

Linking Poverty Reduction with Forest Conservation





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As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

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N N N

	Page
Introduction - 3IC Fund	2
PART 1: NATURAL WEALTH is a desk study about the opportunities and challenges to link poverty reduction with forest conservation in Lao PDR to help meet national development goals.	5
PART 2: BITTER BAMBOO AND SWEET LIVING describes the impacts of NTFP conservation activities on poverty reduction and sustainable livelihoods.	55



This document is one of the outputs of the project on Poverty Reduction and



The aim of this project is to strengthen IUCN's ability to incorporate poverty reduction and livelihood considerations into conservation actions.

In recent years there has been increasing discussion about the link between conservation, poverty reduction and human livelihoods, gaining momentum since the Rio Earth Summit in 1992. IUCN has intensified its attempts to address questions of ethics, poverty and human livelihoods in its conservation efforts. These efforts have emerged partly out of concerns for the interests of the poor, partly out of recognition that conservation efforts will be more effective if carried out with the participation of rural people, and partly out of a pragmatic recognition that donor funding for conservation is increasingly dependent on demonstrated linkages with livelihoods and poverty alleviation. The challenge is to show that poverty directed, pro-poor conservation contributes to poverty reduction in a number of ways, including improving governance, protecting and expanding the poor's asset base, ensuring a more equitable distribution of costs and benefits and safeguarding livelihoods against economic shocks and natural disasters. Therefore, the purpose of the project is to develop a strategy and approach for linking sustainable livelihoods and ecosystem management that is based on lessons learnt from activities being undertaken by IUCN and by linking more effectively with social development organisations.

The project was an activity of a consortium led by IUCN's global Forest Conservation Programme (FCP) with the IUCN Asia (ARO) and Eastern Africa (EARO) Regional Programmes as well as the IUCN Commissions on Ecosystem Management (CEM), on Environmental Economics and Social Policy (CEESP) and the IUCN Species survival Species/Sustainable Use Initiative.



This publication comprises of two parts:

- PART 1: NATURAL WEALTH is a desk study about the opportunities and challenges to link poverty reduction with forest conservation in Lao PDR to help meet national development goals.
- PART 2: BITTER BAMBOO AND SWEET LIVING describes the

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November 2002*





ACRONYMS

LAO CONTEXT

FORESTRY

Introduction

Institutional framework

Legal framework

National Conference on Forestry (1989)

National Tropical Forestry Action Plan (1991)

Government Decree No. 67 (1991)

Government Decree No. 99 (1992)

Government Decree No. 164 (1993)

National Environmental Action Plan (1994)

The Forestry Law (1996)

The Land Law (1997)

	Page
<i>Seventh Round Table Meeting (2000) and Seventh Party Congress (2001)</i>	26
INTERACTIONS BETWEEN POVERTY REDUCTION AND FOREST CONSERVATION	30
Land-forest allocation	31
<i>Land and forest tenure</i>	31
<i>Land-Forest Allocation Programme</i>	32
Logging	38
<i>Disincentives to sustainability</i>	38
<i>Contribution to revenue generation</i>	41
Community forestry	42
NTFPs	45
CONCLUSION	47
REFERENCES	48



DAFO	District Agriculture and Forestry Office
DFRC	Division of Forest Resource Conservation
DoF	Department of Forestry
FIPC/FIPD	Forest Inventory and Planning Centre/Forest Inventory and Planning Division
FOMACOP	Forest Management and Conservation Programme
GoLPDR	Government of Lao PDR
HDI	Human Development Index
Lao PDR	Lao People's Democratic Republic
LA	Land Allocation
LDC	Least Developed Country
LFA	Land-Forest Allocation
LUP	Land Use Planning
MAF	Ministry of Agriculture and Forestry
NAFRI	National Agriculture and Forestry Research Institute
NBCA	National Biodiversity Conservation Area
NEAP	National Environmental Action Plan
NHDR	National Human Development Report
NPFA	National Production Forest Area
NTFP	Non-timber Forest Product
PAFO	Provincial Agriculture and Forestry Office
PFP	Policy Framework Papers
PMO	Prime Minister's Office
PPA	Participatory Poverty Assessment
RTM	Round Table Meeting
SME	Small- and Medium-Sized Enterprises
STEA	Science, Technology and Environment Agency
TFAP	Tropical Forestry Action Plan





Lao PDR is situated at the heart of mainland Southeast Asia. It spans an area of some 236,000 square kilometres, and is bordered by China, Vietnam, Cambodia, Myanmar and Thailand. Although there is no direct access to the sea, the Mekong River flows through a total of 1,900 kilometres of Lao territory, and – together with its tributaries – plays a significant role in communications, transportation, trade and the overall life of the country.

In 1999, the population was estimated to be 5.3 million people, making Lao PDR one of the least densely populated nations in the region. However, with an annual population growth rate of approximately 2.9 per cent, this figure is increasing rapidly.

The current socialist government was established in 1975, following decades of war and instability. The pace of development, however, remained relatively slow until the Fourth Party Congress in 1986 and the introduction of the “New Economic Mechanism”. The main principles of this Mechanism, which now guides development, are:

- a) to switch from a system under which administrative instructions from the supervising authorities are the primary tool for managing state enterprises, to a management system which relies on economic



estimated that nearly half of all the farming households in the country – some 300,000 households – continue to practise slash and burn cultivation. Similarly, recent studies have shown that rural villagers derive nearly half their income from the sale of NTFPs, including rattan, bamboo and yang-tree oil. NTFPs also play a vital role in food security, particularly at the end of the dry season and during times of harvest failure. Forest tubers, bamboo shoots, mushrooms, a range of forest plants, fish, turtles and snails are all collected for food. In many parts of the lowland plains, fish and other living aquatic resources provide between 70 and 90 per cent of the animal protein in the diet of local people. Many rural communities are also heavily reliant on wild plants and herbs for the preparation of traditional medicines. In total, local subsistence use of NTFPs may account for 20 to 30 per cent of the Gross National Product of Lao PDR (IUCN 2001).

Despite their central contribution to national and rural wellbeing, the renewable natural resources of Lao PDR are increasingly threatened by a variety of factors, including deforestation, over-exploitation and infrastructure development. As it enters the 21st century, perhaps the greatest challenge for Lao PDR is to define a development approach which will significantly enhance socio-economic conditions and overall living standards, whilst ensuring that biodiversity and other natural resources are managed on a sustainable basis.



Forests are essential to the Lao PDR economy and livelihood of its people. Timber is an important source of foreign exchange, with 80 per cent of domestic energy consumption being wood-based, while NTFPs represent 40 per cent of the total rural income and play a central role in maintaining food security. Natural forests are also valuable for their role in protecting watersheds, reducing erosion and supporting biodiversity.

Even though much of Lao PDR remains under forest cover, the nation's forest resources face a growing number of threats. During recent decades, there has been a significant loss of forest area in Lao PDR. In 1940, the forest cover was estimated at 17 million hectares, or 70 per cent of the total land area. By the early 1960s, this estimate was reduced to 15 million hectares, or 64 per cent of the total land area, and in the late 1980s aerial photos and satellite images indicated a forest cover of 11.2 million hectares, or 47 per cent of the total land area. More recent estimates by the GTZ-MRC project suggest that the area of forest has been reduced to about 41 per cent (Tsechalicha and Gilmour 2000).

Key factors contributing to deforestation in Lao PDR include:

- shifting cultivation (although less likely than widely perceived within the country, as most shifting cultivation is conducted on a rotational basis rather than pioneering into primary forest);
- fuelwood collection (approximately 2.5 cubic metres/person/year);
- fire;
- agricultural encroachment (primarily by lowland farmers);
- unsustainable logging practices (estimated from 0.3 to two per cent of the national forest area annually);
- infrastructure projects (e.g. reservoirs, roads); and
- conversion of forest land for agriculture and rural development projects.

(World Bank et al, 2001)

- a) preservation of the extent of present forests and improvement of management to increase production;
- b) rational use of forests and forest resources to increase their economic value; and
- c) restoration, preservation and development of forests; permanent settlement of the 1.5 million people currently engaged in shifting cultivation (approximately 60 per cent of the population) by the year 2000.

In addition, it was also agreed that there was an urgent need to adopt two key measures. These were:

- a) accelerate studies and policy formulations for preservation, reforestation and development of forests; and
- b) strengthen forestry and environmental organisations in a vertical network to grass roots levels with clear definition of responsibilities on a sectoral and area basis.

National Tropical Forestry Action Plan (1991)

The Tropical Forestry Action Plan (TFAP), which grew out of the First National Conference on Forestry, laid the foundation for most of the forestry sector activities throughout the 1990s. Six broad overarching programmes were identified for donor support. These were to:

National Environmental Action Plan (1994)

The NEAP recommended the development of an environmental policy, establishment of a legal and regulatory framework, integration of national environmental concerns into the national planning system and establishment of a national environmental assessment system. The NEAP also specifically stated that the Government would:

- a) provide secure access to land for indigenous populations and provide communities with incentives to manage resources on a more sustainable basis and to participate in protection activities; and
- b) develop a legislative framework for the protected area system.

The Forestry Law (1996)

The Forestry Law, passed by the National Assembly in 1996, sets out a broad framework and an integrated approach to the sustainable management of forests in Lao PDR. The Forestry Law essentially designates all of the land area in Lao PDR as forest land, with the exception of established paddy. *Article 16* classifies forests into five use types:

- a) protection forest – intended to protect watersheds and prevent soil erosion;
- b) conservation forest – intended to protect and conserve biodiversity (NBCAs are considered national-level conservation forests; conservation forests can also be designated at the village, district and provincial levels);
- c) production forest – classified for the purpose of satisfying the requirements of national economic and social development and of people’s livelihood on a sustainable basis;
- d) regeneration forest;
- e) degraded forest land (or barren land) – for tree planting, permanent agriculture, livestock production, etc.

Article 22 states that “forest activities also include the stabilisation of shifting cultivation through the development of sedentary livelihoods.”

Article 25 states that “the harvest of timber and other forest produce can proceed only in surveyed and inventoried production forest areas for which there is a forest management plan... Logging operations must aim at a sustainable yield on the basis of a logging rotational system”. It further requires that “the harvesting of other forest products such as mushrooms, roots, tubers, shoots, leaves, bark, resins, gums must be carried out according to specific regulations issued by concerned agencies.”

Article 28 allows for the use of NTFPs for household consumption, if carried out in accordance with village regulations endorsed by District Agriculture and Forestry Offices (DAFOs).

Article 30 allows for the customary use of forests, forest land and forest produce, such as hunting and fishing of non-prohibited species, in accordance with village regulations, provided that it does not damage the forest or forest resources.

Article 35 provides for special recognition and incentives, such as credit incentives or tax exemptions for individuals or organisations that promote the regeneration of forest fallow through protection and maintenance.

Article 42 provides for the dividing of land within NBCAs into Controlled Use Zones (which allow for some use, under community management) and Totally Protected Zones (into which access is restricted).

The Land Law (1997)

According to *Article 1*, the overall purpose of this law is to contribute to national socio-economic development, including the protection of the environment. The national community, represented by the Government, owns all land; however, the Land Law establishes the right of Lao citizens to use both agricultural and forest land.



This Law has provisions that aim at decentralising and implementing participatory natural resource management. It is also the primary legal basis for the Land-Forest Allocation Programme (described below).

Prime Minister's Decree No. 189 (1999)

This decree sets out a number of regulations for the field implementation of the Forestry Law, in particular related to Land/Forest Classification and Use Planning, NBCAs, Production Forest/Harvesting, Protection Forest, Village Forestry, and Forest Development Funds.

Prime Minister's Order No. 11 (1999)

This order was intended to strengthen the government's central role in regulating and controlling all forestry-related activities, in order to halt and reverse the alarming destruction of the country's forests. The preamble of



The current legal basis for implementation of the Land-Forest Allocation Programme is primarily the Land Law, and in particular the instructions on Land-Forest Allocation for Management and Use and on Continuation on Implementing Land Management and Land-Forest Allocation.

The major objectives of the Land-Forest Allocation Programme are:

- a) sustainable management and use of natural resources;
- b) reduction and gradual elimination of shifting cultivation; and
- c) promotion of commercial production.

Implementation is directly carried out by three governmental organisations;

- 1) The Office of Land and Housing Management (Ministry of Finance) – the central agency for land management and administration, including land titling;
- 2) The Ministry of Agriculture and Forestry, and in particular, the Department of Forestry and the National Programme for Shifting Cultivation Stabilisation – responsible for land allocation in rural areas; and
- 3) The Central Committee for Land Management and Land-Forest Allocation, within the Prime Minister’s Office – the central agency for land titling.

Strategic Vision for Forest Resource Management to the Year 2020 (2000)

The “Vision 2020” document recommends three basic policy directions:

- a) to preserve, improve, and increase biological capacity of the present forests, especially by improving existing systems of management and protection throughout the country;
- b) to rationally use the benefits of forests, especially to use and improve economic benefits of forest resources; and
- c) to link rehabilitation, preservation, and expansion of forests with meeting the needs for foods, commodity production, reorganisation

of production systems, and construction of permanent settlement

The total population of Lao PDR is approximately five million, of which approximately 80 per cent (4.2 million) live in rural areas. As expressed at the Seventh Round Table Meeting, one of the primary development goals of the country is to ‘graduate’ from least-developed status by the year 2020.

Lao PDR’s designation as a Least Developed Country (LDC) comes from its placement at number 143 out of 173 countries on the Global Human Development Report (2002), which ranks countries according to a national Human Development Index (HDI) designed to measure longevity, knowledge and standard of living.

The key indicators for calculating the HDI are:

- life expectancy at birth;
- adult literacy rate;
- combined primary, secondary and tertiary gross enrolment ratio; and
- income (GDP per capita).

According to the Global Human Development Report, to graduate from LDC status, Lao PDR would have to increase its HDI sufficiently to bypass five other countries – Pakistan (#138), Sudan, Bhutan, Togo and Nepal. The National Human Development Report (2002) for Lao PDR (NHDR) calculates a HDI for the country as a whole and also disaggregates it according to regions of the country.

Table 1. Human Development Index per region

Region	HDI (1998)	HDI (2001)	Incidence of Poverty (1998)	Change in Incidence of Poverty (1993 to 1998)	Proportion of National Population
North	0.426	0.531	53%	- 0.1%	33%
Central	0.542	0.539	35%	- 2.3%	36%
South	0.510	0.519	38%	- 4.5%	20%
Vientiane Municipality	—*	0.665	12%	- 10%	11%
Whole country	0.465	0.535			

*In 1998, the central region included Vientiane Municipality.

It is interesting to note that, according to the NHDR, the HDI level of Vientiane Municipality would have placed it well within the Medium Human Development Countries range.

The NHDR also calculates an Incidence of Poverty for the country. The Incidence of Poverty measures the proportion of individuals with an income or consumption-expenditure that falls below the poverty line. It is important to note that, as the name suggests, the Incidence of Poverty indicates the frequency of poverty in the country but not its severity. For Lao PDR in 1997/98, the average food poverty line was 15,218 kip per person per month, of which the urban and rural poverty lines were 19,270 and 14,407 kip per month, respectively.

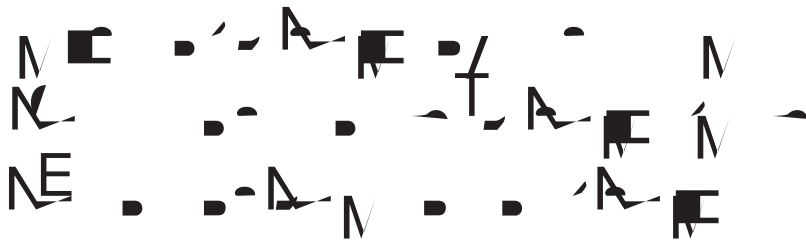
It is clear that the majority of poverty in Lao PDR is rural poverty. Of the 4.2 million rural people in Lao PDR, it is estimated that about 40 per cent (two million people) are living in poverty. These poor rural people are primarily small-scale subsistence farmers, living mostly in remote upland forested areas and often practicing shifting cultivation.

graduate from Least Developed Country status by the year 2020. In order to achieve this goal, the main targets for 2020 are:

- a) the population will be around 8.3 million (versus 3.1 million in 2000);
- b) GDP will grow at approximately seven per cent per year, based on investment of at least 25 per cent of GDP per year, of which public investment will constitute 12 to 14 per cent;
- c) GDP per capita will be US\$1200-1500 (versus US\$350 in 2000); and
- d) the industry and service sectors will occupy a major part of GDP.

the Government's strategy to alleviate poverty is centred are: agriculture and forestry; health; education; and road infrastructure. For agriculture and forestry, the logic is presented such that an increase in cultivated areas, cash crops and productivity, as well as an improved management of natural resources (including forestry, fisheries and land allocation), will help to increase food security and generate equitable economic growth, thus reducing poverty, promoting equity and improving living standards among the multi-ethnic population of Lao PDR.

Also stressed in the report is the new decentralisation programme for Lao PDR, which is intended to institutionalise a bottom-up planning process and identifies the "district level as the major reference for planning and programming". Under the decentralisation programme, the province will be designated at the strategic unit, the district as the planning/budgeting unit, and the village as the implementation unit. Individual provinces are responsible for formulating their own five-year plans and budgets, while districts and villages will also be responsible for formulating development plans. According



The National Human Development Report identifies three major causal complexes for poverty in Lao PDR. These are:

- a) the declining productivity in swidden-based upland farming systems;
- b) the declining productivity in NTFPs; and
- c) the failure of alternative income sources to transform the rural economy.

Discussed below are some examples which illustrate the interactions between previous and existing policies and programmes for forest conservation and poverty reduction in Lao PDR, as well as their effects on the ground. These include:

- Land-Forest Allocation – where a process designed to improve management of land and forest resources has in turn led to major increases in rural poverty with questionable gains for conservation.
- Logging – where pressure for the forestry sector to contribute to economic development at the national level (as well as to individual special interests) has created conditions which favour neither the improvement of rural livelihoods nor forest conservation.
- Community Forestry – for which the opportunity exists to establish a system which could have positive effects on both rural poverty alleviation and forest conservation, but for which the commitment by government in practice has been variable.
- Non-Timber Forest Products – a sub-sector which is being increasingly recognised for its potential to contribute to both forest conservation and rural poverty alleviation goals, but for which the current policy environment is unclear.

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Land-forest allocation is a process originally intended to strengthen the management of land and forest resources, with some promising developments, for example, forest areas have been allocated to communities for protection with allowance of some controlled use and management. However, from the point of view of the villagers in the PPA, the Land-Forest Allocation Programme has had major negative impacts on rural livelihoods and was the most frequently-cited cause of poverty, due to its typical effect of reducing rice yields.

Land and Forest Tenure

In Lao PDR all land is the property of the national community, represented by the Government. Traditionally, tenure for a particular piece of land was obtained by clearing it for agriculture; the ownership rights for this land remained even during fallow periods. Tenure could also be granted through agreements between families and the village chief.

Following Prime Minister's Decree 169 in 1993, a more formal land tenure system has been instituted, whereby land is allocated to individual families by the government. Since its enactment in 1997, the Land Law has served as the primary guiding document for land tenure.

The Land Law allows for two primary types of land tenure: temporary, or a "land use right", and permanent, or "land title". Following land allocation, citizens receive a land certificate providing temporary land use rights to a particular area. If the designated land is used as specified, and the use regulations are not broken, after a period of three years, permanent land tenure is granted through the issuance of a land title. Ownership of a land title provides the right to use, transfer and inherit both forest and agricultural land, as well as an usufruct right (Souvanthong 1995, Tsechalicha and Gilmour 2000).

The Land-Forest Allocation Programme was never intended as a mechanism for poverty reduction *per se*. Although it is a major component of the government's rural development strategy, the primary goal of land-forest allocation was to conserve forest resources by bringing shifting cultivation under control. At the same time, however, it is viewed by government as supportive of both poverty reduction and national security priorities. Prohibiting shifting cultivation encourages villages to relocate away from the remote uplands and into areas where they are more accessible to government in terms of the provision of services and the maintenance of monitoring and communications linkages.

However, the reality is that land-forest allocation, as carried out in Lao PDR, has resulted in major increases to the depth and extent of rural poverty. The most significant problem resulting from land-forest allocation is the reduction of fallow periods. Although fallow periods, which were once said to average 15 years or more, had already been slowly decreasing, the result of land-forest allocation has been to artificially accelerate the problem of reduced land availability. Most soils in the country are already acidic and poor in mineral and organic content. With shortened fallow periods there is insufficient time for the land to rejuvenate hence, soil fertility declines even further and problems with weeds and pests increase, thus leading to reduced yields and increased erosion. Labour requirements increase, while yields decrease.

During the PPA, one district in Oudomxay where land allocation was implemented in 1995 was found to have its fallow cycles reduced from seven to eight years to two to three years, with concomitant reductions in yield from two tons per hectare to 700 kg.

Paddy land is limited, particularly in mountainous areas, but even in cases where families are allocated paddy land, this can often not be cultivated due to insufficient water and poor soils, or because families lack the expertise in planting paddy fields. Also, according to the PPA, "there was not a single instance cited of technical assistance to support either paddy or permanent upland cropping".

In order to meet their subsistence needs, traditional swidden cultivators are instead forced to rely on NTFP collection, hunting of wildlife, fuelwood collection, timber cutting, seasonal agricultural work for lowlanders, or hiring out of labour in towns. With the clearance of existing fallows prohibited, some villagers choose to establish new swidden fields, in some cases in primary forest, travelling to remote areas away from official attention in order to do so.

As more and more families are forced to compensate for reduced rice yields, there have been marked increases in the degradation of other resources such as wildlife and NTFPs, which have served as traditional coping mechanisms in times of rice shortage.

According to a number of sources, problems with land allocation are not necessarily a product of the procedures or the policies themselves, but rather in the way that they have been applied. Raintree (2001) notes that “the nature of the mistakes made by district staff in carrying out LUP/LA are very consistent with the old habits acquired in the command economy.” The following table, taken from the NHDR (2002) elaborates on the key problems with the way that land allocation has been carried out in Lao PDR.

PROBLEMS	COMMENTS AND RECOMMENDATIONS
Rapid implementation of the steps in LUP and LA reduces the quality of work	There is a tendency to complete LUP/LA rather quickly in one field exercise extending from as little as five days to 14 days. This is too short a period to do it effectively. The reasons for haste include: limited funding, convenience of staff, non-use of participatory methods because they are more time consuming, perception that LUP/LA is a ‘once-only exercise’ rather than a ‘process’ which may take months or years to complete, ambitious annual targets set by the District Administration and a concern at District level that senior levels will be critical if high targets are not met.
Lack of flexibility in implementing LUP/LA	

PROBLEMS	COMMENTS AND RECOMMENDATIONS
Family access to land in upland areas is reduced by LUP/LA	What is regarded as a “positive achievement” in reducing shifting cultivation is experienced as a negative impact on household livelihood systems (e.g. in Xieng Nguen District access to land was reduced from five to six to three plots of land on average. Farmers are aware that they cannot hope to have unlimited land but state that rice productivity deteriorates quite rapidly because they are unable to maintain a reasonable field rotation. In the villages under discussion there is more degraded land available within the specified agricultural zone which could be allocated to farmers. An approach where land was distributed by villagers with the defined agricultural zone would probably help alleviate this problem
Limitations of the inspection and control approach to monitoring	A common perception of monitoring is one of “inspect and control” (land use). This may not be the most effective way to achieve a reduction in shifting cultivation. . . . Nevertheless the LUCs [Land Use Certificates] issued with TLUCs [Temporary Land Use Certificates] require that such a method of monitoring be practiced. The LSFP has developed methods of monitoring based on the principles of participation, problem identification and support to resolve problems identified. This involves extension and land use planning staff in a dialogue with villagers during which the discussions are focused at the village level rather than concentrating on the individual farm level. Thus broader issues such as the effectiveness of village agreements, land management problems, inter-village disputes regarding land and boundaries, access to land and land productivity are addressed. This type of monitoring where the impact of LUP and LA is assessed in broader terms would appear to be a more valuable approach than regulatory monitoring of activities at farm level.
Inadequate security and storage of LUP/LA information and data	Currently there is a very ambitious programme of land allocation continuing but no effective record keeping system in place to manage the land allocation data. . . . A land allocation record system to manage the initial LA data and the land ownership changes needs careful consideration. [Subsequently one was developed by the sub-programme]

PROBLEMS	COMMENTS AND RECOMMENDATIONS
	<p>may be fundamentally different to those of the villagers. . . A mechanism which recognises surveyed village boundaries, village forest-land use zonings and village forest-land management agreements and provides for the management of sustainable timber harvesting operations within surveyed village boundaries is essential to preserve the validity of village level LUP/LA.</p>
<p>References: <i>Somsak Sysomvang, Somit Senthavy, Hongthong Amphaychith and Peter Jones. 1997. A review of problems in land use planning and land allocation processes, procedures and methods. Discussion Paper LUP1. Presented at a Workshop on Land Use Planning and Land Allocation Procedures and Method Development. 29-30 July. DOF. Vientiane.</i> <i>Peter Jones. 2000. Land allocation or land use zoning: What is the priority? Discussion Paper. Lao-Swedish Forestry Programme. Vientiane.</i> <i>Peter Jones. 2000. Land use planning and land allocation experiences, lessons and issues from the Lao Swedish Forestry Programme Phase 4. Paper presented at the NAFRI Research Strategy Development Workshop. May 8-11, 2000.</i> <i>Thongphath Leuangkhamma, Somsak Sysomvang and Peter Jones. 2001. Land use planning and land allocation component. Component Description. LSFP Model Consolidation Project. Lao-Swedish Forestry Programme. Vientiane.</i></p>	

Land-forest allocation has clearly had strong negative effects on poverty, but its record with regard to forest conservation is more difficult to judge. It may have increased pressure on NTFPs and in some cases may lead to clearing of primary forest by those seeking to establish new swidden plots away from government attention. It is also interesting to note that, although perhaps the most-recognised group of shifting cultivators in Lao PDR, the Hmong, practice pioneering shifting cultivation while many of the other ethnic groups do not and yet they have all been grouped together under the call for sedentarisation of shifting agriculture in order to conserve forests.

Because the Lao economy is largely subsistence-oriented, timber exports represent a significant source of foreign exchange (reportedly 30 per cent of foreign revenue earnings in 1996, and 15 per cent of total revenues in 1999-2000). Lao PDR has few other options for generating much-needed export earnings, and other resource potentials such as industry and mining have been slow to develop hence, intensive timber extraction continues even when world timber prices are low. In fact, this 30 per cent figure does not include a large volume of timber traded with Vietnam in exchange for items such as petrol imports and in particular construction of infrastructure, which is a key component of the country's development strategy. Asked to explain the large amount of raw log exports to Vietnam, Forestry staff often cite the need for Lao PDR to repay its national debt to this neighbour (Baker, McKenney and Hurd 2000). The forest industry is also a major employer, having provided an estimated 18,300 jobs in 2001 (MAF 2002).

Disincentives to Sustainability

Recent studies carried out as part of the World Bank/SIDA/Government of Finland Production Forest Policy Review, as well as forest cover monitoring carried out by the Forest Inventory and Planning Centre, indicate that current forestry trends in Lao PDR are highly unsustainable.

At present, almost all logging in Lao PDR is carried out under the auspices of government. Although the Tropical Forestry Action Plan and the Forestry Law both include important provisions intended to promote sustainable forest management, because the Forestry Law has a limited set of comprehensive implementing regulations, there is an insufficient framework for supporting such sustainable practices.

Article 25 of the Forestry Law requires that "the harvest of timber and other forest produce can proceed only in surveyed and inventoried production forest areas for which there is a forest management plan". In reality, however, forest management is based on management plans only in project areas and there are a number of technical issues which lack regulation, such as

what is meant by a management plan, how a management area is defined, and who is responsible for approving and monitoring the implementation of management plans. Other legislation, such as *Prime Minister's Order 15*, does not even require the development of a management plan or the estimation of an allowable cut.

By not requiring the development of sustainable strategies to manage forests based on annual allowable cuts, coupled with the lack of regulations to provide guidance for ensuring that harvesting operations are environmentally sound and to define which actions are considered illegal, Government policy implicitly sanctions only high intensity-type harvesting, which leads to poor harvesting practices, unnecessary levels of forest degradation and significant environmental damage (Forestry Law, MAF 2002, Baker McKenney and Hurd 2000, World Bank et al 2001).

Other disincentives to the sustainability of logging include:

- where attempts are made to develop proper scientifically-based management plans, there remains an overall lack of information regarding growth models for most species. It is simply that the most valuable species are harvested, leaving behind a forest of comparatively little economic value;

- quotas are not measured until trees have reached the second landing, thus creating a strong incentive to leave valuable but imperfect logs in the forest and leading to losses of wood volume; and
- post-harvest forest management (such as planting of seed trees) is

Contribution to revenue generation

In addition to the lack of sustainability of the approach to forest management, and despite the pressure for forestry to contribute to the overall development of the Lao economy, the Government is not maximising its revenue from current forest management practices. MAF (2002) explains this as follows:

Forestry royalties as share of GOL revenues have decreased from 20 per cent in the mid-1990s to six per cent of tax revenues and five per cent of all revenues in 2000-2001. Collection rates are low, around 50 per cent. Over the last five years, the Treasury has realised only about one third of the estimated market value of the timber harvested.

The royalty system is based on administrative price setting and does not adequately follow the market trends. Consequently prices do not move in unison with international forest product prices although more than 90 per cent of the production is exported. The stumpage fee (royalty) does not reflect the value of the final product but forestry assets are often undervalued or sometimes overvalued depending on the species and market situation. In both cases, the Government incurs revenue losses. The Ministry of Commerce also applies a dual pricing system by having higher royalty rates for exports than for domestically consumed wood. The objective is to promote value-added processing in the country [as called for in the “Vision 2020 for Forest Management”] but the dual pricing system distorts timber markets and indirectly contributes to inefficiency in domestic processing.

Log sales are not competitive but individual sawmills procure logs under a quota system that is not fully transparent and not implemented uniformly every year, or between provinces. The quota system distorts the market and industry structure, creates incentives for corruption and results in economic losses through inefficient production and sub-optimal pricing. The administrative quota setting system provides every mill the same opportunity to secure logs irrespective of mill productivity and wood paying capability. It is apparent that the sector must become more competitive and transparent in roundwood procurement and active in value-added processing. This would



the role of participatory sustainable forest management in bringing forest resources under management and in promoting rural development still needs to be clarified at policy and strategic level”.

Currently, forest lands with potential for commercial production are for the most part retained under the control of PAFOs and DAFOs, thus creating limited opportunities for benefits to flow to villagers (World Bank et al 2001). There is also a general lack of awareness among stakeholders at various levels regarding the current regulations and their roles, rights and responsibilities, rights, and roles vis-a-vis forest management, protection and monitoring (MAF 2002).

The Forest Management and Conservation Programme (FOMACOP), which operated in Lao PDR from 1995 to 2000, and the long-running Lao-Swedish Forestry Programme, both piloted models for community forestry in Lao PDR, whereby forests within the traditional village territories were co-managed by government and local villagers.

While both have been deemed successful (by subsequent external reviews) in establishing the necessary agreements and establishing and implementing management plans, according to the NHDR, “when it came time to actually harvest and sell the logs, that is when problems arose. In the log sales from the FOMACOP pilot areas in 2000 the village agreements were set aside and systems developed by the project for transparent logs sales were bypassed in favour of the old non-transparent system of sales to favoured traders with substantial loss of national revenue”.

Prime Minister's Order No. 11, issued in 1999, increased centralisation of the timber industry and made it impossible for villages to participate in selling logs at market prices by requiring that all wood sales be conducted directly by government (World Bank et al 2001). Other recent orders (PMO 10 and PMO 15) are also seen as “interpreting the Constitution, Forestry and Land Laws narrowly as regards participation of various stakeholders in forest management”. (MAF 2002)



The ability of villages to share in the financial benefits of sustainable forest management seems to be of particular limitation. The FOMACOP experience demonstrated that “village forestry can introduce effective sustainable management over well-stocked forests, and, if allowed to function, can yield benefits to both the participating community and the public treasury.” Under the FOMACOP pilot project, approximately US\$ 400,000 worth of timber was sold by 15 villages, of which US\$275,000 (69 per cent) went back to Government as royalties and taxes, and US\$25,000 (six per cent or US\$1,700 per village) was kept by the villages involved (World Bank et al 2001).

Although, according to MAF 2002, “recent international reviews on the contribution of forestry to poverty alleviation indicate that many of such schemes have failed because of poor quality of forest resources allocated to participatory/joint forest management/community forestry”. In Lao PDR, the problem may have been just the opposite. Raintree (2001) emphasises that “it may be wise to admit to a tactical error in trying to introduce participatory forest management principles within the boundaries of prime State Production Forests,” continuing on to argue that, “where community forestry has been successful has usually been in secondary forests and degraded lands, not in State Production Forests with the kind of timber that is found in Laos”.

It has also been suggested that an additional driving force behind the inhibition of community forestry in Lao PDR grew out of concerns regarding perceived competition between forest management at the community and national levels. However, a spatial analysis carried out by the World Bank, Sida and Government of Finland indicates that village forest management and government forest management can be complementary approaches, given the relative distribution of villages and forest land throughout the country.

It is also interesting to note that, according to the NHDR, most of those from government who were involved in the implementation of the project “have been very positive about it [and believe that] the village forestry effort was highly consistent with government policies on decentralisation and participation of local people in sustainable resource management”.

N - E

NTFPs play a vital role in the livelihoods of rural communities in Lao PDR, providing necessary subsistence and cash income, particularly during times of food shortage. For the average household, various studies have found that NTFPs provide between 40 and 55 per cent of cash income. For the poorest households, NTFPs are particularly important, providing up to 90 per cent of total income.

Table 2. Average family income among 191 families in five villages on the Nakai Plateau in 1996 (values expressed in kip)

No. of families

NTFPs

Although they are a key component of rural livelihood strategies, NTFPs have traditionally been overlooked by national forest policy. However, through the IUCN/NAFRI NTFP project and other activities, the profile of NTFPs has been raised significantly and there is increased interest in the development of an NTFP sub-sector. The importance of NTFPs has been officially recognised in documents such as the *National Environmental Action Plan 2000*, prepared by STEA, and is also recognised among other government agencies, such as the National Economic Research Institute.

MANAGEMENT

The forests of Lao PDR are one of few potential sources of sustainable economic growth for the country. The relatively large amount of remaining forest resources and the high level of forest dependence by local communities, coupled with the extent of rural poverty in Lao PDR, presents unique opportunities and challenges to combine forestry with poverty alleviation approaches to help meet national development goals.



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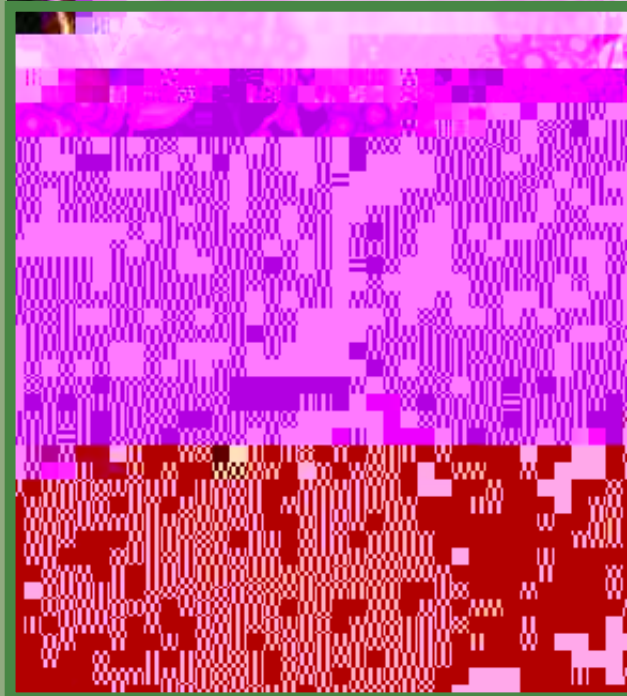


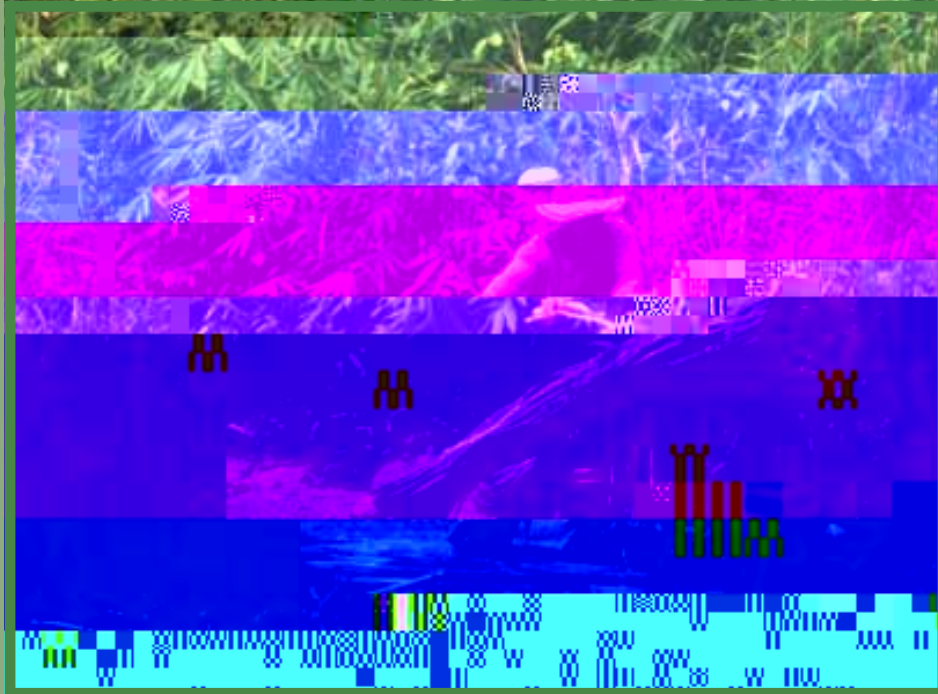
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	Page
ACRONYMS	59
1 INTRODUCTION	60
1.1 The NAFRI-IUCN NTFP Project	61
1.2 Nam Pheng village in Oudomxay province	62
1.3 Sustainable harvesting of bitter bamboo and cardamom	63
2 METHODOLOGY	66
2.1 Purpose of the study	66
2.2 Overview of the research	66
2.3 Methods	67
2.3.1 <i>Cost-benefit analyses</i>	67
2.3.2 <i>Other methods</i>	69
3 RESULTS	71
3.1 Economic valuation	71
3.1.1 <i>Significance of NTFPs in household cash economy</i>	71
3.1.2 <i>Economic valuation of bitter bamboo</i>	73
3.1.3 <i>Economic valuation of wild cardamom</i>	77
3.2 Reduced poverty rates and improved livelihoods	79
3.2.1 <i>Increased wealth and reduced poverty</i>	79
3.2.2 <i>Improved development indicators</i>	82
3.2.3 <i>New infrastructure and services</i>	84
3.2.4 <i>Wider range of expenditures</i>	85
3.2.5 <i>Other benefits</i>	87
3.2.6 <i>Case examples</i>	88
3.3 Impacts on equity	91
3.3.1 <i>Social equity</i>	91
3.3.2 <i>Gender equity</i>	91
3.3.3 <i>Equity within organisational structures</i>	92

	Page
3.4 Impacts on forest conservation	93
3.5 Unintended negative impacts	94
3.6 Evidence of scaling up	94
3.6.1 National and international projects and programmes	94
3.6.2 Provincial Agriculture and Forestry Office in Oudomxay	99
3.6.3 District Agriculture and Forestry Office in Namo	99
3.6.4 Spontaneous adoption and expansion to other villages	100
4 CONCLUSION AND RECOMMENDATIONS	102
WORKS CITED	106



DAFO	District Agriculture and Forestry Office
GAA	German Agro Action
ICDP	Integrated Conservation and Development Project
IUCN	IUCN - The World Conservation Union
NAFRI	National Agriculture and Forestry Research Institute
NTFP	Non-timber forest products
PACO	Provincial Agriculture and Forestry Office
PRA	Participatory Rural Assessment
RRA	Rapid Rural Appraisal
SUNV	Co-operation between Netherlands Development Program and United Nations Volunteers



Socio-economic development and environment conservation are typically assumed to conflict with one another, especially as unsustainable exploitation of the former often drives the latter. This type of thinking should force a choice between poverty reduction and environment conservation. However, there is now an increased interest into the ways that poverty reduction and environment conservation can be mutually reinforcing (for example, see *Linking Poverty Reduction and Environmental Management*, 2000). IUCN – The World Conservation Union (IUCN) has recently embarked on a project supported by an internal 3I-C Fund to better understand the links between poverty alleviation, sustainable livelihoods and eco-system management (“Poverty Alleviation and Conservation: Linking Sustainable Livelihoods and Eco-system Management,” undated). Part of the fund is dedicated to documenting IUCN projects that have demonstrated these links and, subsequently, influenced policy makers and economic planners.

The current report is a case study of the NAFRI-IUCN NTFP Project in Lao PDR (1995-2001). It focuses on sustainable in situ harvesting regimes for bitter bamboo shoots (*Indosas sinensis*) and wild cardamom (*Amomum sp*) in one poor village in the northern mountainous province of Oudomxay. Bitter bamboo, in particular, generated the most impressive results on poverty alleviation in the NTFP Project and continues to be a shining example in Lao PDR. The current study attempts to translate these results into economic values through cost-benefit analyses, as well as describe impacts on local livelihoods and eco-systems through the voices of local people, local leaders and relevant organisations at district, provincial and national levels. The study shows that sustainable harvesting regimes played a major role in reducing poverty, while providing villagers with enduring incentives to manage village forests. The achievements were also remarkable for their equitable distribution among villagers, capacity to reach the poorest households and the interest that they raised in NTFPs among a range of organisations.

The remainder of this section provides background information on the NTFP Project, the field sites, and the bitter bamboo and cardamom harvesting

analyses and other methods. The third section presents the results of the study according to: economic valuations of bitter bamboo and cardamom; changes in poverty rates and livelihood; impacts on equity; impacts on forest conservation; unintended negative impacts; and evidence of scaling up. Finally, the last section offers some conclusions and recommendations.

the NTFP Project from July 1995 to September 2001 (the project was initiated at national and provincial levels (“Proposal for the Sustainable Utilisation of Non-Timber Forest Products in Lao PDR,” as cited in Ingles & Karki, 2001). Following a reformulation of objectives in 1998, the project sought to achieve this goal by:

- forest and biodiversity conservation;
-
-

NTFPs.

(Summarised from Donovan, Mounda, Souvanthalsith & Gilmour, as cited in Ingles & Karki, 2001).

As an ICDP, the NTFP Project was interested in supporting livelihood and community development. One of five components for sustainable NTFP systems was defined as:

in 1973. The villagers are Lao Theung from the Khamou Ou, Leua and Rok ethnic groups. They speak Khamou and are mainly upland cultivators, using the slash and burn method. The village is organised according to a Village Committee, comprising the village chief and his deputy, the chief of security and representatives from village unions for youth, women, elders, agriculture, forestry, education and health (“Field Report #4,” 1996).

When the NTFP Project first arrived in Nam Pheng in 1996, the village contained 43 households with 244 people (“Field Report #4,” 1996). Households cultivated an average of one hectare per year, yielding approximately 1.2 tons/hectare and maintaining fallow cycles of seven to nine years. Most households also raised livestock, primarily cows and secondarily pigs and buffalo. The nearest school was in the neighbouring village of Na Hom¹, but attendance from Nam Pheng was low. The main residential water source was a nearby stream. Illnesses were prevalent, especially diarrhoea and malaria. The villagers’ main source of cash income was NTFPs, although they were mostly collected and bartered on a small scale. Bamboo shoots, in particular, were sold to traders exporting to China and Thailand.

During the implementation period in Nam Pheng, the NTFP Project supported a village rice bank; water supply system; construction of a school; domestication trials for *Sa Pan*, cardamom and eaglewood; forest land allocation; and the establishment of a Marketing Groups and sustainable harvesting regimes for bitter bamboo shoots and wild cardamom (Ingles & Karki, 2001).

1.3 The sustainable *in situ* harvesting regimes began by organising a rice bank. The rice bank addressed the villagers’ most pressing need, food security. It was indirectly related to NTFP conservation because it built villagers’ trust

¹ Field Report #4 reported that the school was located in Nam Pheng, but this was inaccurate.

in the NTFP Project, freed up their time for conservation activities, and reduced threats of over-harvesting in forests (“Case Study on the Marketing Group of Bitter Bamboo Shoots in Nam Pheng village,” undated). During 1997 and 1998, the project supported forest allocation around Nam Pheng village, in collaboration with the District Agriculture and Forestry Office (DAFO). The forests were allocated communally to the Village Committee, according to traditional village boundaries and mutually agreed borders. Forestland allocation was an important first step because it gave the Village Committee authority to resolve resource-use conflicts within the village and respond to threats from outside. Village forests in Nam Pheng cover a total area of 648 hectares, which was equal to 46.5 hectare per household in 1998 (“Case Study on Marketing Group...,” undated). Currently, 515 hectares of bitter bamboo forest are allocated to Nam Pheng.

The next step was to help organise a NTFP Marketing Group for bitter bamboo. The group evolved from a series of meetings, where villagers and project staff gathered information, analysed problems, decided upon a management structure, elected members for management, agreed on regulations, planned, trained for and, finally, implemented activities (“Case Study on Marketing Group...,” undated). Anybody in the village that collected bitter bamboo was entitled to join the group, which amounted to nearly all households in Nam Pheng. The management structure consisted of a Group

command higher prices and have more confidence when negotiating with traders (“Case Study on Marketing Group...,” undated). The initial results were impressive. Off-take for bitter bamboo was 51 768 900 Kip in 1999 and 54 656 460 Kip in 2000 (“Case Study on Marketing Group...,” undated). Following the success of bitter bamboo, the Marketing Group organised a similar regime for cardamom. The group was able to raise the local price for cardamom from the usual 500 Kip/kg to 35 000 Kip/kg in 1998. Prices have since dropped to around 12 000 to 14 000/kg (see Figure 3.3 below), but remain substantially higher than before.

The Marketing Group sets dates for harvesting season each year, based on training from the NTFP Project on natural characteristics and regenerative capacity of the NTFP. Harvesting season for bitter bamboo usually lasts about four and a half months between December and April. However, collection for home consumption is permitted throughout the year. Households sell their stock fresh directly to the Marketing Group, which then sells on large scale to traders. For wild cardamom, the harvesting season is usually for a period of ten days in late August. Villagers decorticate and dry the fruit before selling to the Marketing Group, usually at the end of harvesting season. Generally, the individual collector takes 85 to 90 per cent of the final sale, while the remaining 10 to 15 percent is put towards an NTFP fund. This past season, the Marketing Group sold bitter bamboo at an average rate of 2 000 Kip/kg, of which 300 Kip went to the NTFP fund. Cardamom sold for 14 000 Kip, of which 500 Kip went to the NTFP fund. The NTFP fund is used to fund community projects, community services, and pay salaries of 100 000 Kip to the monitoring, accounting and trade units. Between 1998 and 2000, 17 000 000 Kip had accumulated in the NTFP fund. In 1999, the fund was used to improve the village’s water supply system and in 2000 to provide loans for 15 households and support the construction of a school, with some financial assistance from the NTFP Project, (“Case Study on Marketing Group...,” undated). Use of the fund and salary levels are decided collectively by the Marketing Group.

2.1.1. Study purpose

2.1.1.1. Study purpose

The main purpose of the study was to describe how NTFP Project activities contributed to poverty alleviation and livelihood improvement, and how these achievements may have been scaled up to policy makers and economic planners. Special emphasis was placed on quantifying results through economic valuation, as well as gaining local people's perspectives on livelihood impacts and other changes.

According to this purpose, seven main areas for data collection were identified:

- economic valuation of bitter bamboo and cardamom activities;
- local people's perspectives of gains and losses;
- assessment of changes in livelihoods;
- assessment of impacts on equity;
- assessment of impacts on conservation;
- descriptive text boxes of case examples; and
- discussions on scaling up.

Cost-benefit analyses were used to value the bitter bamboo and cardamom activities, while interviews and common Participatory Rural Assessment (PRA) tools were used to gain perspectives of local people and discuss scaling up.

2.1.1.2. Study period

The research was carried out over a period of 16 days from 17 September to 3 October 2002. A total of ten days were spent in Oudomxay province, including six days in Nam Pheng village and a half-day trip to the adjacent village of Na Hom. Supplementary discussions were held with government offices and relevant organisations at the district, provincial and national levels, particularly on the topic of scaling up. A wrap-up meeting was also held at the Forest Research Centre in Vientiane to get feedback on results

because virtually all inputs were labour³. A day wage seemed the simplest and clearest method for comparing bitter bamboo and cardamom collection to other income activities available in Nam Pheng.

The cost-benefit analyses were conducted with ten households, selected by villagers during the participatory assessment. The sample included representatives across wealth ranks, but emphasised poor households and those available for interview. The final sample consisted of five poor households, three average households and two well-off households, based on the 1996 wealth ranking. A preparatory meeting was held with the ten participants to review inputs and outputs, which formed the basis for the data collection formats. Other income opportunities available in Nam Pheng were also discussed for comparison, which included a group cost-benefit analysis for upland cultivation and fuelwood collection.

Results from the cost-benefit analyses were verified against participants' direct estimates of the total value of bitter bamboo and cardamom last year. On average, the cost-benefit analysis for bitter bamboo exceeded the direct annual estimate by more than three times, raising some questions on data reliability. Therefore, an alternative day wage based on participants within one standard deviation of the mean was also calculated, which yielded a moderately lower figure. Estimations for cardamom were easier because harvesting season was more recent, shorter and most villagers sell their harvest in one bundle. Hence, participants were able to remember exact figures, such as 27.9 kilograms. The estimates of annual output were almost the same as the cost-benefit analysis, suggesting a higher degree of reliability.

A notable shortcoming of the cost-benefit analyses (and the in-depth interviews) was that they were conducted almost entirely with men. We emphasised several times that the interviews should be conducted with the house-

³ The weighing scale of the Group Committee was the only specifically required monetary investment, but spreading its value among 40-50 villagers over a period of at least five years reduced its cost per villager to virtually nothing.

hold member who most often collects NTFPs, which is usually a woman. However, the recommendation was rarely followed, partly because many women were working in distant upland fields at the time of research.

2.3.2 Other methods

Participatory assessment

A participatory assessment meeting was held with approximately 20-30 villagers (the exact number was difficult to calculate because villagers frequently wandered in and out, invited or not). Participants were invited by the village leader and comprised a roughly proportional representation of households across wealth ranks and about 30 per cent women. The assessment used the following tools:

- wealth ranking for 2002 and retrospectively for 1996⁴;
- ranking of sources of income (with separate groups for women and men);
- ranking of expenditures (with separate groups for women and men); and
- group discussion on changes in livelihoods, forests, and an assessment of gains and losses.

The principle aims of the participatory assessment were to gain villagers' perceptions of project impacts on livelihoods and compare livelihood data collected from the NTFP Project's RRA in 1996 (Field Report #4, 1996).

In-depth semi-structured interviews

In-depth semi-structured interviews were held with four households to provide case examples of how project interventions had influenced life stories. They included three households that had ascended wealth ranks and one that had not.

⁴ Unfortunately, the NTFP Project's wealth ranking from 1996 was missing and had to be redone retrospectively.



Interviews with local leaders

Interviews and ongoing consultation were held with the village leader of Nam Pheng and his deputy. These interviews provided insight into many aspects of the data collection and helped fill in information gaps. Interviews were also held with the heads of the Women's and Farmers' Unions. Quantitative data from village records were obtained from these interviews.

Interviews with local leaders in Na Hom village

A supplementary half-day interview was held with a group of local leaders in Na Hom village for comparison. It was attended by the village deputy, Head of the Women's Union, the deputy accountant, Chief of security, a member of the Elders' Association, and a host of unidentified and mostly silent others.

Interviews with government offices and district, provincial and national organisations

These interviews were used to discuss scaling up and garner perceptions on the achievements and challenges of the NTFP Project. Interviews were held with the acting director of DAFO for Namong district, the acting director of PAFO for Oudomxay province, the Head of the Forestry Department in PAFO, the NTFP Office in PAFO, a technical advisor for a German Agro Action (GAA) Project in Oudomxay, and FAO in Vientiane. Additional telephone interviews were held with SUNV, GTZ, IFAD and JICA. Noticeable omissions were the Department of Forestry, who were unavailable at the time of the research and the Lao-Swedish Forestry Program.

3. NTFPs

3.1. Significance of NTFPs

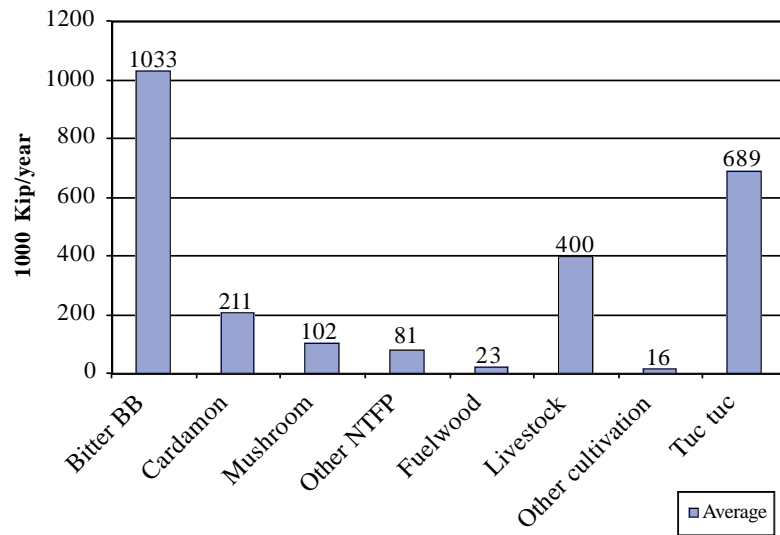
3.1.1 Significance of NTFPs in household cash economy

Participants ranked bitter bamboo as their most important source of cash income. It was valued at an average of 1 033 000 Kip/year and accounted for 40 per cent of the household cash income (Figure 3.1). Other NTFPs, not including firewood, contributed a total average of 394 000 Kip/year (15 per cent). The other single major sources of income were driving a *tuc tuc* and livestock, contributing an average of 689 000 Kip/year (16 per cent) and 400 000 Kip/year (27 per cent), respectively. These figures show that bitter bamboo and other NTFPs are major sources of cash income for the village as a whole.

For a clearer idea of NTFP contributions to individual household income, income value was calculated only for households who derived income from the specified source (Figure 3.2). For example, only four households received income from livestock last year, which amounted to a household average of 900 000 Kip (Figure 3.2). The previous chart showed that livestock was less than half as important as bitter bamboo to the village economy, while this chart shows that its economic value was comparable to bitter bamboo at the household level. Because all households collected bitter bamboo, its value was constant in both charts.

At 6 200 000 Kip/year, driving a *tuc tuc* (for one household) was nearly six times more profitable than bitter bamboo (which is why it does not appear on the chart). These data suggest that collection of NTFPs equals or outweighs most common economic opportunities in the locality, but not more advanced options such as driving a *tuc tuc*. Hence, NTFP collection in Nam Pheng may be an important stepping stone to economic advancement, but probably insufficient to command major economic gains.

Figure 3.1 Estimate composition of household cash economy



- a. "Other NTFP" comprised tut tieng bark, bamboo worms, orchids and wild ginger
- b. "Other cultivation" comprised home garden vegetables and sesame

Figure 3.2 Averages based on households with the specified income source



- a. "Other NTFP" comprised tut tieng bark, bamboo worms, orchids and wild ginger
- b. "Other cultivation" comprised home garden vegetables and sesame

3.1.2 Economic valuation of bitter bamboo (Indosas sinensis)

Calculation of inputs, outputs and profits

Inputs for collecting bitter bamboo shoots were only collecting, selling, and periodically attending meetings for the Marketing Group. The NTFP Project had introduced various silvicultural techniques to improve shoot production, but villagers had not adopted them.

Collecting included travel time to and from the collection site and was

Calculation of day wage rate

The economic valuation for bitter bamboo showed that collectors harvested an average of 11.66 kg/day worth 19 560 Kip (Table 3.1). The day wage value is worth over ten times their main livelihood activity, slash and burn upland cultivation (Table 3.3). It is comparable to the higher end income opportunities available to Nam Pheng villagers, namely road construction, heavy agricultural labour and sale of fuelwood. The difference is that these opportunities are sporadic, or villagers have to leave Nam Pheng to find them. For fuelwood, restaurants from the border juncture come around about three times per year and villagers usually sell what they happen to have in store.

Table 3.1. Cost-benefit analysis for bitter bamboo

Table 3.2. Cost-benefit analysis for cardamom

Households Inputs (days)	Si Sun	Kham	Th.Num	Lot In	So	Som Khit	Long	Kham La	Ping	Ken	Average
Patrolling	4.00	0.29	5.00	8.57	0.00	12.00	0.00	5.14	0.00	5.00	4.00
Collecting	6.86	3.86	2.14	6.43	13.14	27.43	8.57	22.86	12.00	6.86	11.00
Cleaning	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Decorticating and drying	2.86	10.29	1.71	3.43	8.57	4.00	6.43	11.43	4.29	3.43	5.60
Selling	0.00	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	4.00
Meeting	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.40
<i>Total</i>	15.14	15.87	10.31	19.88	23.43	44.88	16.45	40.88	17.74	16.74	22.10
Output											
Harvest (kg)	15.00	9.00	9.00	25.00	27.90	32.00	13.00	30.00	7.70	12.00	18.10
Value (1000 Kip)	202.50	121.50	121.50	337.50	376.65	432.00	175.50	405.00	103.95	162.00	243.80
Profit											
Kg/day	0.99	0.57	0.87	1.26	1.19	0.71	0.79	0.73	0.43	0.72	0.80
1000 Kip/day	13.37	7.66	11.79	16.98	16.08	9.63	10.67	9.91	5.86	9.68	11.20

Table 3.3. Comparison of bitter bamboo and wild cardamom collection with other income opportunities

Income activity	Kip/day of labour
Hiring out labour for road construction	20 000
Hiring out heavy labour for agriculture	20 000
<i>Collection of bitter bamboo (hi estimate)</i>	19 560
Collection of fuelwood	17 000
<i>Collection of bitter bamboo (lo estimate)^a</i>	13 500
<i>Collection of wild cardamom</i>	11 200
Hiring out light labour for agriculture	
Slash and burn cultivation	

Participant estimates of inputs and outputs for bitter bamboo varied widely. For example, the estimates of bitter bamboo collected by one person in one day ranged from 4.20 to 17.79 kilograms. In addition, the average annual income from bitter bamboo calculated according to the cost-benefit analysis was 3 419 397 Kip⁶, which is three times more than the 1 033 000 Kip that participants estimated directly (see Figure 3.2). Therefore, an alternative calculation was made that included only households within one standard deviation of the mean. Based on this calculation, which included only four households, the day wage value was 13 500 Kip. This represents a more modest, but still considerable return on labour.

3.1.3 Economic valuation of wild cardamom (*Amomum sp.*)

Calculation of inputs, outputs and profits

Inputs for cardamom were similar to bitter bamboo, with the addition of

⁶ Estimate is scaled down by 0.90 to match the sample of nine households calculated in Figure 3.2.

patrolling, cleaning, decorticating and drying. The NTFP Project had suggested opening canopies and tested drying ovens, but neither of these innovations was adopted. Apparently, traders paid the same price for dried cardamom as fresh.

For **patrolling**, all households agreed to report potentially threatening activity to the Group Committee, such as signs of fire or intrusion by wild-life or collectors from other villages. In some cases, villagers spent several days watching over the area. Only one household said that they spent time **cleaning** cardamom. **Decorticating and drying** occurred simultaneously, usually in the evenings after collection. Collectors decorticated the fruit in the kitchen, while watching over the stove for drying. The times estimated for decorticating and drying were very approximate because these activities are done quite leisurely with various people in the family joining in and leaving throughout the evening.

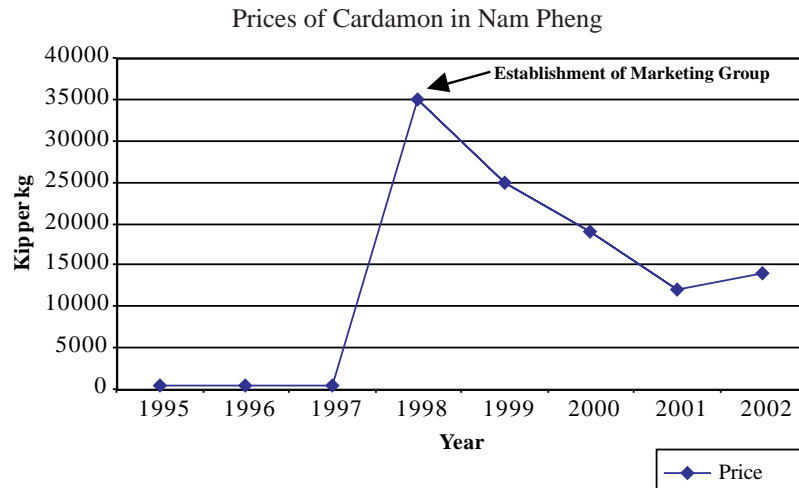
The output and profit were calculated in the same way as for bitter bamboo⁷. The price this year for cardamom was 14 000 Kip/kg, of which 13 500 Kip went to the collector.

Calculation of day wage rate

The day wage value of cardamom was estimated at 11 200 Kip. The labour returns are modest, as seen in Table 3.3. It is worth about half of what can be earned by renting labour for road construction, heavy agricultural work and collecting fuelwood, without considering the drawbacks discussed earlier. However, villagers reported that the price of cardamom had fallen considerably since the Marketing Group first began trading in 1998 (Figure 3.3). If calculated at 1998 and 1999 prices, the day wage would be closer to 25 000 - 30 000 Kip/day, which is higher than any of the other income alternatives listed in Table 3.3.

⁷ One of the researchers recorded output as fresh cardamom, which was scaled down by a factor of ten to correspond to the weight of dried cardamom.

Figure 3.3. Falling local prices for cardamom



The economic valuation of bitter bamboo and cardamom showed that they provided modest returns on labour, but were important income generation activities. The availability of bitter bamboo for four to five months per year has made it the primary source of cash income for villagers. The local price of cardamom has dropped in recent years, but at its 1998 and 1999 levels it yielded the highest day wage among other income opportunities available. Perhaps the clearest indicator of the value of bitter bamboo and cardamom is the household's economic decision to partake in their collection and trade. Participants collected bitter bamboo last year for an average of 131 days, accounting for 95 per cent of the days in the harvesting season. Cardamom was collected for an average of five days, amounting to half of the days in the harvesting season (which is probably lower due to the recent drops in price). This data supports the conclusion that although an activity of modest labour returns, collection of bitter bamboo is among the most important income generating options available to villagers in Nam Pheng.

3.2 *Increased wealth and reduced poverty*

3.2.1 *Increased wealth and reduced poverty*

Villagers who took part in the participatory assessment defined wealth ranking criteria for both 1996 and 2002 as:

Well-off: permanent house, equipment and accessories (e.g. truck, TV/VCD), enough money or rice for one year, some livestock and enough labour.

Middle: semi-permanent house (i.e. thatched grass roof, stripped bamboo walls), insufficient money or rice for half year, few livestock and enough labour.

Poor: temporary house (i.e. bamboo or small trees for beams and pillars), insufficient rice for full year, no livestock and insufficient labour.

The wealth rankings showed that the rate of poverty decreased from 33 percent to 18 percent between 1996 and 2002 (Table 3.4 and Figure 3.4).

The rate of both middle and well-off households increased by 75% (Table 3.4 and Figure 3.4).

Figure 3.5. Changes in wealth ranking for households existing in 1996 and 2002

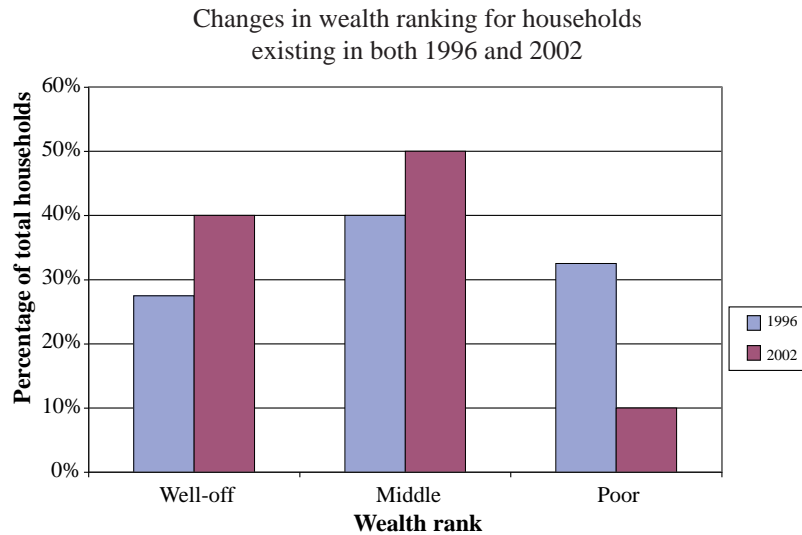


Table 3.4. Changes in village wealth ranking 1996-2002

Wealth rank	1996		2002		Difference	
	Count	Percentage	Count	Percentage	Count	Percentage
Well-off	11	26%	17	34%	+6	+8%
Middle	17	40%	24	48%	+7	+8%
Poor	14	33%	9	18%	-6	-15%
Total households	42	100%	50	100%		

However, in 2002, five of the nine poor households had only been recently established. If only the households that existed from the beginning of the NTFP Project are counted, the gains are even larger. Their poverty rate decreased by more than two thirds, from 33 to 10 percent, and the rate of middle and well-off households increased by 10 to 12 per cent (Table 3.5 and Figure 3.5).

Representatives of poor households described their reasons for poverty as lacking labour due to death, divorce, illness and old age. During discussions with eight randomly selected households, villagers suggested that availability of labour was the main factor for their graduation from poor to middle class. Many of these households were described as having young children and/or

Table 3.6. Changes in development indicators between 1996 and 2002

Indicator	1996	2002
Food security ^a	25-30 households lacked rice for 3-4 months	Food is secure
Child mortality <5	10	0
Illnesses	Malaria, diarrhoea and lung infection (for elderly)	Same illnesses, but now able to access medical services and purchase medicines
Education	30 children	67 children - 33 in primary school - 19 in secondary school - 15 in tertiary school 36 of total are girls ^b
Agriculture & Forestry	0 ha of paddy rice 45 ha of upland cultivation Unavailable ^c	5 ha of paddy rice 30 ha of upland cultivation 515 ha of bitter bamboo forest
Animal husbandry	60 cattle 10 buffalo 13 goats 30 pigs 100 poultry	28 cattle 12 buffalo 55 goats 40 pigs 200 poultry

a. According to the estimations of the village leader and deputy

b. Village leader later drew this figure from a total of 73 children, which differs from the previous figure of 67 but still suggests that enrolment more than doubled.

c. Areas of bitter bamboo collection in 1996, before land allocation, and other areas of wild NTFP collection currently available were difficult for villagers to estimate.

Food security: Nowadays, the village leader describes food security as being “not much worry”. Although most households are still unable to produce enough rice for one year from upland cultivation, they now have money to purchase rice. Previously, households had to take on more desperate or risky labour tasks to get money for rice, such as working outside the village or cutting illegal timber, and/or cut rations.

Health: The village leader and deputy counted ten children under the age of five that died in 1996. Villagers in the participatory assessment suggested that, previously, three to five children under age five died every year in Nam Pheng. But in 2001 and 2002 no deaths of children under age five were recorded. A main reason was a Red Cross health promotion program in Nam Pheng. However, the role of cash income generated from NTFPs in attaining food security, improving nutrition and making medical services more accessible was also important.

Education: A major reason for the doubling of school enrolment rates was that the NTFP Project built a two-room school in Nam Pheng, whereas previously children had to travel to the neighbouring village of Na Hom. Strengthened household economies may have also freed up children from labour duties at home, especially for girls.

Animal husbandry: Villagers described increases in livestock as indices of wealth. Surplus cash is often invested in livestock. The increase was mostly in small livestock, such as chickens, pigs and goats. Villagers explained that numbers of cattle declined because they were fed up with losing them to diseases and road accidents.

3.2.3 New infrastructure and services

Since the inception of the NTFP Project, Nam Pheng has built new infrastructure (e.g. meeting room, water supply system), purchased new equipment (e.g. electric generator, rice mill) and funded new community services (e.g. credit fund, one school teacher) (Table 3.7)

Table 3.7. New infrastructure and services

Sponsored by NAFRI-IUCN NTFP project	Funded by NTFP Fund	Purchased by individuals (through credit from NTFP Fund)
<ul style="list-style-type: none"> • Rice bank (1997) • 3 clean water taps (1999) • 2-room school (1998-1999) 	<ul style="list-style-type: none"> • Electric generator for village (1999) • Meeting room (2001) • Village food storage house for WFP project (2002) • Credit fund (annual annual) 	

projec7

Many of the improvements in infrastructure and services resulted directly from the NTFP fund or indirectly through its private loans. Even though some equipment may be privately owned, it often becomes available to other villagers, even if for a fee. For example, the tuc tuc became a source of income for one household, as well as a travel and transportation service for other households. The items sponsored by the NTFP Project are also included in the list to give evidence that conservation projects have a vested interest in livelihood development.

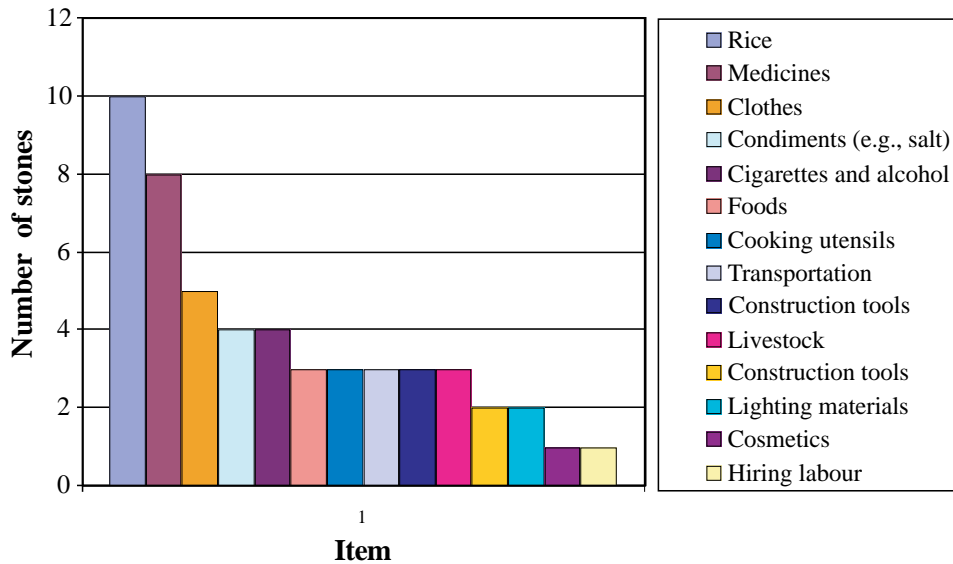
3.2.4 *Wider range of expenditures*

Between 1996 and 2002, villagers of Nam Pheng showed an increase in range of expenditures, testifying to an improved quality of life and increased opportunity (Table 3.8 and Figures 3.6 and 3.7).

Table 3.8. Women's and men's ranking of expenditures in 1996

Year 1996	Women			Men		
Category	No. of stones	%	Rank	No. of stones	%	Rank
Clothes	8					
Medicines	5					
Food stuffs	5					
Farming tools	2					
	5					
	2					
	5					
	3					
	2					

Figure 3.7. Men’s ranking of expenditures in 2002



Women commented that expenditures increased because of cash income generated from NTFPs. They now buy more clothes, books and other school supplies for children. They use plates, bowls, spoons, lighting materials and other home goods, whereas before they did without them or used less durable materials from the forest. Young women had become more interested in cosmetics from watching TV and visiting other areas. Some households were even able to hire labour, mainly to open up paddy fields.

Women reported that expenditures on medicines decreased because of improved health awareness and free medicines from the Red Cross programme. But men argued that expenditures were the same as before because costs were higher.

3.2.5 Other benefits

In addition to these tangible improvements, the NTFP Field Office in Oudomxay identified important non-cash and immaterial benefits resulting from project activities. They included:

Box 1. Mr. Som Khit - Picking a path out of poverty with NTFPs

Mr. Som Khit and his wife were a poor household when the NTFP Project first arrived in Nam Pheng. Their main hardship was the illness of Mr. Som Khit's wife, who had problems with blood circulation and became emaciated. They spent much time travelling to consult with different doctors and much money on medicines. Once they tried a medicine that cost 700 000 Kip (worth approximately USD 500 in those days), advised to them by a doctor from Luang Nam Tha. Mr. Som Khit said he worked extremely hard collecting bitter bamboo, cardamom, and slaughtering all their livestock, including two that were sacrificed to the gods. They also had to borrow 150 000 Kip from the NTFP Fund to stay afloat.

Mr. Som Khit's wife began recovering in 1998-1999 and gradually they began rebuilding their household economy. Their main sources of income came from collecting bitter bamboo shoots and raising pigs and goats. Even the pigs and goats had been purchased from the money that they had saved from collecting bitter bamboo. Now restored to health, Mr. Som Khit's wife was the primary collector. She collected while Mr. Som Khit prepared their upland fields, which had been mostly abandoned. He only maintains a small area for growing melons, cassava and maize between rows of upland rice and along borders. The rest of their time they spend on growing paddy rice, raising livestock and collecting NTFPs, such as bitter bamboo, cardamom, tut tieng bark, mushrooms, orchids and bamboo worms. According to the current research, collecting NTFPs last year accounted for 85 per cent of their cash income, of which bitter bamboo was 49 per cent and cardamom and mushrooms were 12 per cent.

Mr. Som Khit and his wife now rank as a middle-income household. The main reason that they overcame poverty was Mr. Som Khit's wife recovery from illness. But collecting NTFPs sustained them during illness, helped them to rebuild their household economy after illness and continues to be the main driver of their household economy.

Box 2. Mr. Kham La - NTFPs as a vital source of income to poor households

Mr. Kham La is the head of a poor household that has not yet been able to overcome poverty. When the NTFP Project began in Nam Pheng, Mr. Kham La was alone with three young children, two daughters aged five and ten, and one son aged seven. His wife had died three years earlier while giving birth. Only the son went to school while the girls worked at home.

Each year Mr. Kham La's family was unable to produce enough rice from upland cultivation, except for 1994-1995 because, he said, everyone had been unusually healthy that year. Usually, somebody in the family was ill, often from malaria. This meant loss of labour due to illness and tending to the ill person. Tending to illness was especially time consuming and difficult back then when modern medicines were unavailable and treatment was with local herbs. Mr. Kham La got by only by making handicrafts from bamboo and collecting NTFPs, such as bitter bamboo, cardamom and small wildlife. He said that in those times NTFPs were easy to find, but difficult to sell.

Mr. Kham La's home situation has improved appreciably since the beginning of the NTFP Project, though his household is still ranked as poor. With the establishment of the Marketing Group for bitter bamboo and cardamom, Mr. Kham La has been able to earn more income than before. He said that he has used this money to buy his children's clothes and school supplies, kitchen utensils, and medicines, which have contributed to his family's cleanliness, sanitation, health and quality of life. Through the NTFP Project, Mr. Kham La said that he learnt how to trade better and use money more effectively. During that time, Mr. Kham La also remarried with another widow who had three children of her own. Currently, all six of their boys and girls go to school. Last year, Mr. Kham La abandoned his upland fields to cultivate paddy rice, which he has been gradually preparing since 1992. Cultivating paddy rice, he said, has helped him save time to produce more handicrafts and collect more NTFPs. Last year, NTFPs generated virtually all of Mr. Kham La's cash income.

Mr. Kham La recognises that life has improved, but complains that it is still difficult. All his children go to school, the house and their clothes are cleaner, and illness is less frequent. But, he said, work is still hard and the children keep asking for more and more, new shoes, new shirts, new school supplies.

3.3

3.3.1 *Social equity*

The NTFP Project showed remarkable achievements in distributing benefits equitably. Because forests were allocated to the village, all households had access to them. In addition, the NTFP Fund proved effective in generating communal benefits, such as electricity, credit fund, school teacher, meeting room and food storage house. In Na Hom, a portion of the NTFP Fund was used as a relief fund, where households in especially difficult circumstances could borrow money without interest rates.

One area that may need further attention regards neighbouring villages. Forestland allocation restricted harvesting from other villages, which may

the village) and only one woman (Head of Women's Union) was included among its associated members. The additional positions in the Marketing Group were also contracted to men because they had more experience in commerce and administration.

3.4 Environmental Impacts

The scope of the current study did not allow for direct assessments of the resource base. However, some indications of impacts on forests were garnered from interviews with government officials, community leaders and villagers. Perhaps the most significant impact on forests was the reduction by one third of upland cultivation (see Table 3.6). The main reason is likely due to forest allocation in Lao PDR, which has restricted the area available for upland cultivation. However, NTFP collection has also been helpful in generating income for villagers to invest in paddy fields, as mentioned in Section 3.2.4. It is unclear how forestland allocation will impact on yields from upland cultivation over the long-term and what will be the consequences natural resource management.

Villagers also suggested that illegal cutting of timber had decreased because of increased food security. Some villagers also said that the availability of NTFPs had increased since they began sustainable harvesting. One villager noticed particular increases in mushrooms, rattan and wildlife. He also suggested that he heard more birds and saw more squirrels than before. An NTFP Officer for PAFO suggested that forest cover in Nam Pheng had increased since the inception of the NTFP Project.

Increased interest in NTFPs can also mean increased pressure on forest resources. However, villagers in Nam Pheng suggested that they were now better able to respond to these threats. The current harvesting situation for an emerging market of a wild red mushroom⁸ is similar to previous times

⁸ The exact species was unable to be identified during the time of research.

with bitter bamboo and wild cardamom. Villagers race against each other to collect them, leading to premature and destructive harvesting. In response to this situation, villagers said they intended to meet before the mushroom season of 2001 to discuss harvesting rules and establish a system of fines. Their experiences with bitter bamboo and cardamom will surely provide them with valuable lessons and skills for addressing these issues.

3.5 Unintended Negative Impacts

Unintended negative impacts were not easy to identify. Villagers, community leaders, and district and provincial officials all expressed satisfaction with the project's activities. Their only major concern was the falling prices of cardamom (Figure 3.3). The falling prices draw attention to the risks inherent in relying on markets for NTFPs, which can be notorious for boom and bust cycles. However, Nam Pheng villagers appeared to mitigate risk effectively by collecting a variety of NTFPs, practicing different livelihood strategies and maintaining staple crops. Support in market analysis could help villagers to foresee and respond to these trends.

3.6 Scaling up

“Scaling up” may occur horizontally or vertically. Horizontal scaling up refers to using the same approach, method, product, etc. in a different place, while vertical scaling up refers to using them on a larger scale. The great interest in NTFPs among government offices and international organisations operating at district, provincial and national levels as a result of the NTFP Project is testimony to horizontal scaling up. Evidently, the NAFRI and IUCN cannot take credit for all the NTFP initiatives that subsequently developed in Lao PDR, but the project is generally recognised as innovators and an important resource for NTFPs. Some evidence of vertical scaling up existed at the provincial level, but this remained a challenge at the national level.

3.6.1 National and international projects and programmes

The acting director of PAFO claimed that the NAFRI-IUCN Project had made them famous. The outside interest is reflected in the numerous organisations that have visited the Nam Pheng field site (Table 3.9).

Faculty of Agriculture and Forestry

Previously, marketing research on NTFPs was carried out in collaboration between the Faculty of Agriculture and the French research institute OSTROM. The Faculty of Forestry has researched botanical issues, notably bamboo and rattan. Some activities have been carried out in Houaphan province. One PhD student is about to research the impact of land-allocation on NTFPs and user rights.

Food and Agriculture Organisation (FAO)

In 2001, FAO launched a project together with the Ministry of Forestry on marketing information and extension, emphasising agricultural products. FAO is interested in broadening its scope, which would include forestry products and will likely focus on marketing and agro-forestry for NTFPs. Previously, FAO had conducted research on Benzoin in Luang Prabang (1996-1998).

The following agencies worked on NTFPs at the provincial level:

- UNESCO Nam Ha Eco-Tourism Project in Luang Nam Tha (link with eco-tourism)
- World Conservation Society in Luang Nam Tha (NTFP feasibility study and cardamom)
- Friends of Upland Farmers (FUF) in Luang Nam Tha (cardamom)
- GTZ project in Sing and Nale districts in Luang Nam Tha (cardamom)
- EU IRDP in Luang Nam Tha (cardamom) & new EU project in Luang Nam Tha
- ZOA in Luang Nam Tha (cardamom)
- EU micro-projects II in Luang Prabang (paper mulberry bark) & new EU project in Luang Prabang
- Lao Swedish Forestry Project in Luang Prabang and Oudomxay
- Projet du Development Rural du District de Phongsaly (cardamom)
- DWH/GAA in Oudomxay (honey)
- IFAD program in Oudomxay (loans of 13.4 million USD in which NTFPs are an important component)

- Nam Tan project in Sayaboury (NTFP feasibility study)
- PDRPB project in Champassak (cardamom)
- SUNV pilot eco-tourism project in Savannaketh (link with eco-tourism)
- CUSO in Saravan and Sekong (link with conservation issues)

(de Koning, undated, p.8)

Interviews and the wrap-up meeting revealed a few other initiatives that suggested some vertical scaling up at the central level:

NAFRI

NAFRI developed a research programme that included a major component on NTFP research derived from the findings of the NTFP Project.

SUNV

A SNV-UNV co-operation is conducting an institutional analysis and intending to develop a technical assistance framework for the NTFP sub-sector.

Forestry Education Project

GTZ has been working with the Faculty of Forestry at the National University to integrate NTFP management and conservation into the forestry curriculum. They said that documents from the NTFP Project were their main source of materials. They were also developing “model forests” at a practicum station, where they conducted trials on rehabilitating forests with bamboo and enrichment planting with rattan.

Forestry Research Centre

Extension services for upland cultivation were developing agro-forestry models in two districts in Luang Prabang, in which they intended to incorporate NTFPs.

Other projects expressed interest in developing NTFP activities, but were as yet uncertain on how to proceed, such as JICA, SFPS, and IFAD.

The GAA project in Oudomxay provided an illuminating example of how the NTFP Project had influenced methods and activities for NTFP development in another project (see Box 3).

Box 3. Following suit in Oudomxay province

The GAA project in Oudomxay province is a three year pilot project worth USD 500 000 and expected to extend until December 2005. It is currently implemented in 15 villages in two districts. Its main goal is rural livelihood development for watershed conservation through four main components: (1) infrastructure and sanitation; (2) livestock and micro-finance; (3) agronomy; and (4) NTFPs and natural resource management. A Laotian field officer from the NAFRI-IUCN NTFP Project was hired as a technical advisor for the last component. According to him, the NTFP component is a top priority and its budget equivalent to the budget for infrastructure and sanitation. The GAA project has borrowed from the NAFRI-IUCN Project in the following ways:

Models and products

- Six ovens for drying cardamom and other NTFPs, as tested in Nam Pheng
- 20 hectares of cardamom plantation of the variety introduced in Nam Pheng

3.6.2 Provincial Agriculture and Forestry Office in Oudomxay

The acting director of PAFO in Oudomxay expressed a strong interest for NTFP development. Over the past two years, PAFO invested 30 million Kip in 2001 and another 50 million Kip in 2002 to supply some 50 hectares of cardamom plantation, using the variety introduced by the NTFP Project. Funding was provided by the central government, based on a request from PAFO. In previous years, these funds were used to introduce new rice varieties, fruit trees, animal husbandry and irrigation.

PAFO also maintains two full-time staff in the NTFP office that was established during the NTFP Project. However, lack of budget makes the NTFP Office increasingly difficult to maintain and no money is available to develop activities. The main functions of the office are to provide information and regulate the private sector in the provincial capital, such as furniture processors and distillers of eaglewood.

3.6.3 District Agriculture and Forestry Office in Namô

DAFO in Namô District also expressed a strong interest in NTFPs. The acting director expressed many ideas for future NTFP development, including aspirations to support marketing for *tut tieng* bark and wild mushrooms, plantation trials for eaglewood, and processing for bitter bamboo shoots and handicrafts. However, if PAFO is already constrained by budget, DAFO is even more so.

Nonetheless, DAFO has been able to support various coordination initiatives since the termination of the NTFP Project, which have supported collectors of NTFPs in Nam Pheng and other villages. They include:

- organising a workshop in October 2001 with six to seven villages to learn from experiences with Nam Pheng village (Nam Pheng funded the hospitality lunch from the NTFP Fund);
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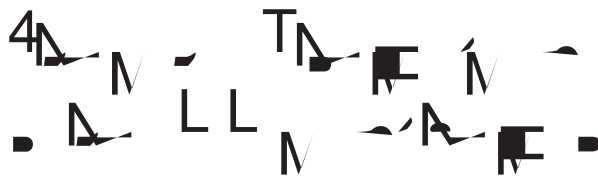
- households to treat persons suffering from illness in the family; and
- a credit fund with ten per cent interest rate that has provided loans to six households, mostly to open up paddy fields (e.g. purchase a buffalo for labour) and purchase livestock (e.g. ducks, chickens, pigs).

Community leaders in Na Hom estimated that harvesting bitter bamboo shoots brought the following levels of annual income to households, depending on availability of labour:

Table 3.10. Estimated annual income from bitter bamboo shoots



Labour availability of household	Estimated annual income
High	1 500 000 Kip
Medium	800 000 Kip
Low	500 000 Kip

Real spontaneous adoption to other villagers has been more difficult, as encountered by the GAA project in Oudomxay. GAA brought a delegation of villagers and local leaders from one of their project sites to learn from the experiences of Nam Pheng. However, without further project support, the villagers have had difficulty in establishing effective NTFP management regulations. According to a GAA technical advisor, it was a new way of organising and villagers are distrustful of the Group Committee.



Since the NTFP Project first started in Nam Pheng village, considerable advancements have been made in reducing poverty and improving livelihoods. Poverty rates reduced by at least one half; food security increased; child mortality of children under five was eradicated in the past two years; school enrolment doubled (over half of whom are girls); and savings increased, as shown through increases in livestock. The village acquired new infrastructure and new services, while the range of expenditures of villagers widened. Although many different factors were at work in these achievements, NTFPs played an important role, as indicated by their predominant position in household economies and testimonies of the villagers themselves. Currently, collection of bitter bamboo, cardamom and other NTFPs continue to be the main sources of income for the majority of households in Nam Pheng.

In turn, the economic values of NTFPs have provided incentives for villagers to manage forests, including 515 hectares of bamboo allocated as village forest. Villagers in Nam Pheng said that the NAFI-IUCN project “opened their eyes” to NTFPs, which meant an appreciation of forests as an economic asset as opposed to an economic hindrance. Forest allocation gave Nam Pheng village legal authority over a defined natural resource area, which helped them to regulate conflicts from within the village and resist incursions from without. Perhaps the most important element of success was the organisation of the Marketing Group. The Marketing Group enabled villagers to co-ordinate sustainable harvesting regimes, produce on large scale and negotiate better prices with traders. This type of local level empowerment was made possible through supporting local institutions (e.g. support in organising and managing the Marketing Group), skills building for individuals (e.g. using scales, ongoing technical support by project officers), and creating a supportive political and legal framework (e.g. forestland allocation, intermediation by DAFO with border officials).



However, despite these advancements, Nam Pheng is still at a relatively low level of development in conventional terms. Hence, it is unclear what levels of economic wealth can be reached by NTFPs alone. NTFPs seemed to serve as a stepping stone to larger capital investments for several households, such as a *tuc tuc* and more livestock. But it is also unclear how the relationship between economic advancement and eco-system management changes at wealthier levels. This is an area that requires further study. This study showed how conservation activities have been effective in helping a remote mountainous community step out of poverty and secure more sustainable livelihoods.

Impressive strides were also taken in equitable and sustainable growth. Common access to forests allowed all villagers to partake in project benefits, as opposed to privatised commercialisation activities that tend to favour wealthier farmers with more land, labour, capital, risk tolerance and social and political influence. The NTFP Fund also proved effective to help redistribute benefits on a community level, through investments in infrastructure, equipment and services. In Na Hom, the NTFP Fund was used to target the poorest households by supporting an emergency relief fund for households in sudden crisis. The Women's Union had similar ideas to use revenues from bitter bamboo collection to address women's needs.

The accomplishments of the NAFRI-IUCN NTFP Project have sparked much interest from government offices at national, provincial and district levels and international organisations. Many of them have begun their own initiatives with NTFPs. The NTFP Project helped introduce NTFPs into the national research agenda through NAFRI. PAFO in Oudomxay invested in the expansion of a variety of cardamom used by the NTFP Project. An issue for further consideration is how these types of projects can draw the attention of national level policy makers and economic planners.

Based on the discussion in this paper, the following recommendations are proposed:

- *Managing risk*

Any activity that promotes a transition in production scales from consumption to market needs to pay attention to market risks. Attention to marketing issues should be a key component. Farmers should also be encouraged to diversify livelihood strategies and maintain staple



“Case study on the Marketing Group of bitter bamboo shoots in Nam Pheng