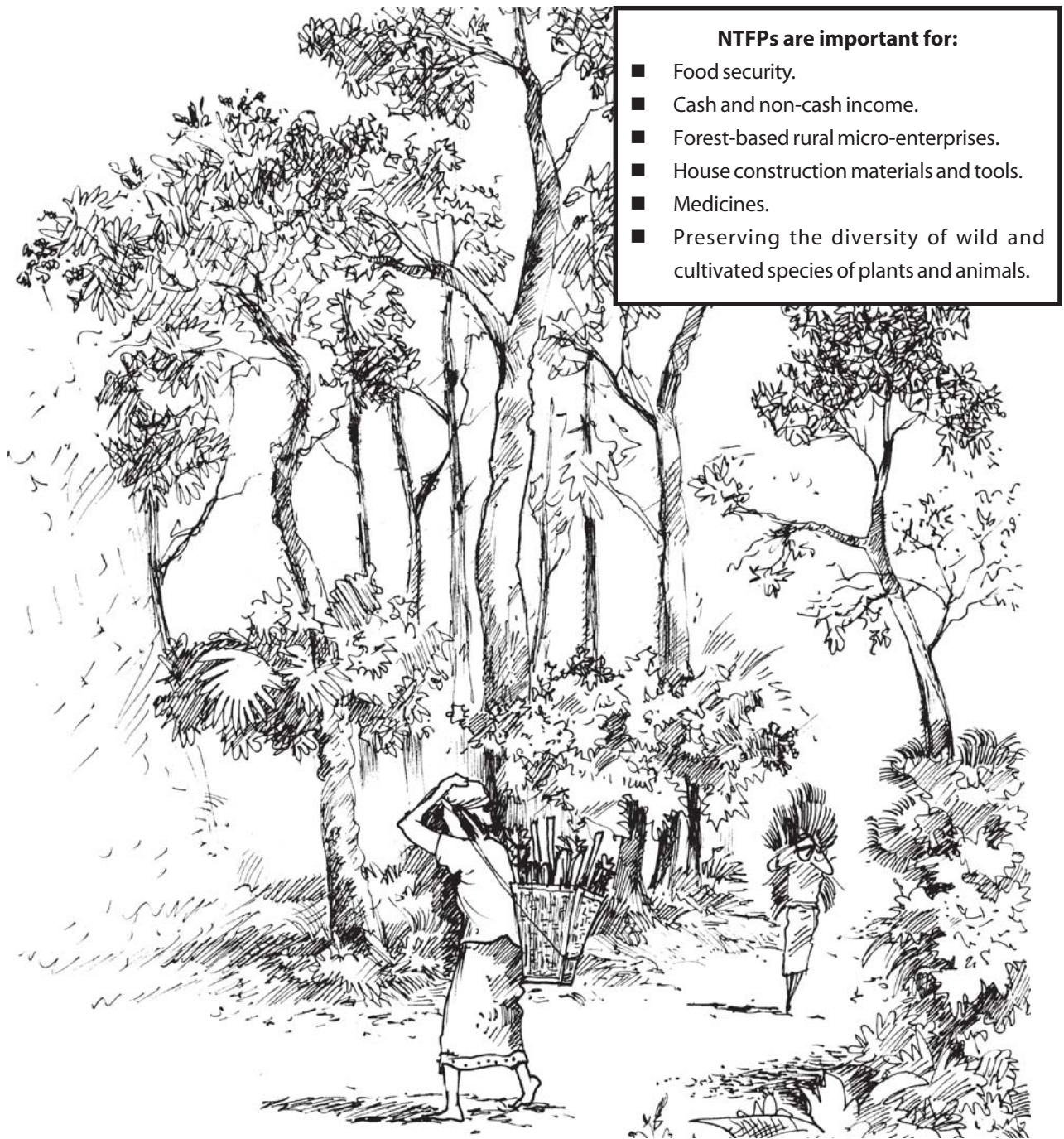


The Importance of Non-Timber Forest Products in the Lao Uplands



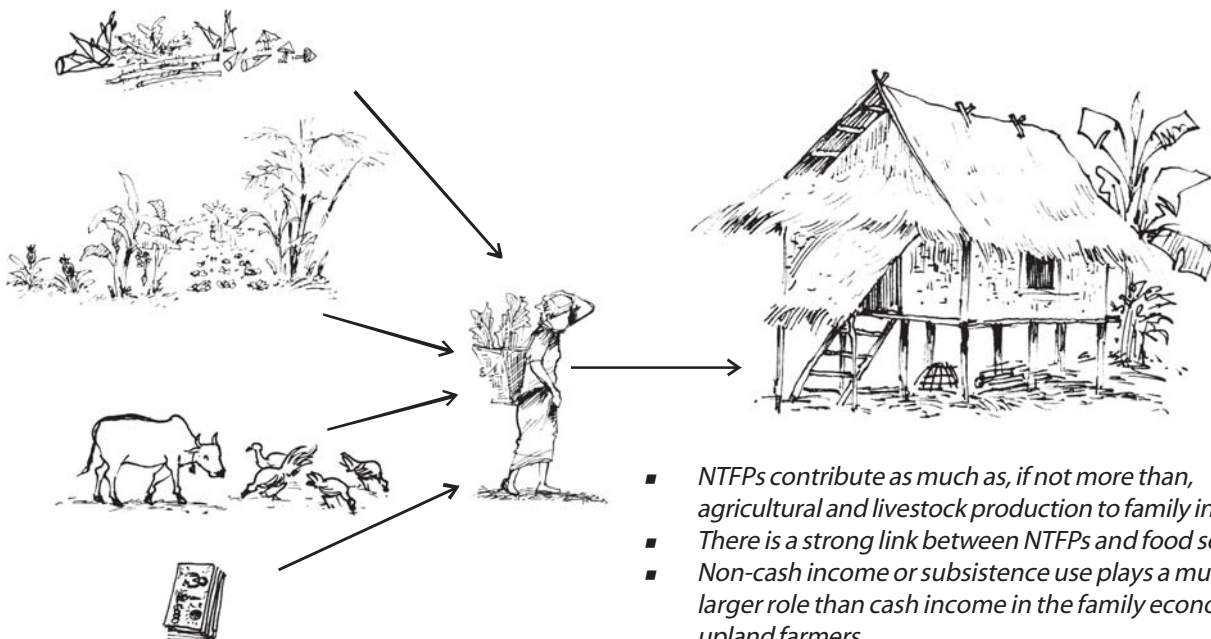
In the uplands of the Lao PDR, the gathering of Non-Timber Forest Products (NTFPs) is as important to human livelihoods as agricultural and livestock production. NTFPs provide food security and are the main source of cash income for the people of the uplands. NTFPs are promising for the development of forest-based rural micro-enterprises as a poverty alleviation strategy and also provide a good entry point to community-based land-use planning.

Exported NTFPs	Subsistence NTFPs
1 Broom grass (<i>Thysanolaema maxima</i>) Khaem	1 Forest vegetables
2 Sweet palm fruits (<i>Arenga westerhoutii</i>) Tao	2 Bamboo shoots
3 Paper mulberry (<i>Broussonetia papyrifera</i>) Por sar	3 Rattan
4 Benzoin (<i>Styrax tonkinensis</i>) Nyarn	4 Mushrooms
5 Peuak meuak (<i>Boehmeria malabarica</i>)	5 Wildlife
6 Eaglewood (<i>Aquilaria</i> sp.) Mai ketsana	6 Bamboo
7 Bitter bamboo (<i>Indosasa chinensis</i>) Nor khom	7 Popiet (<i>pueraria phaseoloides</i>)
8 Cardamom (<i>Amomum</i> sp.) Naeng	8 Forest fruits

Many NTFPs are derived from the mosaic of forests and fallows created by shifting cultivation. Literature on shifting cultivation tends to emphasise the agricultural component of the system, describing fallow vegetation and regenerating forests mainly as factors that contribute to crop production through soil fertility, weed suppression and erosion prevention. Over the last ten years however, a body of evidence has emerged on the importance of NTFPs in Lao upland livelihood systems and on the productivity of shifting cultivation systems in terms of forest products.

The role of NTFPs in the upland family economy

Roughly 70% of Lao people live in the uplands. Around half of these practice shifting cultivation in some form or another, often in combination with other farming systems (UNDP 2002). The mosaic landscape of these uplands results from a long history of shifting cultivation. It consists of a variety of forests and fallows, which produce a great amount of valuable NTFPs. These provide a basis for export, cash income and subsistence (non-cash income) for rural families.



- NTFPs contribute as much as, if not more than, agricultural and livestock production to family incomes.
- There is a strong link between NTFPs and food security.
- Non-cash income or subsistence use plays a much larger role than cash income in the family economy of upland farmers.

Annual family cash income from NTFPs varies from US\$69 in Khammuane to \$127 in Luang-prabang, providing on average around 45% of family cash income (Foppes and Ketphanh 2000; Yokoyama 2003). However, cash usually forms less than a quarter of total family income: Lao families directly consume most of the crops and products they collect from nature.

This non-cash income contributes as much as 75-84% of total family income and NTFPs provide up to half of this, with an equivalent value of \$269-398 per family per year.

Time spent on gathering NTFPs and on agricultural production

A study in Phongsaly cites an average input of 210 labourer days per family per year for agricultural production (Baudran 1999). A recent study on harvesting of bitter bamboo shoots in Oudomxay quotes an average labour input per family of 195 labourer days per year (Morris and Ketphanh 2002). The same families also commercially harvest cardamom, *tout tiang* bark, red mushrooms and broom grass during other months of the year. For subsistence use, families need to collect palm leaves, bamboo, rattan, etc. for house construction and tools. In addition, every family has to collect firewood, vegetables, small water animals (fish, frogs, shells and crabs) and other food products for cooking every day. The total amount of time spent on NTFP gathering per family per year is probably greater than the time spent on agricultural and livestock production.



NTFPs, local knowledge systems, and genetic diversity

People who practice shifting cultivation in the uplands can easily describe the hundreds of NTFPs that they gather from forests, fallows and wetlands. These



'repertoires of knowledge' are one of the more visible parts of local knowledge systems, developed and maintained by local people over centuries. Other aspects include agricultural production and resource management systems, and beliefs and rituals.

There is growing recognition among social scientists that these local knowledge systems are essential for sustainable development and are a key factor in the vast genetic diversity of plants and animals found in the uplands of Southeast Asia (Santasombat 2003).

Through their practices of shifting cultivation and NTFP gathering, upland peoples have actively maintained a wide variety of wild products in the landscape. Local knowledge systems and local practices should not be regarded negatively. Government, researchers and development agencies need to rethink the role of shifting cultivation and local knowledge systems as part of the sustainable use of uplands and NTFPs, and the preservation of genetic resources.



How shifting cultivation produces a wide range of NTFPs

Shifting cultivation produces a landscape consisting of a mosaic of vegetation types, representing fallows and forests in various stages of regeneration. Each of these vegetation types produces its own specific set of harvestable products, or NTFPs.

Not all NTFPs are collected from mature forests; many are also found in young fallows, grasslands and wetlands. The variety of NTFPs is greater in a mosaic of vegetation type, as produced by shifting cultivation, than in a landscape covered by only one type of vegetation (crop fields, mature forest). The dynamics of fallow vegetations, how they depend on fallow length, soil type, slope aspect, previous vegetation etc, are still little documented and poorly understood.



Current trends in NTFP gathering in uplands of Lao PDR

NTFP gathering in the Lao PDR has changed more rapidly over the last decade (since the early 1990s) than in any other period of Lao history. The following four factors are the main drivers causing these changes:

1. Evolving markets for NTFPs

There is increasing trade in NTFPs with neighbouring countries such as China, Vietnam and Thailand (Yokoyama 2003). Exports of NTFPs from Laos are worth several million dollars per year. Products include medicines for the Chinese market, aromatic barks and woods, foods and fibres.

Trends in the commercial use of NTFPs are:

- Prices stay low, as markets are volatile and non-transparent and products are sold raw without any processing or quality control.
- Lack of a legislative framework to support sustainable trade in NTFPs.

Typical upland vegetation types and the products gathered from them

Vegetation type	Age of vegetation	Products collected
Upland rice field	01 years	7,000 or so rice varieties, 40-60 other crops
Young herbaceous fallow	1-4 years	Vegetables, grass for animal grazing, grass for thatch
Permanent grasslands	5 years and older	Grass for animal raising
Young secondary forest	5-15 years	Cardamom, <i>tout tiang</i> bark, <i>mak kha</i> fruits
Bamboo forests	5 years and older	Edible bamboo shoots, bamboo canes
Old secondary forest	Over 15 years	Timber, rattans

(Source: adapted from Pollini and Lamxay 1999)

Forest foods and food security

Food security is the overwhelming concern of most rural families in the Lao PDR. Especially in hilly areas, where people are dependent on upland rice cultivation, most families are unable to produce enough rice to feed their family all year round. The main coping strategies of poor families are:

- Complementing their diet with forest foods.
- Selling NTFPs to buy rice.
- Borrowing rice and paying back in labour.

A study on consumption of forest foods in three villages in Saravane showed that:

- Food security is an acute concern for most families in the study area.
- All families in the three villages collect forest foods on a daily basis.
- Villagers consume a great variety of forest foods, both animal and plant products.
- Forest foods are the most important source of food besides rice.

Forest foods provide unique advantages as a coping strategy for poor people:

- Availability and dependability.
- Diversity
- Nutritional values.
- Economic and cultural values.
- Forest foods can replace rice in times of great hunger.
- Forest foods can be exchanged for money to buy rice and avoid debt.



(Source: Clendon 2000)

- Increased gathering for trade leads to a rapid exhaustion of natural stocks for some NTFPs, e.g. eaglewood, or the aromatic barks of *Lauraceae* spp. such as bong bark.
- Increased demand for NTFPs starts to result in commercial plantation of economically attractive species like cardamom and bong bark.

2. Population growth

With an estimated population growth of 3.5% per year, the population of Laos can be expected to double within twenty years (Foppes et al. 1993). Without emigration or changes to more intensive land use systems, this population pressure will lead to a

shortening of fallow periods, to the extent that shifting cultivation will no longer be possible and natural supplies of NTFPs will disappear. Local communities often report declining availability of NTFPs over a time frame of about ten years.

The challenge remains to find out how conservation of upland resources can be combined with such a rapid population increase. Sustainable management of NTFPs in the wild will be an essential strategy in this, as will additional production of NTFPs from gardens and plantations. Research that builds on existing local knowledge is needed to develop these plantations.

Examples of declining NTFP resources due to increased population pressure

Forest dwelling communities can make good estimates of declines in off-takes of NTFPs. The village of Ban Nong Hin, Champasack, has developed management systems varying from rotational harvesting of rattans to prohibited fishing seasons or total hunting bans for certain species of wildlife.

NTFP	10 years ago	Today
Wildlife	Plenty of wildlife: turtles, monitor lizards, deer, snakes, jungle fowl, other birds. You could easily hunt them in your backyard. There was no outside market, no selling. Only our village hunted (9 families only).	Many species disappeared: turtle, deer, jungle fowl, birds. You can walk for 48 hours and still not get anything. Market demand is big, prices are getting higher (1 mouse-deer costs 12,000 Kip). Many outsiders come to hunt in our forest. Village has 57 families now.
Fish	You could catch 4-5 kg within 1 hour. There were only 9 families. No selling, no destructive methods used, only traps and nets.	You cannot even get 0.5 kg in 1 hour. There is not enough to feed all our 57 families. Strong outside market (2,500 Kip/kg). Destructive methods used by outsiders: explosives, guns, poison. Decline: 90%
Rattan	In 1 day, you could get 300 stems, or as many as a man can carry. We used to also have big diameter rattan, now only small diameter species.	You can only get 20-30 stems in a day. Harvesting has intensified over the last 2 years. 1 stem sells for 200 Kip. We know there is no quota but we need to sell anyhow. Decline: 90%.

Changes in off-takes per unit of effort for three key NTFPs over the last ten years (1989-1999), assessed by villagers of Ban Nong Hin, 17/2/99. (Source: Foppes & Ketphanh 2000).

3. Deforestation and NTFPs

Shifting cultivation is often cited as the main cause of deforestation. However, several studies have pointed out that commercial logging and conversion of forests for plantations (rubber, coffee) are the main causes of destruction of Lao primary forests (Ducourtieux 2000). Deforestation for commercial use often destroys the NTFP resources that local communities rely on.

4. Impact of land allocation systems on upland NTFP availability

The main impact on NTFP harvesting seems to be that policies on land allocation and reduction of shifting cultivation decreases the area of fallow land producing NTFPs. Land allocation policies may need to be revised to allow village communities to practice the long fallow rotational systems that provide them with the maximum range of NTFPs in a sustainable way.

Conclusion

If left unchecked, the key trends discussed above could lead to a rapid increase in poverty and a loss of natural resources and biodiversity. NTFPs are important for the survival of upland communities, both in terms of cash income as well as subsistence use. Shifting cultivation and NTFPs are closely related and both are part of local knowledge systems that should be preserved for sustainable use and conservation of wild and agricultural genetic resources. Developing long-cycle NTFP production systems that are suited to the ecology of the Lao uplands could stabilise shifting cultivation, protect watersheds and conserve the biodiversity of both wild and cultivated species of plants and animals.

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