 ha), while in Ta oi district, Ban Kang will have the largest average intercropping area (29.7 ha) (Table 8-5). In terms of intercropping area available per household per year, this ranges depending on plantation area size and the number of households in the village, from 0.4 ha per household in Ban Choravieng to 2 ha per household in Ban Houy.

A similar proportion of land will become available for intercropping in the Project Implementation phase plantations.

Table 8-5: The average area of intercropping land to be established in the Feasibility phase (ha)

District/Village name	Land area to potentially be acquired (ha)	Average area of intercropping land available per year over a 7 year cycle (ha)	Intercropping area per household (ha) per year
Nong District			
Ban Along	0	0	0.0
Ban Sang Chien	0	0	0.0
Ban Takor	0	0	0.0
Ban Tamloung	412.0	80.5	1.0
Ban Houph	314.0	61.4	2.0
Ban La-ou	121.9	23.8	0.6
Ban Loe	280.7	54.9	1.3
Ban Saloy Mai	81.4	15.9	0.6
Ban Saloykao	0.0	0.0	0.0
Subtotal	1209.9	236.4	
Ta oi District			
Ban Choravieng	110.2	21.5	0.4
Ban Kang	276.9	54.1	0.9
Ban Lapeung	190.2	37.2	1.2
Ban Tene	235.19	46.0	0.6
Subtotal	812.53	158.8	
Total	2022.41	395.2	

Potential Agricultural Benefits

Potential benefits of the Project on agriculture in the Project Area include:

- Intercropping has the potential to generate significant benefit for local farmers through improved levels of production leading to reduced rates of rice deficiency and increased cash income through sale of surplus rice and cash crops. Studies in Thailand have indicated that agro-forestry systems (cash crop intercropping between rows of eucalypts) can be an important source of income for farmers allowing eucalypt plantations on their land (RFD, 1996).
- Cash crops that were found to grow successfully in eucalypt plantations include corn, chilli, groundnut, upland rice, red okra and castor bean. The study also found that eucalypt wood productivity per rai increased when a proper combination of crops was grown along with the eucalypt trees because the presence of crops reduced the presence of weeds (RFD, 1996).
- The Project is expected to increase agricultural production in the area by providing an additional market for food while the improved road access will increase the availability of agricultural inputs and allow surplus produce to

be transported out to markets. The improved road network may also improve access to previously inaccessible land.

- Initiatives funded through the Village Development Fund which have the potential to introduce improvements in agricultural techniques (e.g. introduction of new crops such as Yang bong (*Persea kurzii*) plantations in Ban Takor), and technologies (e.g. post harvest facilities) in the Project area. These investments have the potential to increase rice product quantities for sale, increase the quality of agricultural products and subsequently result in higher incomes from sale of agricultural produce for villagers.
- Positive impacts on livestock are likely to result from initiatives introduced through the VDF such as inoculations programs as well as through increased cash incomes associated with the Project, which can be expected to be directed to purchases of livestock and subsequently leading to increases in the size of village livestock herds.
- Positive impacts on livestock are likely to result from initiatives introduced through the Village Development Fund such as inoculations programs and other livestock development initiatives such as establishment of livestock banks.

Other Impacts on Agriculture

Experience from other similar projects in Lao PDR suggests that potential negative impacts on agriculture may result from:

- Labour shortages as employment with the Project conflicts with the traditional agricultural cycle. The World Food Program recognises that “conflict between the traditional agricul-

tural cycle and the need to meet immediate household food requirements by working on other farmers' land or in off-farm employment activities further threatens food production in the poorest households”. Labour shortages were not experienced during implementation of the pilot phase but are likely when larger plantation areas are established (see Section 8.4 for full analysis of labour requirements).

- Increased risk of livestock death as Project-related road traffic increases and collisions occur between livestock and logging trucks and other Project equipment.
- Increased risk of livestock theft as roads are improved and access to village areas improves.
- Reduction in grazing areas within surveyed villages for the first three (3) years of plantation establishment after which the plantations will be available for grazing. This impact will be greatest in villages with large livestock populations and relatively small areas of agricultural land including Ban Saloy Mai and Ban Loe.

8.1.3 Avoidance, Mitigation and Management Measures

Potential measures which the Project can introduce to address negative impacts on agriculture in surveyed villages, and enhance the positive impacts of the Project include:

Enhance the Intercropping Scheme

- Continue to employ full time skilled extension and agribusiness officers skilled with trees and crops to support villager's transition from swidden to intercropping for rice sufficiency and production of cash crops. These techni-

cal staff should be engaged until villagers are confident in the application of the new farming systems being promoted through the intercropping scheme.

- Consider implementation of a microcredit scheme for villagers participating in the intercropping scheme to enable poorer households to participate with less financial risk (in the event of failure). This scheme if successful could be extended outside the intercropping scheme to enable farmers to modernise their agricultural production systems using skills obtained when working with the Project.
- Consider the implementation of a purchasing system for cash crops and eventually rice surplus products produced by farmers through the intercropping scheme, for cash crops produced, again reducing the risk for farmers of producing a product and not being able to find a market to sell it at harvest time at an appropriate price. Purchased products could be milled, stored and then used at the company's facilities in Nong and Ta oi and sold at the District centre or markets outside the District. A scheme such as this has been established at the Sepone mine in Vilabuly district where the mine purchases vegetables from vegetable cooperatives established in each village for use within the mine's mess as well as export to outside markets in Savannakhet. This scheme also includes a microcredit scheme to enable villages to make investments in establishing the village gardens, purchase of fencing and irrigation infrastructure and farm inputs such as fertiliser and quality seed.
- The Project should carry out cost-benefit analysis considering various productivity/output scenarios to demonstrate if this actually contributes to improving livelihoods/food security over, at the very least, the 7 year rotational cy-

cle – this should be carried out in the second phase of the SIA.

- Incorporate support for village livestock production recognising the importance of livestock and their current susceptibility to disease.
- Develop an equitable compensation scheme. The acquisition of degraded forest and swidden land is a key issue in the plantation sector in Lao PDR for a number of reasons:
 - o The value of degraded land for livelihoods is often overlooked or underestimated. This land often provides a crucial source of non timber forest products and land for upland agriculture for villagers;
 - o Villagers often have limited or no formal land use rights to the land, thus affecting their entitlements to compensation. Under the Land Use Planning and Land Allocation (LUPLA) process, the Land Forest Allocation Program (LFAP) was implemented - mapping village boundaries, forest and agricultural land, assigning use categories and awarding use rights to villagers. Under the LFAP, families had the right to be awarded Temporary Land Use Certifications (T-LUC's) for access to 3 hectares of upland swidden fields under this system however the allocation of LUCs has not occurred. While use rights were allocated to villages ultimate land and resources remained in the ownership of the government.
 - o Large percentages of total village land are being acquired for plantation concessions resulting in unsustainable amounts of land remaining for village livelihoods.
 - o Compensation is often low or non-existent. Due to the absence of individual land use

rights villagers are usually not awarded compensation for the loss of swidden land. Where compensation is provided – usually for the loss of livelihood – it is often extremely low and/or bundled in village development funds and not targeted specifically to the household losing the access to the land.

- To respond to the above issues associated with the acquisition of degraded and swidden land and satisfy its internal social policies as outlined in Chapter 5 of the report, it is strongly recommended that Stora Enso develop a compensation framework for the Project based on both the requirements of Lao legislation PM192 Compensation and Resettlement; Regulation 2432 Compensation and Resettlement; and the IFC Performance Standard 5, Land Acquisition and Involuntary Resettlement, the internationally recognised standard for Compensation and Resettlement.
- According to IFC Performance Standard 5, Land acquisition steps that apply to this project include:
 - o *Promptly compensate economically displaced persons for loss of assets or access to assets at full replacement cost;*
 - o *Provide replacement property (e.g. agricultural or commercial sites) of equal or greater value, or cash compensation at full replacement cost where appropriate, to persons with legal rights or claims to land which are recognized or recognizable under the national laws;*
 - o *Compensate economically displaced persons who are without legally recognizable claims to land for lost assets (such as crops, irrigation, infrastructure and other improvements made to the land) other than*

land at full replacement cost. The client is not required to compensate or assist opportunistic settlers who encroach on the project area after the cut-off date;

- o *Provide additional targeted assistance (e.g. credit facilities, training or job opportunities) and opportunities to improve or at least restore their income-earning capacity, production levels, and standards of living to economically displaced persons whose livelihoods or income levels are adversely affected;*
- o *Provide transitional support to economically displaced persons, as necessary, based on a reasonable estimate of the time required to restore their income-earning capacity, production levels, and standard of living. Transitional support can be financial or in kind (provision of rice, livestock, etc.);*
- o *Where communities of Indigenous Peoples are economically displaced (but not relocated) as a result of project-related land acquisition, the client will meet the applicable requirements of this Performance Standard, as well as those of Performance Standard 7 (in particular paragraphs 12 and 13);*
- o *Mitigate potential negative impacts on agricultural land by assisting improvements in agricultural practices and “food security” (including optimisation and intensification of non-impacted agricultural and other productive land) through the Village Development Fund.*
- The IFC Guidance Note on Standard 5 explains the process for deciding on compensation for economically impacted peoples further, stating:

- o *“In cases where project-related land acquisition results in loss of livelihoods or income of those without any legal title or legally recognized or recognizable claim to land, they are normally entitled to a range of assistance, including compensation for lost assets and any structures on land (see the first two bullets under paragraph 20 of Performance Standard 5), as well as targeted assistance and transitional support (see the last two bullets under paragraph 20 of Performance Standard 5). The nature and extent of such assistance will in part depend on whether the livelihood of those affected is land-based, wage-based, or enterprise-based (see guidance under paragraph G6 of this Guidance Note). Land-based compensation in these circumstances does not necessarily mean title to land, but may include continued access to land to enable the affected people to maintain their land-based livelihoods. It will be necessary to tailor compensation and entitlement options to the needs of the displaced.”*
- The Compensation framework would also provide a means of bringing the different components of Stora Enso’s social mitigation program (Intercropping scheme and Village Development Fund) into a more formal structure to show explicitly how the Project’s approach to social mitigation meets the requirements of Lao Decree PM192 and IFC Performance Standard 5.
- Table 8-6 provides a preliminary compensation framework outlining the Lao and IFC requirements, presenting examples of current practice in Lao PDR and providing a number of recommendations for Stora Enso.
- Under the Compensation framework, the Project would provide compensation for all agricultural land acquired or disturbed as a consequence of Project development. The Compensation framework would include the following steps: 1. Identification of all affected people at the household level; 2. Registration of affected assets; 3. Description of methods applied for valuing land and other affected assets; 4. Description of compensation entitlements and rates to be paid; 5. Outline of schedules for land acquisition and compensation payments; and 6. Provide descriptions of the process whereby people can appeal property valuations which they deem to be inadequate.

Table 8-6: Preliminary Compensation Framework for the Stora Enso Project

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
1. Identification of Project Affected Peoples and 2. Registration of affected assets				
Definition of Project Affected Peoples (PAP)	<p>Project Affected People includes any person or entity or organisation affected by a project, who in the context of acquisition of assets or change in land use before the project commencement date could have their:</p> <ul style="list-style-type: none"> i) standard of living adversely affected; ii) right, title, or interest in all or any part of a house, land (including residential, commercial, agricultural, plantations, forest and grazing land), water resources iii) business, profession, work areas or residential areas adversely affected with replacement or no replacement; iv) community resources adversely affected, or any other moveable or fixed assets acquired or processed, in full or in part, permanently or temporarily adversely affected; 	<p>Affected People are defined as:</p> <ol style="list-style-type: none"> 1. Physically displaced people - relocation or loss of shelter and 2. Economically displaced people (loss of assets or access to assets that leads to loss of income sources or means of livelihood) as a result of project-related land acquisition. 	<p>The identification of project affected peoples in Lao PDR should commence at the start of the environmental and social assessment process. According to Regulation 2432, a Resettlement Action Plan must be prepared where 200 or more people are severely affected due to the loss of productive assets, incomes, employment or businesses by the project based on a census inventory of lost assets and socioeconomic survey. The RAP is usually finalised after detailed design of the project to include the full census and final asset inventory, valuation and final budget.</p> <p>Under regulation 2432 the commencement of the census serves as the cut off date for the purposes of compensation entitlements and other assistance.</p> <p>It is common practice in Lao for affected people losing individually owned land and assets to be identified by a census/inventory of land and asset survey.</p>	<p>Best practice identification of PAPs includes identification of economically displaced people (to inform more targeted social impact mitigation and compensation programs).</p> <p>Conduct full census of all households in affected villages including economically displaced people and the wider community. The census will complement the results of the Stage 1 Socioeconomic Assessment.</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
			<p>However it is less common for detailed information to be collected on people without land use rights (economically displaced people - ie uses of swidden land) and the wider affected community.</p> <p>Most companies take a broad village-wide approach to economically displaced people - implementing village wide livelihood restoration and community development assistance programs. In defining true locals (those people who lived in and derived income/livelihoods in the village before the project), some companies rely on village authorities to certify the origin of people, other companies, recognising the need for more detailed information, have conducted post project operation census.</p> <p>(Note: No information could be sourced on current practices specific for the plantation sector)</p>	

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
	3. Compensation entitlements			
APs with legal land title	The decree requires that project owners shall compensate project affected people for their lost rights to use land and for their lost assets (structures, crops, trees and other fixed assets) affected in full or in part at replacement cost	The IFC standard requires that Project owners Provide replacement property (e.g. agricultural or commercial sites) of equal or greater value, or cash compensation at full replacement cost where appropriate, to persons with legal rights or claims to land which are recognized or recognizable under the national laws;	<p>Legal rights of Project Affected people are outlined in table 5-3 of the report. The amount of compensation for land is dependent on the type of land use right held by the user/owner.</p> <p>Permanent land title is awarded the maximum compensation amount. The situation for swidden areas is more ambiguous. While these areas may fall under the LFA village land boundaries much of this land has not been individually registered with the GOL, no tax has been paid on the use of this land and therefore land tenure is normally not recognised (see "APs without legal land title").</p> <p>Even if these conditions have been met, government policy restricts villagers to owning 3 swidden fields and rotating them annually on 3-year cycles. It is widely reported that three year fallow systems are generally not sustainable and many farmers in reality use larger areas on longer cycles. This has resulted in a situation where farmers can only be officially compensated for the land that they are officially allowed to own (Baird 2008).</p>	<p>Through land and asset surveying, identify all individual use of impacted village lands and detail assets on these lands. Where lack of official use right exists (ie for swidden land) explore history of use.</p> <p>Establish and work with provincial and district compensation committees to:</p> <ol style="list-style-type: none"> 1. establish set compensation amounts for different types of land where legal use rights can be identified; 2. establish set compensation amounts and periods of compensation for other assets (eg crops and trees) 3. establish principles for livelihood restoration of those APs who are economically impacted by the loss of land but do not have explicit legal land use rights to claim compensation for loss land (see below).

Af- fected Peo- ples	GOL Compensation and Resettle- ment Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
			<p>Cash value (land): where impacts on land are not significant the most common form of compensation is cash based on valuation of the land and its productivity conducted by the company in collaboration with the district/provincial government's compensation committee. A number of plantation companies have been providing cash compensation (around USD 100 per ha) to households for the loss of swidden land - (Baird 2008). In practice, in the experience of the author, cash compensation for the loss of land varies greatly depending on type of land right held, the location of the project, type of development project and origin of investment.</p> <p>Cash value (commercial trees, cash crops) - a cash value is assigned for the loss of specific trees and cash crops based on the size (maturity) of crop/tree. The number of years are usually also assigned to each type of crop/tree (GOL SVK 2005). Cash valuations are confirmed between the project and the provincial compensation committee.</p>	

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
4. Methods for valuation of land and other assets				
APs with legal land title: Significant loss of land	Where significant large or entire land holding affected by a project, namely agriculture, residential or commercial land, the compensation shall be through the provision of land for land arrangements of equivalent size and productivity and to be acceptable to APs and project owners		<p>Several studies have reported about the negative social impact of rubber plantations in the south of Lao that are acquiring large percentages (up to 90 percent) of village lands and providing inadequate compensation including: no compensation for communal lands (state owned lands); low compensation for individually owned land; inconsistent compensation for loss of production; and inconsistent compensation for loss of swidden land (ESL 2007; Baird 2008; Luangaramsi 2008). These reports have also been critical about the lack of livelihood restoration programs and the absence of employment programs targeting households losing the majority of their land/livelihood.</p>	<p>Address issue at the household level. Where land impacts at the household level are significant (more than 20 percent of the household land), implement a targeted livelihood restoration program.</p>
			<p>Sustainable livelihood/income restoration - Best practice livelihood restoration is targeted household level kind for kind compensation - in this case, land for land. In practice this form of compensation can prove challenging in Laos due to limited land availability near project affected villages. Where finding alternative land has been possible, some companies have found that villages would prefer cash compensation so that alternative livelihoods can be developed instead of relocating. Plantations companies, where land requirements are significant, are generally failing to address this issue adequately (ESL unpublished 2007; Baird 2008; Luangaramsi 2008; Barney 2007).</p>	<p>Targeted livelihood/income restoration may involve a mixture of access to intercropping, prioritised labour; livestock development; and prioritised training/business development.</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
APs without legal land title	No provision for compensation of land. APs who are living in rural or remote areas, who do not have any legal land use certificate or any other acceptable proof indicating land use right to the affected land and assets they occupy shall be compensated for their lost assets at replacement cost and provided additional assistance to ensure that they are not worse off due to the project.	Compensate economically displaced persons who are without legally recognizable claims to land for lost assets (such as crops, irrigation, infrastructure and other improvements made to the land) other than land at full replacement cost. The client is not required to compensate or assist opportunistic settlers who encroach on the project area after the cut-off date;	Cash value (commercial trees, cash crops) - a cash value is assigned for the loss of specific trees and cash crops based on the size (maturity) of crop/tree. The number of years are usually also assigned to each type of crop/tree (GOL SVK 2005). Cash valuations are confirmed between the project and the provincial compensation committee. Under Lao legislation, people are entitled to compensation for lost assets other than land, regardless of land title. There have been reports that compensation for the loss of commercial crops (not rice) on upland areas has been provided by some rubber companies in Bienchieng. Other forms of compensation for impacts to upland swidden areas	Ensure that APs are compensated for the loss of assets regardless of land use rights.

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
<p>APs without legal land title: Significant loss of land</p>	<p>No provision for compensation of land. APs will be covered under Significant income generating/livelihood impact</p>	<p>No provision for compensation of land. APs will be covered under Significant income generating/livelihood impact</p>	<p>Precedent for compensation of community owned swidden fields (based on LAF allocation and not individual use rights) have been established by the Government of Savannakhet in regards to the LXML mining project (GOL SVK 2005). In this example the company worked closely with the Provincial government to develop a schedule of rates for each crop type affected, specifying the crop type (e.g. banana tree/upland rice), compensation rate provided and length of time that compensation is provided for. For upland rice the compensation was calculated assuming a productivity of 1.8 tone/ha and compensated as a one off payment based on the market price on that day.</p> <p>As noted above, some plantation companies are providing compensation for the loss of swidden land however it cannot be verified whether this was paid for all swidden land lost or just that land for which villagers had a legal claim.</p>	<p>Compensation for land not required by law however, recommends that one of cash payments for loss of land be explored (at household level) in addition to asset compensation and livelihood/income restoration. To do this, the Project would have to discuss in detail with the Provincial governments and develop an agreed entitlements matrix detailing the schedule of rates for compensation associated with the project.</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
All APs regardless of legal land title: significant income generating/livelihood impact	All APs severely affected by the project due to the loss of 20 percent or more of productive income generating assets, means of livelihood, employment or business and access to community resources shall be entitled to sustainable income restoration measures in addition to their entitlement of compensation and other allowances enabling them to attain pre project livelihood levels.	Provide additional targeted assistance (e.g. credit facilities, training or job opportunities) and opportunities to improve or at least restore their income-earning capacity, production levels, and standards of living to economically displaced persons whose livelihoods or income levels are adversely	<p>Sustainable livelihood/income restoration. Best practice livelihood restoration is targeted household level kind for kind compensation e.g. rice for rice, fish pond for fish pond. For income/economic restoration broader options can be sought and cash compensation with complementary community development/business development training is provided.</p> <p>In practice most livelihood/income restoration programs are run at the village level and are poorly targeted. In the plantation sector, Oji – LPFL is reported in one study as providing USD 50 per hectare for the use of swidden or degraded village lands awarded in the form of village wide development interventions organized by the company.</p>	<p>Villages where household livelihoods/income is impacted 20 percent or more of the total livelihood income should be compensated through sustainable livelihood activities.</p> <p>Loss of livelihood/income should include the hunting of wildlife and gathering of NT-FPs from these areas.</p> <p>Targeted livelihood/income restoration may involve a mixture of access to intercropping, prioritised labour; livestock development; and prioritised</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
APs without legal land title: Significant loss of land	No provision for compensation of land. APs will be covered under Significant income generating/livelihood impact	No provision for compensation of land. APs will be covered under Significant income generating/livelihood impact	<p>Precedent for compensation of community owned swidden fields (based on LAF allocation and not individual use rights) have been established by the Government of Savannakhet in regards to the LXML mining project (GOL SVK 2005). In this example the company worked closely with the Provincial government to develop a schedule of rates for each crop type affected, specifying the crop type (e.g. banana tree/upland rice), compensation rate provided and length of time that compensation is provided for. For upland rice the compensation was calculated assuming a productivity of 1.8 tone/ha and compensated as a one off payment based on the market price on that day.</p> <p>As noted above, some plantation companies are providing compensation for the loss of swidden land however it cannot be verified whether this was paid for all swidden land lost or just that land for which villagers had a legal claim.</p>	Compensation for land not required by law however, recommends that one of cash payments for loss of land be explored (at household level) in addition to asset compensation and livelihood/income restoration. To do this, the Project would have to discuss in detail with the Provincial governments and develop an agreed entitlements matrix detailing the schedule of rates for compensation associated with the project.

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
All APs regardless of legal land title: significant income generating/livelihood impact	All APs severely affected by the project due to the loss of 20 percent or more of productive income generating assets, means of livelihood, employment or business and access to community resources shall be entitled to sustainable income restoration measures in addition to their entitlement of compensation and other allowances enabling them to attain pre project livelihood levels.	Provide additional targeted assistance (e.g. credit facilities, training or job opportunities) and opportunities to improve or at least restore their income-earning capacity, production levels, and standards of living to economically displaced persons whose livelihoods or income levels are adversely affected;	<p>Sustainable livelihood/income restoration. Best practice livelihood restoration is targeted household level kind for kind compensation e.g. rice for rice, fish pond for fish pond. For income/economic restoration broader options can be sought and cash compensation with complementary community development/business development training is provided.</p> <p>In practice most livelihood/income restoration programs are run at the village level and are poorly targeted. In the plantation sector, Oji – LPFL is reported in one study as providing USD 50 per hectare for the use of swidden or degraded village lands awarded in the form of village wide development interventions organized by the company.</p>	<p>Villages where household livelihoods/income is impacted 20 percent or more of the total livelihood income should be compensated through sustainable livelihood activities.</p> <p>Loss of livelihood/income should include the hunting of wildlife and gathering of NTFPs from these areas.</p> <p>Targeted livelihood/income restoration may involve a mixture of access to intercropping, prioritised labour; livestock development; and prioritised</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
				<p>training/business development through mechanisms such as the VDF. These activities would be formalised in the entitlements matrix and become part of the Project's legal obligations to villages in the Project area.</p> <p>Ideally, impacts on rice production should be compensated at the village level through support to rice production (ie rice for rice), impacts on fisheries through some kind of fisheries or aquaculture activity. In cases where a compensatory activity is not feasible, a broader approach should be taken, i.e. instead of fish-for-fish it will be animal protein-for-fish, e.g. support to livestock activities.</p>

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
All APs regardless of legal land title	All APs, regardless of land use right, will be provided with other assistance during the transition period, and economic rehabilitation assistance to ensure that they are not worse off due to the project.	<p>Provide transitional support to economically displaced persons, as necessary, based on a reasonable estimate of the time required to restore their income-earning capacity, production levels, and standard of living. Transitional support can be financial or in kind (provision of rice, livestock, etc.).</p>	<p>Transitional support differs from livelihood/income restoration as its aim is to provide compensation to affected people during the period between loss and restoration or livelihoods/income to pre-project levels/or above the poverty line.</p> <p>An example of the provision of transitional support is the Nam Theun 2 project which provided Rice and protein (meat) to re-settlers who have a genuine shortage and need for the same.</p> <p>Decisions on which households in the village are eligible for assistance in this way are made by Village Compensation Committees established in each village.</p>	A transitional support program should be developed to make up any shortfall in livelihood/income during the restoration period. For example additional rice may be provided to households to make up for any shortfall of the intercropping program, or in years where rice cannot be grown and alternative incomes have not been properly established to offset this loss of livelihood.
		<p>Mitigate potential negative impacts on agricultural land by assisting improvements in agricultural practices and “food security” (including optimisation and intensification of non-impacted agricultural and other productive land) through the Village Development Fund.</p>		

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
5. Schedule of land acquisition and compensation payments				
	Schedule for land acquisition and compensation is set out in Regulation 2432.		<p>As noted above, the compensation process begins during the initial stages of the environmental assessment process - with the identification of APs. The EA process is used to gather additional information on AP and impacts and where necessary a Resettlement Action Plan is produced. An inventory of land and assets is usually conducted during the EA phase and then finalised pre project implementation. Compensation committees are usually established at this time. The RAP and EMP are implemented during the project implementation phase and their results monitored.</p> <p>There are many examples of well structured and implemented compensation processes in Laos - particularly in the mining and hydropower sectors. However studies on rubber plantation in Banchieng suggest that compensation processes are often ad hoc and compensation entitlement and amounts vary according to village/individual influence.</p>	Follow GOL schedule and requirements for land and asset compensation.

Affected Peoples	GOL Compensation and Resettlement Decree 192 and Regulation 2432	IFC Standard 5	Current Practice in Lao PDR (with an emphasis on swidden land)	Recommendations for Stora Enso
6. Grievance/appeal process				
	<p>The establishment of a grievance process (in consultation with the community) is required under Decree 192, Regulation 2432; Decree on ESIA; Lao Guidelines for Public Participation (GoL 2009).</p>	<p>The client will establish a grievance mechanism consistent with Performance Standard 1 to receive and address specific concerns about compensation and relocation that are raised by displaced persons or members of host communities, including a recourse mechanism designed to resolve disputes in an impartial manner.</p>	<p>Grievance procedures are usually developed by the company in consultation with the GOL and the community. The process usually involves a grievance hierarchy commencing at the village level and escalating to the province, central levels and if necessary to the Lao courts. Grievance mechanisms should be implemented by the district and provincial governments (who form grievance committees) and WREA at the central level - in collaboration with the company. Grievance procedures should be tested in communities before they are implemented.</p>	<p>Develop a grievance procedure in consultation with affected peoples, assist in the establishment of government grievance committees and test the grievance mechanism in the communities before implementation.</p> <p>Refer to Decree on ESIA (2010) and Lao Guidelines for Public Participation (GoL 2009).</p>

Other Measures

- Reduce the indirect land impacts resulting from increased population by working with the District Government to control in-migration and providing alternative employment opportunities. As some in-migration may be necessary to provide labour for the Project, the development of an in-migration and population management strategy, in conjunction with village heads and the District administration could also mitigate the negative impacts of increased pressure on land and water resources.
- Minimise the duration of exclusion zones in plantations for livestock.
- Consider development of improved forages for livestock herds and appointment of a vet to conduct routine inoculations in Project villages.
- Install appropriate drainage erosion and sediment control structures to stabilise cleared land (including land cleared for roads) and prevent impacts on adjacent and downstream land areas.
- Limit construction of roads on agricultural land wherever possible by reducing the right of way required for roadways. Ensure appropriate drainage and erosion control structures are constructed to minimise the potential for sediment deposition on rice paddies.

8.2 Impacts on Forest Resource Use

8.2.1 Impacts to Date from Pilot Plantations

Impacts on forest resource use identified to date appear to have been minimal due to the small

land areas acquired in each village in proportion to the total amount of forest land and Stora Enso's policy of avoiding designated forest areas and only using degraded forest land (defined as areas where there is less than 30 m ha⁻¹ of all species of wood with a diameter of >15 cm).

Results from village interviews have noted the following issues regarding forest resource use:

- Some negative impacts on villagers' forest resource use were reported in Ban Tamloung as a result of the Project's acquisition of degraded forest areas close to their village settlements resulting in villagers having to walk further to access firewood/NTFPs.
- Villagers from Ban Choravieng noted that as a result of villagers not being able to use the plantation area for NTFP collection, additional pressure would be placed on remaining forest areas.

8.2.2 Issues to be Addressed during the Feasibility and Project Implementation Phases

Further Acquisition of Village Agricultural Land also used for NTFP Collection

The Feasibility and Project Implementation phases of the Project, similar to the Pilot phase, are not expected to impact directly on village use of designated forest areas within the Project area as the boundaries of these areas have been mapped and documented by Stora Enso prior to demarcation of suitable plantation areas in conjunction with District government representatives.

Some impact on villager collection of timber and NTFPs is expected to result from villager's loss of access to degraded forest areas (referred to as

agricultural land in Section 9.1) outside designated forest areas, which are acquired by the Project for establishment of plantations.

NTFPs are an important source of livelihoods for the local people within and near these sites, and forest plants and animals are important to food security. The extent of this impact on food security and livelihoods is likely to vary between different villages and between individual households within villages depending on a range of factors including geographic preferences for collection of NTFPs, the availability of access to other high quality forest areas as sources of NTFPs and the overall dependence of the village or household on NTFPs as a source of food and cash income. For example the village of Ban Houkayo noted that NTFP collection was not an important source of cash income as the other eleven (11) villages as it is a relatively urbanised village close to the District centre of Ta oi, while the other surveyed villages are located in more rural areas with reduced options for generating cash income apart from NTFP collection.

Other Impacts on Forest Resource Use

Experience on other similar projects in Lao PDR suggests that further impacts on forest resource use may result from:

- The intercropping scheme, if successful, will in the long term reduce villager's dependence on NTFPs as a source of food and cash income and reduce pressure on forest resources to supply these products.
- Project based employment will provide opportunities for villagers to diversify their currently limited employment options thereby reducing the economic necessity for hunting and collec-

tion and/or trading of NTFPs.

- There is potential for off cuts from forest harvesting activities to become an important fuel supply for local residents reducing community reliance on firewood gathered from the forest.
- Indirect impacts on designated forest areas as a result of increased usage pressures as degraded forest areas are replaced with plantations. Ultimately, in the short term, this is likely to reduce the capacity of these forests to continue to provide essential NTFPs for village populations. In the long term if the Project is successful the pressure is likely to be reduced as dependence on NTFPs as a food source is reduced due to increased rice production from intercropping and increased cash incomes from employment.
- In village areas where village boundaries are in dispute, increased pressure on designated forest areas is likely to lead to increases in conflicts as more people become dependent on these disputed forest resources.
- There is potential for the noise, vibration and dust associated with vehicle movements and plantation establishment and maintenance to result in a further decrease in the success of hunting efforts as wildlife move to areas outside the Project area.
- The improved road network established by the Project is likely to lead to increase trade in NTFPs to outsiders, both from urbanised areas within the District and to Vietnamese traders to potentially unsustainable levels. While some villagers may profit from this in the short-term, it is likely that the resource will be quickly depleted, possibly resulting in impacts on residents who relied on these NTFPs. The Project's recent (2010) initiative to introduce domestication of some selected NTFPs (e.g.

bamboo shoots) into the intercropping system, could, if successful reduce the pressure on these forest resources.

8.2.3 Avoidance, Mitigation and Management Measures

Potential measures which the Project can introduce to address negative impacts on forest resource use in surveyed villages, and enhance the positive impacts of the Project include:

- Provide, where potential impacts are identified, appropriate compensation and livelihood restoration programs to offset the loss of livelihood derived from forest resources. These programs would be identified in the Project's Compensation framework (see Section 8.1) and could include:
 - o Livelihood assistance to restore income generating capacity.
 - o Improve natural resource management through skills transfer between the Project, District government and local communities. This could include support for District Agriculture and Forestry Offices and Village Development Committees to develop and implement action plans for the sustainable use of designated forest resources and remnant vegetation identified by the Project as important sources of NTFPs, so that these areas are managed sustainably and can continue to provide a source of livelihoods for local people.
- Ensure local communities and heads of affected villages clearly understand the extent of land to be acquired for the Project during the Plantation establishment phase (including timing of land clearance) and clearly demarcate boundaries (e.g. through fencing, or if this is

impractical pegging).

- Minimise the extent of land acquisition, and subsequent impacts on degraded forest areas by restricting the extent of land acquisition to include only the area directly required for plantation areas, road infrastructure and processing operations and ensure designated Project buffer zones around Project components (as described in Table 4 of the SE Plantation management model (SE 2008).
- Continue to investigate the potential for the Project to support the commercialisation of NTFPs by impacted villagers (e.g. through inclusion in the Project's intercropping scheme) or through support of the Village Development Fund (VDF).
- Support the District government in its boundary demarcation process for villages participating in the Project to avoid future conflicts over forest resources.

8.3 Impacts on Water Resource Use

8.3.1 Impacts to Date from Pilot Plantations

No major impacts on water resource use as a result of the Pilot phase activities were identified through village surveys, either for drinking/other potable uses or use for stock watering or fishing. This is presumably due to the small area of plantations established to date and the Project's adherence to their policies of not clearing land within 30 m of water bodies and careful procedures of management of agricultural chemicals as established in the Project's procedures manual. The extent of any changes in water quality or quantity as a result of establishment of the Pilot planta-

tions, however, cannot be quantified due to the lack of baseline water quality/hydrology data prior to plantation establishment.

Results from village interviews have noted the following issues regarding water resources:

- Villagers from Ban Takor noted a decline in number of fish in the stream near the plantation site on their village's land. They were not sure whether this was attributable to the Project or other reasons (e.g. increased numbers of fishers).

8.3.2 Impact Assessment of the Feasibility and Project Implementation Phases

Pollution of village water sources through Project development and operations.

Development of the Project's plantation areas, associated infrastructure and roads, and ongoing operations has the potential to adversely affect the amenity of downstream surface water resources. Adverse surface water quality impacts could potentially include increased suspended solids as a result of erosion of disturbed soils from cleared plantation and road areas, runoff of chemicals used in plantation management, drainage from facilities used to store fuel and park vehicles and through accidental release.

A significant degradation of surface water quality could compromise the ongoing use of downstream surface water by villagers for drinking and cooking, washing, use of water resources for fisheries and the collection of other aquatic products, and for other beneficial uses (recreation and stock watering).

Other Impacts on Water Resource Use

Experience on other similar projects in Lao PDR and the region suggest that that further impacts on water resource use may result from:

- Impacts on the quantity of surface water and groundwater flow which could impact the availability of these resources for all beneficial uses as a result of development and operations of the Plantation areas and associated infrastructure. A significant degradation of surface water quantity could compromise the ongoing use of downstream surface water by villagers for drinking and cooking, washing, use of water resources for fisheries and the collection of other aquatic products, and for other beneficial uses (recreation and stock watering).
- The likelihood of impacts on water quantity in the Project area has been assessed by a separate study conducted as part of the overall ESIA (Swedish Agricultural University [SLU] 2008).
- Positive impacts on the quality/quantity of village water resources may result from investments made using the Village Development Fund such as the installation of bores and gravity-fed systems, and community development initiatives implemented by the Project (e.g. programs promoting village hygiene).

8.3.3 Avoidance, Mitigation and Management Measures

Mitigation measures to safeguard the amenity of water resources downstream of Project facilities include:

- Continue to implement the Project's procedures manual and ensure that all plantations

are located 30 m from water sources.

- Continue to implement erosion and sediment control measures throughout the Project area to minimise downstream impacts from plantations, supporting infrastructure and roads. These measures should be implemented during plantation establishment, maintenance and harvesting stages and during construction and operation of supporting infrastructure and roads.
- Conduct a baseline surface and groundwater water quality/hydrology assessment prior to plantation establishment and conduct regular follow up monitoring of key water quality parameters during implementation as per the Project's Environmental and Social Management and Monitoring Plan (ESMMP) (See Chapter 10).
- Provide alternative sources of domestic water in those villages where monitoring suggests that the amenity of existing sources is impacted by Project development.
- Ensure thorough implementation of the Stora Enso Procedures Manual which provides guidelines for the appropriate management of the transportation, storage and use of hazardous materials to avoid accidental release and contamination of surface water resources.

8.4 Impacts on Employment and Cash Income

8.4.1 Impacts to Date from Pilot Plantations

Cash Income for Local Communities

The Project has provided a variety of temporary employment options to local villagers in the pilot

stage including bush clearing and UXO clearing; soil preparation and planting and plantation maintenance. A further ten (10) villagers have been employed on a permanent basis as plantation guards. Further details of employment provided by Stora Enso are detailed in Section 4.5.

Village interviews have suggested that due to the large numbers of people carrying out temporary employment tasks, the number of days work obtained by each household in the villages was limited. For example, in Ban Choravieng Ta oi District, 22.2 ha was acquired by the Project in 2008. To clear the land in this village, 150-200 people were involved, and could complete this work in three (3) days. To burn the land required the services of only three (3) people from the village. At the planting stage, 300 people were involved, and they completed the planting job in one (1) day.

In terms of economic benefit from the pilot phase, even though the number of actual working days appears small, benefits appear substantial in relation to current levels of cash income in surveyed villages. Assuming villagers worked for 903 days at a rate of 25,000 kip per day, the wages paid to Ban Choravieng can be estimated at 22,575,000 kip or USD 2,655. Assuming each of Ban Choravieng's 61 households benefitted equally from the temporary work, each household would have received USD 43, equivalent to approximately three (3) years cash income in this village or the average for all surveyed villages (Refer to Section 7.6 for current estimates of Village cash incomes). Village interviews suggested that the experience of Ban Choravieng villages was common across all villages participating in the Project's pilot phase.

Villagers noted that income obtained from the Project was used most commonly to purchase rice, other food products (e.g. salt/seasoning) and clothes. The amounts earned by working with the Project were noted by villagers as being insuffi-

cient to purchase large items such as livestock.

Stora Enso estimates of the monetary value of employment generated during the Pilot phase suggest that USD 193,277 was paid to daily labour and locally contracted workers and trainees employed to carry out: 1) Production of planting

material in Sepone, 2) Plantation establishment and maintenance (bush clearing, planting, fertilizing and weeding) and 3) Security services for plantations (Table 8-7). No breakdown of employment by village location was available, nor was information on employment by gender.

Table 8-7: Breakdown of wages paid to casual and full time labour by the Project from 2007- 2009

Year	Department				Total
	Nursery (Sepone)	Plantation	Nursery (Sepone)+ Plan- tation		
	Hired Labour	Hired Labour	Trainee	Watchman	
2007	16,772	52,255	10,871	1,694	81,592
2008	27,943	60,215	12,424	7,624	108,206
2009 (1-2/09)	322	1,016	1,294	847	3,479
Total (USD)	45,037	113,486	24,589	10,165	193,277

Source: Stora Enso 2009

An additional USD 18,000 of employment income was generated from local labourers employed by the UXO clearance contractor PCL. An undisclosed amount of employment income was generated from the employment of the Project's 40 Lao employees, of which all are employed on Project contract basis in the field offices in Sepone, Nong and Ta oi districts, responsible for oversight of Project implementation in these districts.

8.4.2 Impact Assessment of the Feasibility and Project Implementation Phases

Continued Employment of Villagers from Local Communities

A fundamental benefit of subsequent phases of the Project will be the injection of wage income into the local economy. The opportunity for employment with the Project will allow villagers access to greater income, which in turn will result in overall improvements in food security and health.

Experience from other Projects in Lao PDR indicates that employment with the Project will be one of the greatest attractions for the local population, but equally if not managed properly, employment can be a major source of grievances and potentially even conflict between the Project and local communities. Additional benefits to local villagers are likely to result from training opportunities provided by the Project.

Based on estimated Project labour requirements provided by Stora Enso, the Project will create an average of 40,128 days of employment per year over the Project period or an average of 106 days of employment per household per year across all villages participating in the Feasibility phase (Table 8-8). In Nong district, Ban Houp is projected to receive the greatest amount of employment (201 days per household) and Ban Saloy Mai the least (62.1 days per household). In Ta oi district, Ban Lapeung will receive the greatest amount of employment (122 days) and Ban Choravieng the least (35.9 days).

The approximate value of this wage employment to the local economy is estimated to be approximately 1 billion kip (USD 116,945) per year or an average of 2,219,486 kip (USD 261) per household – a six (6) times increase from the current average of USD 42.

Table 8-8: Project Feasibility phase employment Projections for Nong and Ta oi district villages

District/Village name	Number of employment days per year	Value of employment per year (kip)	Average number of employment days per year per household	Average value of employment per household per year (kip)	Average value of employment per household per year (USD)	Estimate of current household cash income levels (USD)
Nong District						
Ban Sang Chien	0	0	0	0		57
Ban Takor	0	0	0	0		90
Ban Tamloung	8,174.3	204,356,645	98.5	2,462,128	289.7	11
Ban Houph	6,230.9	155,773,668	201.0	5,024,957	591.2	38
Ban La-ou	2,416.1	60,401,962	58.9	1,473,218	173.3	55
Ban Loe	5,569.7	139,242,643	129.5	3,238,201	381.0	27
Ban Saloy Mai	1,615.1	40,378,676	62.1	1,553,026	182.7	51
Ban Saloykao	-	-	-		0.0	41
Subtotal	24,006.1	600,153,596	107.2	2,679,257	315.2	
Ta oi District						77
Ban Choravi-eng	2,187.3	54,681,363	35.9	896,415	105.5	16
Ban Kang	5,495.0	137,374,931	87.2	2,180,554	256.5	17
Ban Lapeung	3,773.3	94,333,035	121.7	3,043,001	358.0	38
Ban Tene	4,666.6	116,665,018	63.9	1,598,150	188.0	86
Subtotal	16,122.2	403,054,349	70.7	1,767,782	208.0	43
Total	40,128	1,003,207,946	89	2,219,486	261.1	42

* No data available

Additional employment opportunities will be provided by contractors hired to undertake UXO clearance activity and as well as companies contracted to transport harvested timber. It is expected that a limited amount of permanent employment will also be available with the Project for plantation guards and Project administration staff.

Challenges in Management of Employment during Operations

A challenge for the Project is how to ensure villages in the Project area benefit to the maximum extent possible from employment opportunities presented by the Project. Some potential negative impacts surrounding employment, from experience on other similar projects in Lao PDR and the region include:

- Conflicts arising between groups and/or between villages and the Project if employment opportunities are perceived as being unfairly allocated to different households/clan groups within villages.
- Inter village conflict and/or conflict with the Project if villagers are not given first preference for any employment opportunities that arise in plantations being established on their village lands.
- Inadequate levels of education and employable skills among the local workforce may lead to them being precluded from skilled or more permanent positions with the Project, resulting in frustrations and potential conflict with the Project. Experience in Lao PDR on other infrastructure projects suggests that this could lead to potential criminal activity (e.g. damage to equipment or blockage of roads) as a result of these frustrations. The long life of the Project, however, provides the opportunity for long-term training of local residents to allow them to eventually hold skilled and senior positions. Training of local people is consistent with Stora Enso's policies of Corporate Social Responsibility (see Section 5.3).
- Conflicts occurring within families as a result of changes to the family dynamic as a result from employment of women (e.g. in nursery work or work within wood-processing facilities).
- Localised price inflation for food and other essential items due to the rapid growth of a wage economy may result in placing non-participants at a disadvantage.
- Experience with other projects in Lao PDR indicates that the benefits of employment tend to not be equitably shared among project area residents. Some households will do very well (particularly mature family households where more than one resident is able to gain employment), while others will not benefit (such as households with no employable residents, such as elderly couples, or female single headed households).
- Frustrations may result from the low levels of employment generated by the Project and the periodic nature of the work, especially in the first seven years of the Project as the plantations are being established and harvesting of trees (requiring additional employment) is yet to occur.
- Increased cash incomes generated from the Project are not spent appropriately, resulting in an increase in alcohol consumption and resultant conflict within families and villages.
- Project contractors do not comply with Lao law/international labour standards including wage levels, requirements for issuing of con-

tracts and other conditions of work.

- Issues of child labour arising especially when the Project employs the village on a lump sum basis to carry out particular Project activities (e.g. clearing land).
- Labour shortages to occur in villages in the vicinity of the Project area as youth and younger people move away from villages to seek employment with the Project.

8.4.3 Avoidance, Mitigation and Management Measures

Mitigation measures to enhance the positive impacts on employment and cash income associated with the Project and minimise potential negative impacts include:

- Development and implementation of a recruitment policy which maximises local participation in the Project. This policy will prioritise recruitment and training so that opportunity is commensurate to degree of impact. The policy would provide preferential employment firstly to residents of villages where plantation work is being carried out, secondly from neighbouring villages, thirdly from elsewhere within the district and lastly from locations outside the district within Lao PDR.
- Maintain recruitment practice that is equitable between genders and across ethnic groups.
- For permanent positions, the Project should develop a policy of localisation where targets are set for a certain percentage of permanent roles to be held by residents of the Project areas by a certain date.
- Ensure Contractors follow Lao PDR and international standards including wage levels, requirements for issuing of contracts and other conditions of work and monitor this regularly through implementation.
- Coordinate with the District Census staff to develop comprehensive village lists for each impacted village including information on name, date of birth and village of birth of each village inhabitant. This data will be held by the District Census Office, and can be used by the District Government to monitor employment. The Project is currently working with the District governments to assist them in issuing of ID cards which will make it easier to prevent child labour.
- Acknowledge the traditional seasonal calendar and avoid planning activities in period of high labour input to insure that villagers have time to participate in Projects activities.
- Consistent with Stora Enso's CSR policies, the Project should:
 - o Institute pre-employment training programs, apprenticeships and educational programs for local residents to enable them to develop their skills to eventually undertake higher skilled (and therefore remunerated) positions on the Project such as machine operators, members of UXO clearance teams and chainsaw operators.
 - o Provide continuous training and development of local employees.
 - o Develop a clear communication policy regarding employment to address community and local government expectations.
 - o Regularly monitor employment statistics and socioeconomic conditions in local villages to ensure effectiveness of employment management measures.
 - o Through the Village Development Fund,

improve sustainable livelihoods in the local communities to ensure that non-employees are able to obtain economic benefits from the Project.

8.5 Impacts on Economic Development

8.5.1 Impacts to Date from Pilot Plantations

There have been positive overall impacts on the local economy in the Project area as a result of the investment made by the Project in project infrastructure (e.g. offices in the two (2) districts, and establishment of the Project storage yard in Nong district).

Service businesses in the two (2) district centres will also have benefitted from increased business associated sale of supplies direct to the Project and to the Project's permanent staff.

At the village level, economic benefits are also apparent (refer to discussion in Section 9.4). Improvements in road infrastructure as a result of Project maintenance have potentially led to increased access to village areas by traders and increased sale of products. The village development fund has provided a further economic stimulus in some villages.

8.5.2 Impact Assessment of the Feasibility and Project Implementation Phases

Positive Benefits for the Broader Economies of Nong and Ta oi

Potential positive impacts on the local economy in the two (2) Districts from experience on other similar projects in Lao PDR and the region include:

- Increases in Employment and Cash income and skills development (discussed in Section 8.4).
- Alternative livelihood opportunities. Secondary employment and business opportunities (e.g. small village shops) are expected to increase in villages due to the rise in agricultural production and increased cash income of villagers as a result of project based employment. Increased populations will provide the opportunity for the development of service businesses such as restaurants and accommodation businesses in the District centres of Nong and Ta oi providing an alternative source of income and employment for local residents. Similarly, small industries and service providers providing services directly related to the Project such as transport, servicing equipment and road construction/maintenance will benefit from the economic opportunities provided by the Project. For example, the Project estimates that 40 employees would be required to operate the servicing/maintenance and repair facilities for the large number of trucks which would be utilised for the Project Implementation stage.
- Community development initiatives such as the Village Development Fund (Discussed in Section 4.2) and the intercropping system (discussed in Section 8.1).
- Improved access to resources and infrastructure through an improved road network. The Project will upgrade Project roads, which has the potential to beneficially impact the local economy by improving their access to resources, services and markets, and infrastructure such as communications and electricity which are often dependent on road access. In particular, farmers in the Project area are likely to benefit from improved access to markets for their products, and increased access

to farm inputs (seed, fertilizer) and credit. The improved road network will improve farmers' access to government services such as agricultural extension.

- The proposed life of the Project (50 years) also offers several potential benefits from an economic perspective, including: potential for long-term training of a small number of local workers to enable them to undertake more skilled employment; and scope for longer-term sustainable development initiatives in the local communities.

Challenges of the Transition to a Modern Economy

While economic growth in the local communities will have obvious economic benefits, it also has the potential to have adverse impacts on local communities, such as:

- Transfer of local authority from traditional elders. The new wage economy introduced by the Project will result in a shift in traditional ways of life, away from the traditional subsistence economy, resulting in a shift in power from the traditional Village Chief and elders. Intergenerational conflicts may arise due to this change in economic status.
- Export of economic benefits. There is a risk that many of the potential economic benefits arising from the Project will be exported from the Project area as wood is harvested and sold to other parts of Lao PDR/neighbouring countries in the Feasibility phase. The development of processing facilities in the Project Implementation phase will enable more value adding to occur as timber is processed into furniture/other products.

Over the life of the Project, changes in the eco-

nomic status and education of local residents will change the nature of social issues faced by the Project. As a result, management measures developed during the initial stages may be inappropriate at later stages.

8.5.3 Avoidance, Mitigation and Management Measures

The potential negative impacts on economic development in the Project area can be minimised by the following measures:

- Continue to implement a Village Development Fund which supports local development initiatives and entrepreneurial enterprise. The VDF should continue to be coordinated with parallel development Projects initiated by District, Provincial and National Governments to ensure that efforts are not duplicated and resources are spread appropriately, and that capacity is built, especially at the District level to design, implement and monitor community development programs effectively.
- Development and implementation of a procurement and supply policy for the Project, which favours local products and services.
- Regular community consultation and review of the Project's social management measures during Project implementation to ensure that as issues change, management responses to these challenges also changes.
- The continued development of the out-grower scheme which will provide local residents of the Project area with a real means of developing their local economy and their asset base, and a sustainable source of livelihoods. The company is currently working on a feasible and sustainable model for out-grower schemes. The major issues that have to be addressed

are (from the company's perspective): 1) The government allocation of land use rights to individuals; 2) Food security. Few families in the Target Area can afford to wait seven years before they have an income for their labour input; 3) UXO clearing before planting. The company is exploring the possibility to get public funding (NGOs) for clearing of private farmer land; 4) Selection of correct planting material and building capacity for farmers to manage plantations. The farmers cannot afford to take technical risks and must therefore be provided with planting materials that are proven to be well performing and pest resistant in the specific site and training to ensure ongoing maintenance. The Project should continue to examine other options to find solutions to the issue of UXO clearance including partnerships with NGOs and other international donors.

8.6 Impacts of In-Migration

8.6.1 Impacts to Date from Pilot Plantations

Results of village surveys indicate that populations in surveyed villages in the Project area are relatively stable with increases only due to natural increases and limited migration as a result of family movement.

8.6.2 Impact Assessment of the Feasibility and Project Implementation Phases

Challenges in Managing the Negative Impacts often associated with In-Migration

Once Project development begins, in-migration into the Project area is likely to occur. As the

Project will take seven (7) years to reach full capacity, in-migration is likely to increase gradually over this time.

All of the villages within the Project area are likely to be vulnerable to in-migration, as they will be eligible for prioritised employment status from the Project. The Nong and Ta oi District centres are also likely to experience in-migration as are villages in the immediate vicinity of supporting Project infrastructure such as the Project nursery and processing facilities such as at Ban Takor.

Some potential negative impacts surrounding in-migration from experience on other similar projects in Lao PDR and the region include:

- Reduction in the opportunity for local people to gain employment;
- Overwhelming of existing social and economic infrastructure e.g. hospitals/schools;
- In the short term, increased pressure on the already stressed remaining agricultural land and timber and non-timber forest products in the Project area. In the long term if the Project is successful the pressure could potentially reduce as dependence on NTFPs as a food source is reduced due to increased rice production from intercropping and increased cash incomes from employment;
- Social disharmony and conflict between original residents and incoming migrants;
- Gender imbalance, as the migrant population is likely to be predominately male, leading to further marginalisation of the female population;
- Increased risk of introduced diseases, especially those transmitted sexually;
- Insensitivity to local cultural and environmental values; and

- Inflation in the cost of goods for non-workers.

Positive Impacts of In-Migration for some Segments of the Economy

Some stakeholders in the Project area may benefit from in-migration, such as relatives of those living within the Project area holding relevant Project skills, existing retail traders and other service providers (provided that it does not also result in increased competition).

8.6.3 Avoidance, Mitigation and Management Measures

Migration into the Project area by workers seeking employment with the Project needs to be managed in a manner that does not introduce new environmental and social issues.

The following policies and practices should be implemented by the Project to minimise the social impacts of increased migration to Project villages and District centres:

- Continue to implement a preferential recruitment strategy aimed at minimising any influx of job-seekers and ensure all Contractors use similar recruitment strategies;
- Liaise with District government officials on issues of in-migration and support and where practicable support government mitigation measures such as the implementation of the current Lao PDR laws requiring permission for relocation of households. To improve district awareness of issues surrounding in-migration, the Project should organise a site visit to Vilabuly district to meet District authorities, and discuss their experience with management of in-migration as a result of the Sepone Gold and Copper mine development;
- Develop an In-migration Management Policy

in coordination with officials from participating Districts and local community leaders;

- Develop and resource a Community Relations Department responsible for the continual disclosure of Project information and consultation with the local community;
- Develop a Procurement and Supply Policy which rewards suppliers in the broad area surrounding the Project and along transport and haulage routes. This may minimise the need for residents of outlying villages to migrate close to the Project Area to obtain economic opportunities from the Project;
- Develop and enforce rules of employment with regards to Project workers' interaction with local communities;
- Implement a social and environmental induction program to educate outside contractors on the cultural and environmental sensitivities of the Project location. Conversely, employees who are local residents should receive cultural awareness training to encourage understanding of incoming workers; and
- Continue to conduct biennial household surveys to improve understanding of the extent of in-migration and the problems that it may cause.

8.7 Impacts on Community Health and Safety

8.7.1 Impacts to Date from Pilot Plantations

Results of village surveys indicate that impacts on community health and safety identified to date include:

- Some positive impacts on the health status of

resident populations as a result of increased access to health facilities in the District centres of Nong and Ta oi through improvements to road networks;

- Anecdotal evidence of positive impacts on the health status of the Project's ten (10) permanent employees (e.g. plantation guards) who are entitled to participate in the Project's health program which includes access to free medical care;
- Anecdotal evidence of positive impacts on health awareness in surveyed villages through the village health worker program implemented by the Project. This program involves a nurse employed by the Project conducting health surveys in villages and then working with the District health service to implement some basic health education programs as well as other projects to improve the health status of the villages (e.g. planting of traditional medicine gardens in villages);
- Some isolated cases of injuries to plantation workers as a result of accidents during forest clearance activity; and
- As mentioned in Section 8.1, the impact of the acquisition of agricultural land associated with the Pilot phase of the Project and replacement land provided through the intercropping system on food security and nutrition, are difficult to ascertain at this stage as no pre-Project household baseline exists on which to compare current levels of food availability and nutrition.

8.7.2 Impact Assessment of the Feasibility and Project Implementation Phases

Improvements in Community Health Status

The expansion of the Project in the Feasibility and Project Implementation phases is likely to lead to both direct and indirect improvements to local health facilities and services in the Project area leading to improved levels of health care and improvements in the health status of local villagers. Improvements to the road network as a result of the Project are likely to facilitate easier access to healthcare centres, and improvements to road surfaces (if these include sealing the road surface) could lead to dust pollution control and resultant improvements in respiratory health of communities.

Equally, increased levels of cash income in villages in the Project area are likely to increase villager's ability to pay for access to health facilities and their ability to purchase medicines. In addition, improvements of community infrastructure such as improved water supplies and sanitation facilities within villages are likely to lead to further improvements in the health status of local populations.

Potential Negative Impacts on Health

Potential negative impacts on the health status of individuals from experience on other similar projects in Lao PDR and the region include:

- Impacts on food availability and nutrition. As discussed in section 8.1, acquisition of agricultural land associated with the Project has the potential to affect food availability and nutrition levels of resident populations of two (2) villages due to reduced productivity levels of remaining agricultural land. The intercropping system and the replacement land provided by this initiative has the potential to compensate

for this land acquisition but changes in food availability and nutrition at the household level need to be monitored closely to ensure that this is in fact occurring. The impact of these changes on food security within vulnerable groups within village populations should also be carefully monitored;

- Impacts on the price of foodstuffs. Rapid increases in the population of villages surrounding the Process site as result of the Project may have an impact on the price of foodstuffs and the ability of villagers to meet their nutritional requirements. Again price inflation is most likely to impact on vulnerable groups in impacted villages who are less likely to be able to find work, and economic benefit from the Project;
- Impacts on community safety. The increased use of the plantation haul roads and roads joining districts in the Project area by heavy vehicles also highlights the issue of public safety and the need to minimise inconvenience to local communities;

The Project is likely to significantly increase traffic

in the Project area on both public roads and a series of plantation haul roads between plantations and the Nong District centres. It is estimated in the Feasibility phase, 44,484 m³ of logs will be produced from the plantations requiring 12 trucks or 0.8 trucks per hour. In the Project Implementation phase 770,000 m³ of wood will be produced requiring 201 trucks or 14 per hour (Table 8-9).

In the Feasibility phase the roads impacted will include the road from the nursery site near Ban Takor, through Nong district centre to Road 9, and the road from Ta oi district centre to Nong district centre and a series of plantation haul roads between plantations and the two District centres. In the Project Implementation phase, the same roads will be impacted as well as additional roads connecting Sepone, Vilabuly and Samuoi with the processing site near Ban Takor in Nong district. The Project will further increase the traffic load along the road from the Nong district centre to Road 9 during construction of the processing facility, with the delivery of equipment for upgrade of the process plant, and during operations for the transport of planting material, fertiliser, labour and equipment used in plantation operations.

Table 8-9: Estimates of truck movements in the Project area resulting from Project activities

Project detail	Feasibility phase	Project Implementation phase
Total plantation area (ha)	2,022	35000
Annual harvest (ha)	289	5,000
Annual harvest (m ³)	44,484	770,000
Total annual truck loads	2,780	48,125
Total annual truck movements	5,561	96,250
Number of trucks required (assuming 240 work days per year, and 2 trips per day)	12	201
Number of truck trips per day (assuming trucks operate for 14 hours/day)	0.8	14

Source: Stephen Midgley, 2009, personal comment

Other Impacts on Health

Additional health issues relevant to the Project, again drawn from experience on other similar projects in Lao PDR and the region include:

- A potential increase in sexually transmitted infections (STIs) resulting from in-migration. The presence of the Project and improved transport links facilitated by road upgrades could indirectly contribute to the spread of STIs and HIV/AIDS within the affected districts in the following ways: in-migration of people (mainly men) to the area in search of employment as plantation workers as well as truck drivers/other service providers; stimulation of the local economy resulting in an increase in local bars and recreational facilities, which could lead to increased prostitution; and the increase of traffic through the area as a result of the Project could also be a conduit for the spread of STIs. This occurrence has been documented in other studies of road construction and operation Projects in Lao PDR (ADB 2007);
- Human trafficking. As well as disease, increased access to villages associated with Project road upgrades will potentially expose communities to the threat of trafficking in women and children (particularly among poor families) to nearby countries (Thailand, Vietnam) and in trafficking of drugs through the communities to and from neighbouring countries;
- The potential impacts of malaria on the Project workforce and local community as the population density in the Project area increases. Population growth and in-migration can also lead to the spread of other infectious diseases, such as malaria and dengue, which already occur frequently in the Project area;
- Water quality and sanitation. The local community relies on water resources for drinking, washing, cooking, recreation, etc. and therefore, the protection of water quality is a key health issue for the Project. Off-site pollutants from the Project area, for example, from the sewage facilities associated with the processing facilities and nurseries, could potentially have health impacts on downstream communities by introducing new pathways for disease vectors;
- Noise and air quality disturbance from forest harvesting, road transport and wood processing (during the Project Implementation phase). The noise impacts associated with Project activities will potentially disturb the amenity of local villages in the Project area. In particular, forest harvesting activities requiring the use of machinery such as chainsaws and haulage of cut timber away from plantation sites could potentially lead to disturbances to nearby villages and villages located along the road from Nong district to Road 9, and from Ta oi district centre to Nong district. Impacts on air quality in villages will potential result in an increase in respiratory ailments amongst local populations;
- The Project will introduce a suite of potential occupational health and safety issues associated with core activities such as bush clearance, UXO clearance, tree harvesting and wood processing.

8.7.3 Avoidance, Mitigation and Management Measures

Potential negative health and nutrition impacts associated with the Project can be mitigated if the Project adopts a pro-active stance to prevention in close cooperation with District government authorities. In particular the Project should:

- Continue to implement the Project's village health worker program;
- Develop a health management strategy (including development of appropriate policies and programs) to include in the Project procedures manual to prevent the introduction and spread of STIs (especially HIV/AIDS). Prevention and control programs developed and implemented through the strategy should be sensitive to cultural practices and taboos in the Project area;
- Implement anti people trafficking education in vulnerable communities and support GoL enforcement of existing legislation through police checkpoints etc.;
- Develop a program to prevent and control malaria and dengue and the presence of other water-borne disease vectors). This program will include measures to:
 - o Minimise areas of standing water around Project facilities;
 - o Provide culverts for all Project roads to prevent disruption to natural drainage;
 - o If incidents of malaria occur, provide impregnated mosquito nets for all staff based at the Project facilities; and
 - o Provide assistance and support to the District Health Offices' Malaria Control Program to minimise and prevent the occurrence of malaria in the local communities within the Project Area.
- Continue to provide health care services for permanent Project employees and first aid/medivac capabilities for all employees;
- Continue to implement the Project's Occupational Health and Safety policy and guidelines;
- Use the Village Development Fund to support improvements in health care facilities in Nong and Ta oi districts and health education campaigns available to the general population. Where possible the Project should also coordinate with NGO groups/donor organisations implementing health initiatives in the Project area such as Oxfam Australia and the Poverty Reduction Fund;
- Use the Village Development Fund and intercropping scheme to increase the food security and nutrition status of impacted villages. Activities undertaken through the Fund should include agricultural extension programs to increase the knowledge, skills, and thereby opportunities of local villagers;
- Appropriately manage waste water arising from Project facilities to ensure downstream water quality is protected. Implement a water quality monitoring program to ensure the maintenance of downstream water quality in the vicinity of Project facilities and Project plantations. If the Project impacts on the quality of a community water source, the Project should provide an alternative source of safe drinking water for the community;
- Applying water suppression to control loose materials on the road during construction by providing water trucks to suppress the dust on the part of the road that go through villages or employing local villagers to water the road through the villages;
- The Project should develop appropriate indicators of health and nutritional status amongst the workforce and local community (e.g. STI rates) and regularly monitor these indicators to ensure that Project impacts (both positive and negative) are identified and appropriate management and mitigation measures can be

implemented and refined;

- Implement measures to reduce noise impacts on local communities; and
- Develop a monitoring mechanism to monitor noise levels in the villages close to the Processing facility and develop a grievance mechanism to record and respond to complaints based on noise.

Mitigation measures to safeguard against adverse impacts on community safety from increased road usage include:

- Implement traffic safety awareness programs for villagers in collaboration with Provincial and District government;
- Implement measures to ensure truck driver safety including enforcing regulations regarding vehicle speed, regulations on drug and alcohol use and levels of fatigue while driving Project vehicles and comprehensive health and safety training to Project vehicle drivers;
- Where Project development adversely affects the safety of public access routes, provide alternative access arrangements in consultation with affected communities. This could involve the provision of designated community crossing points along the length of major roads;
- Incorporate safety signage and pavement markings into road design for upgraded road sections;
- Implement strict management of vehicle and equipment noise, including use of noise control options, such as well-maintained mufflers and exhaust and radiator silencers, and ensuring Project vehicles are equipped with warning lights to ensure high visibility to other road users;
- Assess the requirement for haulage vehicles

to move in convoy preceded by an escort 'warning' vehicle;

- In cooperation with GoL and Provincial/District authorities, the Project should monitor and report on accident rates along Project roads during operations and develop a system where road users can report dangerous driving of Project vehicles to the company;
- Develop appropriate environmental emergency response procedures for accidents; and
- Develop a Social Management and Monitoring Plan (SMMP) identifying mitigation measures for each predicted social impact.

8.8 Impacts on Education

8.8.1 Impacts to Date from Pilot Plantations

The Project appears to have had an impact on education in communities in the Project area largely through investments made through the Village Development Fund, which has education as one of its key focal areas. Seven (7) of the villages that have access to the Village Development Fund have used funds for educational purposes, three (3) to purchase school materials, three (3) to restore village schools and the remaining village to establish a school vegetable garden. Further details of these investments is included in Section 8.11.

8.8.2 Impact Assessment of the Feasibility and Project Implementation Phases

Potential impacts on education status in impacted villages from experience on other similar projects in Lao PDR and the region include:

Challenges of a Workforce with Low Literacy

The low levels of literacy and educational attainment inherent in the local village population could potentially lead to the following community problems:

- Difficulty in sourcing skilled workers and sufficiently educated employees. Low education levels and a lack of employable skills among the local community could create problems for the Project's preferential recruitment policy especially in the Project Implementation phase; and
- Resentment by the local population if employment preference for permanent skilled positions is given to non-local residents.

The Project is also likely to bring educational benefits to the Project Area, including:

- Further access to improved educational resources such as schools and educational materials through the Village Development Fund;
- An increase in employable skills among the local population through on the job training provided by the Project;
- Increased school attendance rates as rising cash incomes enable parents to afford to send their children to school, and buy school uniforms/books; and
- Improved road condition leading to improved access to primary schools in neighbouring villages (for villages without their own primary school) and secondary school in the District centres.

8.8.3 Avoidance, Mitigation and Management Measures

Experience in other Projects in Lao PDR has shown that poor education levels can be overcome. The problems related to a poorly educated local community can be managed by implementing the following:

- A recruitment Policy which favours members of the local population. The Project will also ensure access to any Project-based training which follows the same priority system suggested for recruitment;
- A training policy which encourages and facilitates the career development of local employees; and
- Continued investment in education in the local communities through the Village Development Fund.

8.9 Impacts on Cultural Heritage

8.9.1 Impacts to Date from Pilot Plantations

Results of village surveys indicate that impacts on cultural heritage identified to date have been minimal. This is potentially due to the small area of land cleared in the Pilot phase and the care taken by the Project in delineating spirit forests and other important areas as part of the land use mapping process. It is also possible that impacts have occurred to artefacts during UXO and forest clearance activities but were not reported due to the low level of awareness of the importance of these to Lao PDR's cultural heritage by Project employees.

8.9.2 Impact Assessment of the Feasibility and Project Implementation Phases

Potential impacts on the cultural heritage from experience on other similar projects in Lao PDR and the region include:

- The large scale land clearance activity of the Project in the Feasibility and Project Implementation phases increases the likelihood of adversely affecting cultural heritage resources in the Project area;
- The improved road network will improve access to the Project area, and increase the likelihood of theft or vandalism of cultural heritage that is in publicly accessible places; or increase trade and dispossession of movable artefacts;
- Loss of local languages/dialects as villagers are exposed to the influence of outsiders and mainstream Lao/Thai culture;
- Disturbance/violation of cultural sites (cemeteries/spirit forests);
- Loss of interest in traditional ceremonies/rites/traditions; and
- Disturbances to chance finds during construction of the processing facility.
- provide culturally appropriate compensation of any potential disturbance to sites or artefacts of cultural heritage, including with the conduct of spiritual appeasement ceremonies or exhumation of remains and relocation to alternative locations in the cemetery land or elsewhere in village lands as appropriate;
- Engage the services of a Lao cultural resources expert to assist in the implementation of an awareness program with villages in the Project area, aimed at protecting sites and artefacts of cultural heritage;
- Develop a Chance Finds Procedure for sites and artefacts of cultural significance and incorporate this into the Project procedures manual;
- Engage the services of a Lao archaeologist seconded from the National Museum to assist in the implementation of the Project's Chance Find Procedure across all Project areas, including providing training to relevant members of the Project's workforce, in particular UXO clearance teams;
- On behalf of the GoL, the Project should acquire the archaeological artefacts owned by the villagers near the Project Area before they are sold to antique dealers. These can be provided to the Department of Heritage or to the Provincial Department of Information and Culture;

8.9.3 Avoidance, Mitigation and Management Measures

Mitigation measures to safeguard the physical integrity and amenity of cultural sites should include:

- Provide adequate buffer zones between Project facilities and sites of cultural value;
- In consultation with impacted communities
- Consider implementing an affirmative approach to maintenance of cultural pride within Project villages. This may be done in many ways such as adopting traditional designs and motifs in company buildings and use of locally-woven cloths and baskets where appropriate. The Project may also consider celebrating the annual celebrations of Nga and Tra alongside villagers;

- The Project should provide resources to improve the system of cultural heritage management at provincial, district and village levels. This will include training the local staff to deal with protection and chance finds that will occur during earthworks for Project constructions. Coordinate with the existing system at government level (Ministry of Information and Culture, National Committee for the Protection of National Cultural Heritage).

8.10 Impacts on Vulnerable Groups

8.10.1 Impacts to Date from Pilot Plantations

The Project has the potential to have a particular impact on key vulnerable groups within impacted villages including women, the poor, elderly, infirm and disabled.

Impacts on Women

Results of the women's focus group surveys identified the following issues as a result of the pilot phase of the Project:

- Women from Ban Along noted that an increased labour burden on women as a result of the Project acquisition of some agricultural land, which was also previously used for NT-FPs. The impact on women is that they now have to walk further, and spend more time looking for NT-FPs. This change has impacted women with small babies and elderly women to a greater extent.
- Women from several villages noted that they are currently not involved with decisions regarding allocation of the VDF, and in the future they would like to participate equally with the men of the villages in deciding on this expen-

diture. Ban Takor women for example noted that they would have preferred to spend the VDF funds on cotton and weaving looms so that they could produce handicrafts for sale.

8.10.2 Impact Assessment of the Feasibility and Project Implementation Phases

Impacts on Women

Women are considered a vulnerable group for special consideration as they generally have less access to education, employment and training opportunities.

Potential impacts on women from experience on other similar projects in Lao PDR and the region include:

- Considering the low level of development in surveyed villages and limited opportunities for women in the study area, the Project has the potential to bring significant benefit to the community and to women in particular. Potential benefits for women include increased levels of education, employment opportunities and health and sanitation service advances. As a result of these improvements, women's status in surveyed villages is likely to improve.
- In particular, women are likely to benefit from improved access to markets to sell locally produced garden products, NT-FPs and handicrafts and purchase of household goods. Further positive impacts on women are likely to occur as electricity and other community infrastructure such as pumps, water pipes, rice mills and electricity generators reach the villages in the Project area leading to a reduction in women's labour in the field and in the household (e.g. pounding rice and fetching water).

- If not managed appropriately, the project has the potential to exacerbate problems in the area generally, and specifically enhance gender inequalities. Women are also more at risk from any potential introduction of STIs (including HIV) from migrant workers, and are likely to be particularly impacted by changes to routines and socioeconomic circumstances within households.

Impacts on the Poor and Elderly

Potential impacts on poor people in communities, from experience on other similar projects in Lao PDR and the region include:

- Acquisition of agricultural land associated with the Project area is likely to have the greatest impact on poor families, as the poor are often most dependent on NTFPs that these areas formerly provided. Poorer households will also typically rely heavily on upland fields for the production of their staple food since they often lack access to suitable land or the means to invest in the development of paddy fields (GTZ, 2007). The poor are often the most risk averse and reluctant to take on new agricultural techniques (e.g. intercropping) as they have less resources to fall back on in case of failure.
- The elderly, infirm and disabled are particularly vulnerable to changes in socioeconomic conditions and livelihood activities such as those associated with reduced forest productivity or reduced productivity of agricultural resources and they often have reduced capability to forge a new lifestyle and accept changes to routines.

Mitigation measures to ensure vulnerable groups are not disproportionately impacted by the Project include:

- Ensure equity in employment programs to ensure that women, poor families and the elderly and disabled also receive access to employment.
- Ensure equity in the design and implementation of livelihood compensation programs in intercropping scheme activities and Village Development Funds, to ensure that women, poor families and the elderly and disabled are able to benefit from development activities including any training activities that are provided by the Project. To do this, the Project should consider establishing some additional policies regarding the VDF to ensure that women have an equal voice. One way to do it could be to split the fund in 2 and allow expenditure for one fund to be decided by the men and the other fund by the women in the village.
- Allow special consideration for single-headed households and the poorest households of surveyed villages to ensure that these households are not lost in the development process.
- Establish a Village Development Committee for village development to oversee the Village Development Fund which will include full representation of women currently excluded from the decision making processes.
- Target innovations at activities that are the responsibility of women such as those described in Section 7.13. For example, since women are responsible for small livestock there is an opportunity to provide benefits to women by working with them to improve small animal production. Villagers from Ban Tamloung suggested that the women in the village would benefit from handicraft and agriculture training programs.

8.10.3 Avoidance, Mitigation and Management Measures

8.11 Other Impacts

Other issues arising during village surveys related to aspects of the Project which are less tangible than those identified in sections 8.1-8.10 but equally important as they have the potential to influence the relationship between local communities and the Project if not adequately resolved.

8.11.1 Impacts to Date from Pilot Plantations

Communication Issues

Despite the Project's apparently comprehensive program of village consultation and engagement, there appears to have been cases of miscommunication between the Project and local villages regarding issues such as duration of the land rental agreement for plantations in each village and the process for accessing the Village Development Fund monies.

Regarding the duration of land concessions, three (3) of the villages surveyed understood that the concession period was 50 years, while the remaining villages either didn't know or thought the period was seven (7), ten (10) or 20 years.

Similarly, there seems to have been inconsistencies in the understanding of village representatives regarding the positive and negative aspects of the Project, compensation which will be provided, as well as information provided regarding their right to refuse to participate in the Project. Miscommunication between the Project and villagers has the potential to result in a poor appreciation of the potential seriousness of changes to local circumstances, or unrealistic expectations about Project benefits and lead to consequent conflict. For example, in village interviews, representatives from Ban Houph noted that due to

apparent misunderstandings regarding the next stages of project development in their village, they have decided not to become involved in subsequent project stages. This is at odds with the outcomes of extended discussions between the community at Ban Houph with Stora Enso's team which has recorded an enthusiasm for plantation establishment in this village – demonstrating the challenges of communication in this environment.

In addition, if some villages are not being fully informed about the Project, questions could be raised about whether free prior and informed consent is being given by villages participating in the Project.

Villages in many cases didn't seem to have access to land rental agreement, maps of village land and basic information about areas of land within their village boundaries.

Varying Capacity of Village Leadership

Village chiefs appear to vary greatly in their capacity to represent their village and presumably negotiate and bargain with the company for the best deal for their land, mitigation measures and access to sustainable development opportunities. Insufficient resources at the Village chief level will potentially lead to legitimacy problems in the future which could influence the sustainability of the Project.

Village Development Fund

A Village Development Fund has been established in the Pilot phase, providing 30,000 kip per hectare per year (USD 3.55) to impacted communities for use on agreed community development activities. The functioning of the VDF is described in Section 4.4. To date 35,700,000 kip or USD 4,200 has been allocated through the VDF. Details on the amounts spent per village and items are included in Table 8-10.

Table 8-10: Village Development Fund investments in surveyed villages

District/Village name	Total VDF	VDF investments 2007-2009
Nong District		
Ban Sang Chien	3,000,000	School material
Ban Along	7,050,000	Vegetable garden by the school, School material
Ban Takor	12,300,000	Vegetable garden by the school, School material, Yang Bong, fencing for yang bong
Ban Tamloung	3,750,000	Vegetable garden by school
Ban Houph	0	
Ban La-ou	0	
Ban Loe	0	
Ban Saloy Mai	0	
Ban Saloykao	0	
Subtotal	26,100,000	
Ta oi District		
Ban Choravieng	2,550,000	Restore school
Ban Kang	1,350,000	2 goats
Ban Lapeung	3,600,000	Restore school, First aid kit, restore water pump
Ban Tene	2,100,000	Saw logs for school and construct dining room for school
Subtotal	9,600,000	
Total	35,700,000	

Some comments from villagers regarding the implementation of the Village Development Fund during the pilot phase included:

- Expectations regarding the amount of the VDF which many villages regarded as insufficient compensation for use of their land. Alternative amounts mentioned by village representatives during village consultations were 100,000 kip per hectare per year (Ban Lapeung/Choravieng).
- Related to the size of the VDF, many villagers noted that it is insufficient to support bigger investments in key village infrastructure such as construction of a health centre, electricity connections to the village and road improvement or construction or improved water supplies.
- Some villagers noted their concerns about what they consider to be complicated and time consuming administrative processes that have to be undertaken to access funds, which includes the District agriculture office, administrative office, finance office and land management office.

8.11.2 Impact Assessment of the Feasibility and Project Implementation Phases

The issues identified above in the Pilot phase are likely to continue and be exacerbated in the Feasibility and Project Implementation phases as the area of plantations increases in individual villages and the number of villages participating in the Project increases.

8.11.3 Avoidance, Mitigation and Management Measures

- Capacity building activities targeting Village development committees and village chiefs to ensure they are able to adequately represent villages in deliberations with the Project including management of the Village Development Fund. Topics for capacity building would include the set up and management of the committee which will be responsible for interaction with the Project, financial management, record keeping (e.g. taking minutes), office logistics (e.g. maintenance of project documents, maps, land use agreements etc) for each village. As well as broader impacts in terms of improving the relationship between the Project and the villages, this would ensure that the committees adopt fully participatory processes in identifying the right types of Village Development Fund projects and activities that support local livelihoods and wellbeing. People participating in training should represent village authorities and elders as well as women and leading clans or family groups;
- Important actions could be in the development of a participatory process within the community in identifying the right types of projects and activities that support local livelihoods and wellbeing, and potentially with the set up of a community institutional structure for overseeing the funds and its use. Using this space to create some type of local governance and institutional capacity could be a highly beneficial outcome of the project;
- Ensure adequately trained Katang/Makhong interpreters are always used when consulting with local villages to reduce the chance of miscommunication;
- Organise a training course to develop the capacity of Project (and District) field staff in working with ethnic minority groups focusing in particular on Makhong/Katang culture/belief systems- culture/history, organisation and language. This could be facilitated by an anthropologist with extensive experience working with different ethnic minority groups in Lao PDR;
- Develop a communications pack which details how Project staff should communicate with villages at different times throughout the Project cycle, techniques to use to communicate the Project's main messages (e.g. models, puppets, site visits, and radio ads) and what messages the Project has to represent. This could form part of the Project's Procedures Manual and form the basis of a training package in which Project staff are inducted and will assist in ensuring consistency in approach across the Project area; and
- Develop a conflict register to ensure all conflicts between the Project and local villages are established in a transparent/open fashion and to enable high level management and monitoring of grievances and ensure that all grievances are attended to in a timely fashion.

8.12 Preliminary Cost Benefit Analysis

8.12.1 Introduction

A preliminary cost benefit analysis has been prepared to compare the economic costs and benefits of the project's feasibility phase plantations on impacted villagers in the twelve (12) surveyed villages. This analysis will be further developed as part of Stage two (2) of the socioeconomic analysis. The analysis attempts to quantify measurable benefits to villagers based on incremental production of rice (primarily), the traditional crop in the area with some diversification represented by other crops also involved in the intercropping scheme, as well as other benefits through project employment and the Village Development Fund. Other non-quantifiable benefits are also expected including improvement to roads which will allow better access to adjacent producing areas as well as improved access to social services (health

and education); and improved nutritional status of households in areas where rice deficiency is common.

8.12.2 Methodology

Prices used in the analysis were identified during village surveys and cross-checked with prices identified in other projects and other secondary sources. In the analyses of the Project, per hectare production costs and returns for rice using traditional subsistence production methods were compared with the benefits of the intercropping scheme. Various non crop benefits due to the Project are not included in the calculation of economic returns. For example, the rise in local household income and food production will result in improved nutrition and welfare for the population. Secondary employment and business opportunities are expected to increase due to the rise in agricultural production.

8.12.3 Results

Table 8-11: Preliminary cost benefit analysis of the feasibility phase of Project (figures are average figures per year over the concession agreement)

Livelihood Activity	Without Project					With Project					Net benefit (USD)		
	Physical amount				Gross economic revenue (USD)	Physical amount				Economic price	Gross economic revenue (LAK)	Gross economic revenue (USD)	
	Area (ha)	Unit	Unit value	Unit value¹		Area (ha)	Unit	Unit value	Unit value¹				
Village level benefits													
Agricultural land													
Swidden production	1164	Yield (t/ha)	1.182	LAK/t	3500000¹	1164	Yield (t/ha)	1.0638²	LAK/t	3500000	4,333,921,200	512,890	-56,988
Intercropping production⁵	0	Yield (t/ha)	0	LAK/t	3500000	395.2	Yield (t/ha)	1.3002³	LAK/t	3500000	1,798,436,640	212,833	212,833 (61%)
Employment													
Project based employment-casual labour	0	Days work	0	LAK/day	25,000	2022.4	Days work	40128.3	LAK/day	25,000	1,003,207,946	118,723	118,723 (34%)
Project based employment-guards	0	Month	0	LAK/month	600000	-	Month	144⁶	LAK/month	600000	86,400,000	10,225	10,225 (2.9%)
Social Mitigation Measures													
Village Development Fund	0	Year	1	Payment per hectare	30,000	2022.4	Year	1	Payment per hectare	30,000	60,672,000	7,180	7,180 (2.1%)
Subtotal Benefits at the Village level											7,282,637,786	861,851	291,973
Average benefit per village											606,886,482	71,821	24,331
National level benefits⁷													
Government land rental	0	Year	1	Rental price (LAK) per hectare per year	85000	2022.4	Year	1	Rental price (LAK) per hectare	85000	171,904,000	20,344	20,343
Subtotal Benefits at the National level											171,904,000	20,344	20,344
Total benefit											7,454,541,786	882,194	312,316

Assumptions and Limitations of Analysis

1. Data on rice prices, Project based employment-casual labour, and Project based employment-guards provided by Stora Enso.
2. Assumes reduction of rice yield of 10 percent due to reduced fallow periods.
3. Assumes intercropping can deliver a 10 percent increase in productivity per hectare over traditional methods. At the time of report preparation we did not have data on the productivity of intercropping fields per hectare.
4. Assumes that despite having a reduced overall area, villages still farm the same amount (per household per year) but reduce the length of the fallow period.
5. The analysis doesn't take into account labour savings from intercropping scheme. At the time of report preparation we did not have data on the labour requirements of intercropping fields per hectare.
6. Assumes 1 watchman per village (12 villages for 12 months).
7. Does not include Government of Lao PDR income taxes and government royalties.
8. Assumes NTFP collection is not impacted significantly as a result of Project. Further work is required at the household level to assess NTFP collection patterns in relation to areas of agricultural land to be acquired.
9. Assumes grazing of livestock is not impacted significantly as a result of the Project and there is adequate remaining agricultural land elsewhere within the Village boundaries.
10. The analysis does not include non monetary benefits such improved road infrastructure or indirect economic benefits at the village and district level.
11. The analysis does not include any allowance for wage or price inflation over time.

8.12.4 Discussion

Results of the preliminary cost benefit analysis suggest an over project benefit (including national benefits across all twelve (12) surveyed villages of USD 312,316 compared to the business as usual situation without the Project. Excluding national level benefits of the land rental fee (USD 20,344), villages will receive a net benefit from the project of USD 291,973 or USD 24,331 per village. The majority of the village level economic benefit results from increased rice production through the intercropping scheme (61 percent) and temporary project employment (34 percent). Permanent employment of village guards and the village development fund represent a small proportion of the overall economic benefit of the Project (2.5 percent and 2.1 percent respectively).

9 Project Alternatives

9.1 Development Alternatives

This Chapter outlines development alternatives available to Stora Enso including not proceeding with the Project, and the direct and indirect impacts which would result from this course of action.

The Project concept presented in this social assessment has been developed recognising that during the planning and design process, development alternatives have existed for the location and establishment of plantations and key infrastructure associated with the Project. However, the Project is restricted in the manner of its development by:

- Topographic, climatic and geotechnical constraints imposed by the surrounding landscape;
- Environmental sensitivities of the Project setting;
- Expectations and concerns of affected communities;
- Government laws and regulations; and
- The need to operate the Project profitably.

The development of the Project can be considered from three policy option alternatives. These are:

- Not proceeding with the Project, and leaving the areas currently used for rotational swidden agriculture in the Project area unchanged (Section 9.2);
- Developing the Project using an alternative plantation model including a smaller total area of plantation land, and greater farmer partici-

pation in the ownership of plantation assets through an “Out-grower scheme”(Section 9.3);

- Implementing the Project in a sustainable manner as per the Project Description (Chapter 5). The socioeconomic impacts of this Policy option have been analysed, quantified and assessed in Chapter 8 of this report.

9.2 Not Proceeding with the Project

The consequences of not proceeding with the Project can be divided into direct and indirect impacts. These impacts are discussed below.

9.2.1 Direct Impacts of Not Proceeding with the Project

The environmental and socioeconomic impacts of the Stora Enso Project proceeding have been analysed, quantified and assessed in Chapter 8 of this report. The direct consequences of not proceeding with the project can be summarised as follows:

- The land acquisition associated with the development of a large scale eucalypt plantation including potential impacts on swidden field agricultural productivity and NTFP collection will not occur;
- Any Project-related concerns of local communities about issues such as acquisition of agricultural land, livelihood impacts, increased traffic and influx of non-local people during and

after the Project construction and implementation would be alleviated;

- There would be no opportunities to benefit from increased agricultural productivity, and modernised agricultural techniques and resultant benefits to rice deficiency and overall food security through the intercropping scheme associated with the Project;
- There would be no opportunities for villagers to obtain project based employment (both temporary and permanent) and a regular source of cash income;
- The community benefits (including benefits to education, health and agricultural diversification) associated with the Project's Village Development Fund investments will not be realised;
- 35000 ha of potentially economically important land would not be cleared of UXO and would remain hazardous for villagers; and
- The broader direct benefits to Lao PDR, including taxes, royalties, training would not be realised.

9.2.2 Indirect Impacts of Not Proceeding with the Project

Villages and communities in the five (5) districts would also experience other indirect impacts if the Project was not to proceed. These are predominantly socioeconomic opportunities that would flow from the development of the Project including:

- Not proceeding with the Project would mean that the villagers will continue to be dependent on agriculture and exploitation of forest products for raising cash income. Agricultural production in the region is currently limited by

the lack of irrigated rice land and is unlikely to be able to satisfy such cash demands quickly. Although population growth in the impacted villages is less than 2 percent per annum, the existing population will increase by more than 50 percent over the next 50 years. This will place even more strain on an area that is already showing signs of agricultural stress and that has extremely limited services. The need for cash income may therefore place increased pressure on forest resources to meet demand as populations in villages increase and people's expectations increase;

- Not proceeding with the Project would make it more difficult for the GoL to achieve its objectives relating to reduction of swidden agriculture, as well as broader poverty alleviation goals laid out in the NGPES;
- The development of businesses and indirect work opportunities to support the Project and improvements in skills of villagers through on the job and formal training;
- The health and education (including literacy levels) status of villagers and availability of health facilities in the surveyed villages is very poor. Although improving slowly, without further investment and active development in the area, large changes in health and education are unlikely to change in the short term. While the quality of health and education is not guaranteed to change if the Project proceeds, experience shows that increased wealth in an area tends to bring positive change to health and education resources;
- The low development status of women in these villages is unlikely to improve without the Project and potentially worsen as a result of increased demands on forest resources recognising the role of women in collecting these resources; and

- Improvements in community infrastructure such as roads and power are also more likely to occur if the Project goes ahead.

9.3 Alternative Complementary Plantation Models

One alternative to the current plantation model is direct acquisition of a smaller area of land (e.g. 20,000 ha instead of the 35,000 ha proposed currently) and the development of an out-grower scheme where the company would purchase mature eucalypt trees directly from farmers grown on villagers land covering the remaining 15,000 ha area.

The potential benefits of this alternative model are:

- Increased share of Project benefits to villages participating in the Project, resulting from sale of harvested trees results in further increases in cash income and improved food security;
- Improved support for the Project and increased willingness on behalf of villagers to agree to provide land to the Project;
- A greater incentive for long term participation of villages in the Project as project partners and thus greater economic sustainability for the Project;
- A share for villagers in the increased land value and land capability associated with UXO clearance of this land; and
- Consistency with the Government of Lao PDR's National Socio-Economic Development Plan. Tree planting for commodity production is strongly promoted in the 6th National Socio-Economic Development Plan (NSEDP 2006) and annual planting areas and seedling production targets are set and distributed to provinces for implementation (Midgley 2007).

Constraints of this model include:

- Current capacity and financial constraints on behalf of villagers to independently establish and maintain plantations on their own land;
- Costs associated with clearance of UXO on villagers land. These costs are estimated at USD 1,000 per hectare. Without UXO clearance, Stora Enso's corporate standards will not allow wood to be purchased from these plantation areas due to the risk of accidents during land preparation and harvesting;
- Current constraints of lack of land title for villagers over traditional village lands and the implications of this for investments in eucalypt plantations on this land;
- Reduced economic return for Stora Enso potentially affecting the viability of the Project; and
- Reduced resource security for Stora Enso.

A number of authors have reviewed the concept of small holder forestry schemes in Lao PDR. Midgley et al (2007), for example reviewed the outcome of a small holder rubber project in Had Ngao Village, Luang Namtha Province, Northern Laos, concluding that rubber plantations are well-accepted by rural communities as they provide significant environmental and economic benefits to rural communities and their environment. Smallholder teak plantings in Luang Prabang Province were also reported to bring economic benefits to rural communities (Midgley et al. 2007). Numerous other examples exist in North-east Thailand and southern China demonstrating that smallholders are able to effectively engage with investors to contribute to commercial wood and latex supplies while also benefit considerably from this activity through sales of produce (Midgley et al. 2007).

10 Social Management and Monitoring Plan, including Social and Economic Investments/Development Strategy

This Chapter summarises management measures that might be adopted by the Project to minimise and mitigate social impacts of the Project identified in Chapter 8.

10.1 Social Management System

The Project should implement a Social Management System that is consistent with international standards (i.e. ISO14001). This system will provide the Project with a procedural framework for implementing, achieving, reviewing and maintaining the company's social policies and all social management targets.

10.2 Management and Mitigation Program

It is recommended that a detailed Social Management and Monitoring Plan (SMMP) is prepared as a separate document as part of stage 2 of the SIA. The SMMP provides a framework for developing flexible and readily updateable management procedures within the formal Social Management System. The SMMP provides a link

between policy and implementation, essentially, acting as a planning document, summarising social commitments (as outlined in the eventual full ESIA) and providing the management measures and monitoring programs to be undertaken to achieve these commitments.

The SMMP could be integrated with an Environmental Management and Monitoring Plan and the resultant Environmental and Social Management and Monitoring Plan (ESMMP) would outline the proposed management and monitoring strategy for establishment and operation of the Project. The ESMMP itself would be a dynamic document that is updated annually during the life of the Project to reflect changes to Project activities, company commitments, environmental and social conditions, legislation, etc. Ultimately, the Project proponent would be responsible for implementing the ESMMP which would require appropriate staff, financial resources, equipment and support systems.

This section summarises management measures that will be adopted by the Project to minimise and mitigate social impacts of the Project. Mitigation measures that have been incorporated into the planning and Project design have been discussed in Chapter 9, and are summarised below (Table 10-1).

Table 10-1: Summary of proposed mitigation and monitoring measures for the Project

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
1. Agricultural land use	Provide compensation for all agricultural land acquired or disturbed as a consequence of Project development that targets affected households, which should satisfy IFC Performance standards relating to land acquisition.	Project designers, Community Relations Manager	-Number of hectares of agricultural land impacted; -Amount of compensation paid; -Number of complaints (resolved/unresolved)	Project Design stage and ongoing during Project implementation
	Provide livelihood assistance to affected households so that they improve or at least restore their income-generating capacity, agricultural production levels, and standards of living.	Community Relations Manager	-Number of affected villages and people who receive support -Biennial Household survey detailing change in household socioeconomic status	Ongoing
	Reduce indirect land impacts resulting from increased population by controlling of in-migration and providing alternative employment opportunities.	Community Relations Manager	-Regular census data detailing number of immigrants arriving in Project villages	Ongoing
	Minimise the duration of exclusion zones in plantations for livestock.	Project designers, Operations Manager Community Relations Manager	-Number of hectares of land excluded from livestock grazing per year	Design phase and ongoing
	Limit construction of roads on rice paddies or other agricultural land wherever possible.	Project designers, Engineering staff	-Number of hectares and type of agricultural land impacted	Design phase, Road construction phase
2. Forest Resource use	Install appropriate drainage erosion and sediment control structures to stabilise cleared land	Project designers, Engineering staff	-Report on erosion and sediment control structures that have been established	Design phase, Road construction phase and ongoing
	Develop village level assistance programs to compensate for the increased pressure on designated forest resources and action plans for the sustainable use of remnant forest resources.	Project designers, Community Relations Manager	-Number of affected villages and people who receive support. -Record of Action plans being developed.	Design phase and ongoing
	Clearly communicate the extent of land to be acquired for the Project to local residents and heads of villages and clearly mark the perimeters of land to be acquired.	Community Relations Manager	-Minutes of community consultations held in impacted villages.	Ongoing
	Minimise the extent of land acquisition to include only the area directly required for plantation, road infrastructure, processing operations and minimising buffer zones around Project components.	Project designers, Operations Manager Community Relations Manager	-Number of hectares of land surrounding Project components impacted	Design, ongoing
	Diversify village employment through direct and indirect job provision reducing the economic necessity for hunting and collection and/or trading of NTFPs by offering alternative streams of employment through the Project.	Community Relations Manager, Human Resources Manager	-Number of affected people obtaining employment with the Project	Design phase and ongoing
	Improve natural resource management through skills transfer between the Project and local communities.	Project designers, Environment Manager, Community Relations Manager	-Evidence of training courses held focusing on improved natural resource management of designated village forest lands.	Design phase and ongoing

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
3. Water Resource use	Continue to ensure that all plantations are located 30m from water sources.	Project designers, Operations Manager Environment and Community Relations Managers	-GIS maps showing the location of plantations in relation to water resources.	Design stage and ongoing
	Implement erosion and sediment control measures throughout the Project area to minimise downstream impacts from plantations, supporting infrastructure and roads.	Project designers, Engineering staff, Environment and Community Relations Managers	-Report on erosion and sediment control structures that have been established	Design stage and ongoing
	Provide alternative sources of domestic water in those villages where the amenity of existing sources are potentially impacted by Project development.	Project designers, Environment and Community Relations Managers	-Report on alternative water sources provided	Ongoing
	Monitor surface water quality and quantity as per the ESMMP.	Project designers, Environment and Community Relations Managers	-Reports on water quality control and testing conducted -Number of complaints (resolved/unresolved)	Design stage and ongoing
	Appropriately manage the transportation, storage and use of hazardous materials to avoid accidental release and contamination of surface water resources.	Project designers, Operations Manager Engineering staff, Environment and Community Relations Managers	-Emergency management plans developed -Number of complaints (resolved/unresolved)	Design stage and ongoing
	Implement an appropriate storm water management and land rehabilitation program around Project facilities and road verges).	Project designers, Engineering staff, Environment and Community Relations Managers	-Stormwater and land rehabilitation plans developed -Number of complaints (resolved/unresolved)	Design stage and ongoing

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
4. Employment and Cash income	Develop and implement a recruitment policy, which maximises local participation in the Project.	Community Relations Manager, Human Resources Manager	-Recruitment policy developed	Ongoing
	Maintain recruitment practice that is equitable between genders and across ethnic groups.	Community Relations Manager, Human Resources Manager	-Annual reports on employment numbers disaggregated by gender, ethnicity and village location.	Ongoing
	Develop a policy of localisation for permanent Project positions.	Community Relations Manager, Human Resources Manager	-Annual report on the number of permanent positions held by local staff.	Ongoing
	Work with the village chiefs to prepare comprehensive village lists for each impacted village as the basis for allocation and monitoring the equitable distribution of employment within villages.	Community Relations Manager, Human Resources Manager	-Village lists developed	Ongoing
	Institute pre-employment training programs, apprenticeships and educational programs for local residents.	Community Relations Manager, Human Resources Manager	-Training programs implemented	Ongoing
	Develop a clear communication policy regarding employment to address community expectations.	Community Relations Manager, Human Resources Manager	-Communications policy developed	Ongoing
	Regularly monitor employment statistics and socioeconomic conditions in local villages to ensure effectiveness of employment management measures.	Community Relations Manager	-Number of complaints (resolved/unresolved) regarding employment -Results of biennial household surveys focusing on employment and cash income status of local villages.	Ongoing
	Provide continuous training and development of local employees. Skills development	Community Relations Manager, Human Resources Manager	-Training programs implemented	Ongoing
	Through the VDF, improve sustainable livelihoods in the local communities to ensure that non-employees are able to obtain economic benefit from the Project.	Community Relations Manager	-Amount of VDF funds spent on sustainable livelihoods activities.	Ongoing

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
5. Economic Development	Provide financial and physical compensation for agricultural land acquired by the Project.	Project designers, Environment, Government Liaison Officer and CR Manager	-Number of affected people -Amount of compensation paid	Design phase and ongoing
	Design of a VDF which supports local development initiatives and is coordinated with parallel development Projects initiated by the District, Provincial and National Governments.	Community Relations Manager	-Proportion of VDF funds which are spent on sectors recognised as District development priorities.	Ongoing
	Develop and implement a procurement and supply policy, which favours local products and services.	Community Relations Manager, Procurement officer	-Procurement policy developed -Annual report on value of products/ services procured locally.	Ongoing
	Consult regularly with the community and regularly review management measures.	Community Relations Manager	-Biennial village level consultations.	Ongoing
6. In-migration	Study the further development of the out-grower scheme, a real means of developing the local economy in the Project area and the asset base of local villagers. The Project should examine other options to find solutions to the issue of UXO clearance including partnerships with NGOs and other international donors.	Community Relations Manager, Environment Manager, Operations Manager	-Report on feasibility of the out-grower scheme and options for addressing the UXO issue.	Ongoing
	Continue to implement a preferential recruitment policy aimed at minimising any influx of job-seekers and to require all Contractors to use a similar recruitment strategy.	Project designers, Environment, Government Liaison Officer and CR Manager	-Preferential recruitment policy developed for the Project and Contractors.	Ongoing
	Liaise with district government officials on issues of in-migration and support government mitigation measures	Community Relations Manager	-Regular consultation with District government re in-migration issues	Ongoing
	Develop and resource a Community Relations Department responsible for the continual disclosure and consultation with the local community.	Operations manager, Community Relations Manager	-Community Relations department established and resourced appropriately	Ongoing
	Develop a Procurement and Supply Policy which rewards suppliers in the broad area surrounding the Project and along transport and haulage routes.	Community Relations Manager, Procurement officer	-Procurement policy developed -Annual report on value of products/ services procured locally.	Ongoing
	Develop and enforce rules of employment with regards to local community interaction.	Human Resources Manager, Community Relations Manager	-Local interaction policy developed	Ongoing
	Implement a social and environmental induction program for all employees.	Human Resources Department, Community Relations Manager	-Number of employees inducted.	Ongoing
	Conduct biennial household surveys to improve understanding of the extent of population growth and the problems that it may cause.	Community Relations Manager	- Biennial household surveys conducted	Ongoing

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
7. Community Health and safety	Develop a health management strategy for company employees to prevent the introduction and spread of STIs (especially HIV/AIDS).	Community Relations Manager	-Health management strategy developed for company employees	Ongoing
	Implement anti people trafficking education in vulnerable communities and enforce legislation through police checkpoints etc; with District government officials	Community Relations Manager	-Education activities implemented.	Ongoing
	Support the District governments to develop a program to prevent and control malaria and dengue and the presence of other water-borne disease vectors)	Community Relations Manager	-Health program developed and implemented	Ongoing
	Provide health care services for permanent Project employees and first aid/medivac capabilities for all employees.	Community Relations Manager, Human Resources Manager	-Number of employees covered by company health policies	Ongoing
	Use the VDF to support District improvements in health care facilities and health education campaigns available to the general population.	Community Relations Manager	-Amount of VDF funds spent on health sector activities.	Ongoing
	Use the VDF and intercropping system to increase food security and nutrition status in impacted villages in the Project area.	Community Relations Manager	-Amount of VDF funds spent on sustainable livelihoods activities.	Ongoing
	Appropriately manage waste water arising from Project facilities to ensure downstream water quality is protected.	Operations manager, Engineering staff, Environment Manager	-Wastewater systems established in Project facilities	Design phase and ongoing
	Apply water suppression to control loose materials on Project roads during construction and operation.	Operations manager, Engineering staff	-Water suppression activities underway	Ongoing
	Develop appropriate indicators of health and nutritional status amongst the workforce and local community (e.g. STI rates) and regularly monitor these indicators	Community Relations Manager	- Biennial household surveys conducted including focus on health and nutrition aspects. -Internal company surveys conducted to monitor health status of permanent employees.	Ongoing
	Implement measures to reduce and monitor noise impacts on local communities	Operations manager, Engineering staff, Environment Manager, Community Relations Manager	-Type of noise mitigation measures established -Baseline noise data on key receptors in the Project areas obtained. -Number of complaints (resolved/unresolved) received regarding noise.	Design phase and ongoing
	Implement mitigation measures to safeguard against adverse impacts on community safety from increased road usage.	Operations manager, Engineering staff, Environment Manager	-Type of road safety measures established -Number of complaints (resolved/unresolved) received regarding noise. -Number of accidents on Project roads	Design phase and ongoing

Potential impact/ issue	Recommended Mitigation and Management Measure	Persons/Department Responsible for Implementation	Performance Indicators	Implementation Schedule
8. Impacts on Education	Develop recruitment and training policy which favours members of the local population. Skills development	Community Relations Manager	-Recruitment and training policy established	Design phase and ongoing
	Prioritise investment in education in the local communities through the VDF.	Community Relations Manager	-Amount of VDF funds spent on education activities.	Ongoing
9. Impacts on Cultural heritage	Provide adequate buffer zones between Project facilities and sites of cultural value;	Project designers, Community Relations Manager	-GIS maps showing the location of plantations and buffer zones around sites of cultural value.	Design phase and ongoing
	Provide appropriate reparations for any potential disturbance to sites or artefacts of cultural heritage.	Community Relations Manager	-Value of compensation provided	Ongoing
	Engage the services of a Lao cultural resources expert to assist in the implementation of a cultural heritage awareness program	Community Relations Manager	-Cultural resources expert engaged.	Ongoing
	Develop a Chance Finds Procedure for sites and artefacts of cultural significance.	Community Relations Manager	-Chance find policy developed.	Ongoing
	Engage the services of a Lao archaeologist to assist in the implementation of the Project's Chance Find Procedure.	Community Relations Manager	-Archaeologist engaged.	Ongoing
	Acquire on behalf of the GoL, the archaeological artefacts owned by the villagers near the Project Area before they are sold to antique dealers.	Community Relations Manager	-Number of artefacts purchased	Ongoing
	Provide resources to improve the system of cultural heritage management at provincial, district and village levels.	Community Relations Manager	-Support provided to government re cultural heritage management	Ongoing
	Ensure equity in employment programs to ensure that women, poor families and the elderly and disabled also receive access to employment.	Government Liaison Officer and CR Manager	-Annual reports on employment numbers disaggregated by vulnerable group.	Ongoing
	Ensure equity in the design and implementation of livelihoods compensation programs.	Government Liaison Officer and CR Manager	-Evidence of widespread participation of vulnerable groups in Village Development Committees.	Ongoing
	Implement capacity building activities targeting Village committees to ensure they are able to adequately represent villages in deliberations with the Project.	Government Liaison Officer, OH&S Manager	-Capacity building initiatives implemented.	Ongoing
10. Impacts on vulnerable groups	Ensure Katang/Makhong interpreters are always used when consulting with local villages.	CR Manager	-Ethnic minority interpreters engaged and trained by the Project.	Ongoing
	Organise a training course to develop the capacity of Project field staff in working with ethnic minority groups.	Environment and CR Manager	-Training courses implemented.	Ongoing
	Develop a communications pack which details how Project staff should communicate with villages at different times through the Project cycle	CR Manager and OH&S Manager	-Communications pack developed and implemented.	Ongoing
	Develop a conflict register to ensure all conflicts between the Project and local villages are established in a transparent/open fashion.	Government Liaison Officer, OH&S Manager and CR Manager	-Conflicts register developed and implemented.	Ongoing
11. Other impacts				

10.3 Auditing and Review

The Project should regularly commission routine internal and independent external audits of the ESMMP and environmental/social management system. Audits will investigate:

- The appropriateness of the ESMMP to the current development stage and operating practices of the Project.
- Workforce awareness of the ESMMP and all associated plans and procedures.
- The performance of managers and operators in implementing and maintaining the ESMMP strategies.
- Whether sufficient time, resources and expertise are available for implementation of the ESMMP.

All audit recommendations will be discussed with the relevant Project managers.

Independent external audits should be conducted on an annual basis for the first two years of operation. The frequency of subsequent audits will be based on the results of the initial audits.

Further, on a monthly basis, the Project should review social performance against the 'Continuous Improvement Targets' listed in the ESMMP. Key performance indicators will be developed to enable social performance to be assessed objectively and quantitatively.

10.4 Monitoring Plan

Social monitoring is integral to the avoidance, mitigation and management of Project impacts. Social impact monitoring is required to identify and quantify the direct and indirect impacts of the Project on the surrounding community confirm-

ing the accuracy of impacts predicted at the SIA stage so that the need for adjustments to the socioeconomic programs associated with the Project can be assessed. Social monitoring will also ensure that existing management measures are effective, and will identify the need for improved or additional measures which will be incorporated into future social management and monitoring plans for the Project.

The objectives of the social monitoring program are to:

- Provide early warning of potential impacts, validate impact prediction and identify any unforeseen impacts associated with Project activities;
- Confirm whether or not the Project is in compliance with relevant legislative and licensing commitments and the mitigation and management measures;
- Provide feedback on the adequacy of management measures and allow improved practices to be developed to continuously improve operations; and
- Detect and measure socioeconomic trends or changes and enable analysis of their cause.

Social Monitoring for the Project should include:

- Monthly monitoring of:
 - o Local workforce statistics;
 - o Compensation payments;
 - o Local goods and services procured by the Project; and
 - o Road accidents involving Project staff (including contractor staff) and Project vehicles and local villages.
- Annual monitoring of:

- o Population growth rate;
- o Extent of in-migration;
- o Birth and death rates;
- o Local attitudes toward the Project; and
- o Incidence of sexually transmitted infections (STIs) and health statistics.

Additionally, all community grievances filed with the company should be recorded and addressed at weekly management meetings. Community grievance reports should include: name of the complainant, details of the complaint, date that the complaint was made, name of Project staff member recording the complaint and the details and date of any action taken.

Monitoring reports would be prepared and made available to District and Provincial government officials to ensure transparency of the Project's operations.

11

References

- ADB (Asian Development Bank). 2007. Resettlement Planning Document. Lao: Northern Greater Mekong Subregion transport Network improvement project. MCTPC.
- ADB (Asian Development Bank). 2008. Basic Statistics – Developing Member Countries. Economics and Research Department, Asian Development Bank.
- ADB (Asian Development Bank). 2008. Agriculture & Natural Resources Sector Lao PDR, Social Issues Roadmap.
- Axelsson & Svensson Info. Consultants, 2006, Cash Income - Baseline Survey (Nong and Sepone District, Savannakhet, Unpublished.
- Axelsson & Svensson Info. Consultants, 2007, Socio Economic Baseline Survey Salavan Province - Ta oi District, Unpublished.
- Axelsson & Svensson Info. Consultants, 2007, Socio Economic Baseline Survey Savannakhet Province - Nong District, Unpublished.
- Baird, I (2008), Rubber and People: Rapid Agrarian Changes and Responses in Southern Laos, Lao Journal, sighted, www.laojournal.org/index.php/promote/article/view/2/1, accessed May 2010.
- Barney, Keith (2007), Power, Progress and Impoverishment: Plantations, Hydropower, Ecological Change and Community Transformation in Hinboun District, Lao PDR: A Field Report, YCAR Papers, Volume 1, June 2007Burapha Group 2006, Baseline Survey for Private Forestry Plantation Investment in Nong District in Savannakhet, Province, Unpublished.
- CIA (2006). The World Fact Book. USA Government Central Investigations Agency.
- Clendon, K. 2001. The role of forest food resources in village livelihood systems: A study of three villages in Salavan Province, Lao PDR. Vientiane, Lao PDR: World Conservation Union (IUCN).
- Daviau, S., 2004, Anthropological & Sociological Study in Nong and Sepone District, Savannakhet Province, Lao PDR, Village Development Programme, Project BTC-LAO/01/004.
- Daviau, S., 2006. Ethnographic Study on Katuic groups in five PFAs (Production Forest Areas) in Saravane, Savannakhet and Khammouane Province, Lao PDR. SUFORD.
- de Beer, Jenne & Melanie J. McDermott, 1989, The Economic Value of Non-timber Forest Products in Southeast Asia. Amsterdam: Netherlands Committee for IUCN.
- DPI, 2008. Statistical yearbook 2008 Savannakhet. Department of Planning and Investment.
- Duangsavanh, L., B. Bouahom, and J. Raintree. 2002. Country review, Lao PDR. In Landscapes of diversity, the third Mountainous Mainland South East Asia (MMSEA), conference proceedings, 25–28 August, eds. X. Jianchu and S. Mike-sell, 79–100. Lijiang, China: Yunnan Science and Technology Press.
- ESL, 2007. Assessment of the Environmental and Social Impacts created by the Viet-Lao Industrial Rubber Plantation and Proposed Environmental and Social Plans. Prepared for the Agence Française de Développement (AFD). May 2007.

- FAO, 2005, Asia's women in agriculture, environment and rural production –FACT SHEET LAO PDR, accessed 26 May 2009, from < <http://www.fao.org/sd/Wpdirect/WPre0109.htm> >
- Foppes, J. and Dechaineux, R., 2000, Non-Timber Forest Products in Lao PDR: a practical application of the ecosystems approach, Case study for the pathfinder workshop “An Ecosystem Approach under the Convention on Biological Diversity (CBD); from concept to action”, Malaysia, 30/10 to 1/11 2000, accessed 26 May 2009, from <<http://www.etfrn.org/etfrn/workshop/biodiversity/documents/foppes2.pdf> >
- Foppes, J. and Phommasane, S., 2005, Experience with Market Development of Non-Timber Forest Products in Lao PDR, Paper presented at the International Workshop on “Market Development for Improving Upland Poor’s Livelihood Security” Organized by the Centre for Community Development Studies (CDS), 30 August to 2 September 2005, Kunming, China, Gender Resource Information and Development Center-Lao Women’s Union, 2004, GENDER, FOREST RESOURCES, AND RURAL LIVELIHOODS.
- GTZ, 2007. Study on Communal Land Registration in Lao PDR Land Policy Study No. 6 under LLTP II, Lao-German Land Policy Development Project (German Contribution to the Land Titling Project II in Lao PDR).
- GoL (Government of Lao PDR), 2004. National Growth Poverty Eradication Strategy. http://www.poweringprogress.org/ngpes/ngpes_home.htm.
- GoL (Government of Lao PDR), 2009. Draft of Guideline On Public Involvement in Environmental and Social Impact Assessment.
- Health Canada, 2004. Canadian Handbook on Health Impact Assessment, Volume 4: Health Impacts by Industry Sector.
- Hunt, G (2007), Regional Linkages: Plantations Investment and Land Alienation in the Theun and Hinboun Basins, paper presented at the AMRC/AusAID Greater Mekong Conference, 26-27 September 2007.
- IUCN, 2007. A Rapid Participatory Biodiversity Assessment, Stora Enso Eucalypt Plantation in Southern Lao PDR Conducted by IUCN (International Union for Conservation of Nature) in Lao PDR.
- Jackson, R. 2001. Sepone Project: Socio-economic Assessment Report. Prepared for Enesar. September 2001.
- Lao PDR, 1997, Socio-Economic Development and Investment Requirements 1997-2000. Government Report, Sixth Round Table Meeting, Geneva, June 1997.
- Lao-IRRI, 2000. “National Rice Research Program and the Lao-IRRI project, 2000 Wet Season Research Program”. NAFRI, Vientiane.
- Luangaramsi, P. Leonard, R, Kuaycharoen, P (2008), Rural livelihoods made vulnerable as rubber investments take over land in Laos, World Rainforest Movement Bulletin, Issue 137, December 2008, sourced: <http://www.wrm.org.uy/bulletin/137/Bulletin137.pdf>, accessed May 2010.
- MAF & STEA, 2004, Biodiversity Country Report, Ministry of Agriculture and Forestry, Vientiane, Lao PDR.
- Midgley, S., Blyth, M., Mounlamai, K., Midgley, D. and Brown, A. 2007. Towards improving profitability of teak in integrated smallholder farming systems in northern Laos. ACIAR Technical Reports No. 64, 95p.
- Naphayvong, S. and Phomsoupha, B. 2001. Sepone Project Health and Nutrition Study. Vientiane, Lao PDR.

- Nong District Planning and Investment Office, 2009, District Statistic, Unpublished Document.
- Northern Illinois University, 2003, SEAsite Laos - Ethno linguistic Families, accessed 22 May 2009, from <http://www.seasite.niu.edu/lao/Lao_maps/language_family.htm>
- NRA, 2008, UXO Annual Report 2008, accessed 25 May 2009, from <<http://www.nra.gov.la/>>
- NSC (National Statistics Centre). 2005. Lao PDR Population Census 2005. National Statistics Centre (NSC). [Online] Available: <http://www.nsc.gov.la>
- NSC-National Statistics Centre of Lao, 2006, Results from the Population and Housing Census 2005, Steering Committee for Census of Population and Housing.
- NSC-National Statistics Centre of Lao, 2007, Results from the Population and Housing Census 2005 – Saravaneh Province, Steering Committee for Census of Population and Housing.
- NSC-National Statistics Centre of Lao, 2007, Results from the Population and Housing Census 2005 – Savannakhet Province, Steering Committee for Census of Population and Housing.
- NSC-National Statistics Centre of Lao, 2008, Statistical Yearbook 2007, Ministry of Planning and Investment.
- NSR 2001. Environmental and Social Impact Assessment for the Sepone Gold Project.
- Obein, F. 2007. Industrial rubber plantation of the Viet-Lao Rubber Company, Bachiang District, Champasack Province: Assessment of the environmental and social impacts created by the VLRC Industrial Rubber Plantation and proposed environmental and social plans. Produced for Agence Francaise de Développement, Earth Systems Lao.
- Oxfam, 2009, Laos-Country Focus, accessed 22 May 2009, from <<http://www.oxfam.org.au/world/asia/laos/>>
- Phimmavong S, Ozarska B, Midgley S and Keenan, R, 2009. Forest and plantation development in Laos: history, development and impact for rural communities. *International Forestry Review* Vol.11(4), 2009.
- Poverty Reduction Fund - Lao, 2003, Project Activities and Events, accessed 22 May 2009, from <<http://www.prflaos.org/nong.html>>
- Robbins, Christopher, 1987. *The Ravens : pilots of the secret war in Laos*. Bantam Press.
- Royal Forest Department (RFD), Thailand, 1996, *Eucalyptus Plantations in Thailand – Reungchai Pousajja*. Published in Reports Submitted to the Regional Expert Consultation on Eucalyptus. Volume II. Kashio, M.; White, K. (ed.) Available at: <http://www.fao.org/docrep/005/ac772e/ac772e0m.htm#TopOfPage>
- SLU 2007. *Soil, Carbon and Water Study*. Swedish Agricultural University.
- Stora Enso 2002. *Stora Enso Principles for Environment Responsibility*, <http://www.storaenso.com/sustainability/our-approach/sustainability-policy/Documents/ENV%20PRINCIPLES%20ENGLISH%20100102.pdf>, accessed 20 March 2009.
- Stora Enso, 2005. *Principles for Sustainable Wood and Fibre Procurement and Land Management*. <http://www.storaenso.com/sustainability/our-approach/sustainability-policy/Documents/principles%20for%20wood%20procurement%20and%20land%20management.pdf>. accessed 20 March 2009.
- Stora Enso 2006. *Stora Enso's Sustainability Policy*, Stora Enso 2007. *Stora Enso Principles for Social Responsibility*, <http://www.storaenso.com/sustainability/our-approach/sustainability->

policy/Documents/Final%20Sustainability%20Policy,%20English.pdf accessed 20 March 2009.

Stora Enso 2008. Plantation management model. Internal planning document.

Stora Enso 2009 Code of Conduct, <http://www.storaenso.com/sustainability/ourgamerules/Code%20of%20Conduct/Pages/default.aspx> accessed 20 March 2009.

Stur, W., Gray, D. and Bastin, G., 2002, Review of the Livestock Sector in the Lao People's Democratic Republic, International Livestock Research Institute.

Ta oi District Planning and Investment Office, 2009, Summary of Social-Economic Implementation and Development Plan (2008-2010), Unpublished Document.

UXO Lao, 2009, Lao National Unexploded Ordinance Programme- UXO Victims, accessed 25 May 2009, from < <http://www.uxolao.org/Victims.html> >

Vongkhamsao, V., 2006, The importance, role and value of Non Wood Forest Product for Lao-tian food Security, nutrition and livelihoods (final draft), Forestry Research Centre, NAFRI.

WFP- United Nations World Food Programme, 2005, District Vulnerability Analysis-2005 Update Lao PDR-Final Draft.

World Bank, 2005, Lao PDR Gender Profile, Gender Resource Information & Development Center (GRID), With the Support of the World Bank.

World Bank, 2007. Lao PDR Environment Monitor. World Bank.

World Bank, 2008. Lao PDR Economic Monitor, The World Bank Office, Vientiane.

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