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The good, the bad and the ugly: income determinants and a typology of commercial agarwood harvesters in Lao PDR

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Abstract

Based on interviews with 103 leaders of groups harvesting agarwood in various parts of Lao PDR we identify income determinants and prepare a typology of harvesters. There are three main groups of harvesters: [a] highly professional, migrant harvesters from Vietnam; [b] non-local, professional harvesters and [c] local harvesters. From interpretation of auxiliary information it emerges that groups [b] and [c] can be further subdivided based on experience and harvesting strategy and in the final typology we therefore distinguish five categories of harvesters. Income determinants are mainly related to product and market variables, structural characteristics of harvesting groups, opportunistic harvesting and knowledge and experience.

Key-words: stratification, commercial NTFP, *Aquilaria*, eaglewood

1. Introduction

It is evidenced through research and in implementation of rural development projects that non-timber forest products (NTFPs) play a significant role in local economies in developing countries, e.g. Arnold & Ruiz Perez (1998). Income from sales of NTFPs is often the only source of cash for forest dependent people. In many rural communities in Lao PDR (henceforth Laos), a country rich in natural resources yet one of the poorest in South-east Asia, it is a development imperative to increase the forestry sectors' contribution to socio-economic development, not least from NTFPs (Gansberghe 2005; MAF 2004), a goal which can be reached by means of commercialisation (Foppes 2005). One commercial NTFP is agarwood or 'mai khedsana' extracted from *Aquilaria* species, which may contribute from 10% to 70% of total cash income in rural areas (Alton & Rattanavong 2004; Brahmin & Phoumphone 2004), and ranks as one of the most commercially important NTFPs in the country (Foppes & Khetphanh 1997). Based on a nation-wide survey on harvest and trade (unpublished data) the total export value of agarwood is estimated at approximately 14 million USD in 2004. Harvesters receive a large fraction of the final sales price (export value) and based on an analysis of their harvest costs it appears that they get a relatively large share of the resource rent (unpublished data), approx. 2.8 mill. USD, or 20 % of the final sales price. This figure is comparatively high. For instance, in a study from Nepal on medicinal and aromatic plants Olsen (1998) finds harvester's share to be only 0.3%, and in a study on rattan in Vietnam Belcher (1998) finds a figure of 0.8%. Clearly, the incomes earned from agarwood extraction are tremendous compared to other NTFPs.

The income distribution among agarwood harvesters is highly skewed. Income disparities are commonly up to three- or four-fold and there are strong indications that Vietnamese and professional Lao harvesters earn considerably more than, and largely appropriate agarwood resources from, local people (unpublished data). This seems to be an example of elite capture (Dove, 1994). The inevitable question arises, whether commercialization of NTFPs inevitably leads to stratification of harvesters and signals a situation where outsiders reap the better part of the economic benefits?

In the literature on NTFPs, the sensitive area of income differentials appears to be overlooked. To the best of our knowledge there are no studies that specifically analyse income differentials from NTFP extraction and inequalities between groups involved and

hence seek to explain why some harvesters earn more income. Olsen (2005) provides useful terminology and some kind of typology of harvesters as economic agents but no insight on income determinants.

Therefore this paper is devoted to an analysis of income differentials and attempts to identify income determinants and suggest a framework typology of commercial agarwood harvesting. The hypothesis is that commercial NTFP harvesting, *in casu* agarwood harvesting, is a pure economic activity where income is determined by a set of strongly correlated variables describing harvester groups and their strategies.

The analysis is based on estimates of mean income per day, i.e. returns to labour. If estimates of annual income were used, other causal phenomena would come in play. Chiefly, number of days spent in agarwood harvesting and consequently issues related to livelihood strategies would become important. This would divert attention from income determinants.

2. Materials

The basis for the study is quantitative data from 103 complete standardized, semi-structured interviews conducted in 2004. Interviews with local harvesters were carried out in villages in three provinces of Laos with relatively intact agarwood resources and ongoing harvesting: Phongsali, Saysomboun Special Zone and Sayabouri. Interviews with Vietnamese and professional harvesters took place en-route or at factory gates in these or other provinces, especially in Pakkading District of Bolikhamsai Province, a free-zone with harvesters going to all parts of the country.

Respondents were leaders of agarwood harvesting groups. Members of groups are often from the same village, tribe and social group, and refer to each other as 'friends'. Individual interviews were time-consuming and did not add to accuracy, and group leaders are generally knowledgeable and enjoy a certain status. Due to difficult transportation and absence of group leaders, on average less than one interview was achieved per two days in the field, so a total of 250 days was spent in interviews with harvesters.

The accuracy of the data depends largely on the reliability of the respondents. Most were open and friendly but a few were non-communicative and participated with casual disdain, and especially Vietnamese harvesters were reluctant to share information. Where possible, data were crosschecked to verify the accuracy of responses.

Supplementary information was gathered through interviews with key informants, participatory and direct observation of agarwood harvesting, scrutiny of legal documents, open-ended interviews with national, provincial and district authorities and visits to more than 50 villages representing all parts of the country.

3. Methods

Dependent variable

Initially, it was planned to provide estimates of 'Average income per collection trip' as 'Revenues' minus 'Direct and indirect costs'. However, in pre-testing it proved exceptionally difficult to get reliable estimates of costs, i.e. capital, personal and product transport, processing and marketing, and it was decided to ask for estimates of 'Average income per collection trip' and 'Average costs' separately. 'Income per day' is calculated by dividing 'Average income per collection trip' by 'Average days spent in harvesting' and is the harvesters' own estimate of daily income.

Independent variables

The entry point to the analysis of independent variables was the initial grouping of harvesters in ethnic Vietnamese, Professionals and Local people. While these categories had no

interpretation *per se*, they necessarily had to be included because of correlation with other variables and because this grouping figured prominently in all interviews. Furthermore, if a typology could be suggested with three entries, descriptive sub-groups could be suggested and hence enhance overall understanding of the typology.

Closely linked to the initial grouping is the notion of access and withdrawal rights to agarwood resources. These can either be based on customary rights to forests within village boundaries, on an authorized permit to National Production Forests, or extended to include all legal categories, hence semi-legal, and no rights at all, termed extra-legal.

In one tree there can be many different types of agarwood products and these products are characterised by huge price differences. ‘Mai dii’, literally good wood, the most valuable wood which is used as incense and medicine catches a price over 500 Thai Baht (approx. 12 USD); ‘Mai khi khuan’, ‘residue from using axe’, is used for extraction of essential oil by distillation and prices range from 80 Thai Baht/kg to 500 Thai Baht/kg (approx. 12 USD to approx. 2 USD); ‘Mai phaktoo’, meaning ‘wood from stumps’, is used for extraction of agarwood oil and has a market price of less than 80 Thai Baht/kg (approx. 2 USD). Especially in ‘Mai dii’ and ‘Mai khi khuan’ there are many products and it is estimated that the total number of traded and graded agarwood products is greater than 100.

Agarwood is traded between individuals, i.e. sellers and buyers, and with no bidding. There are no fixed quality criteria and no objective grading systems so pricing of a piece or lot of wood depends largely on the knowledge and experience of buyers and sellers. Furthermore, larger quantities generally yield higher prices. Hence, it is advantageous for harvesters to stock and trade in agarwood, i.e. buying from other harvesters.

Harvesters benefit from being able to sell to a range of different buyers, who openly compete on prices. Most products are traded along one particular route: harvester → agent or trader → wholesaler, yet there is also a substantial trade along many other routes. While ‘Mai phaktoo’ has high transportation cost compared to unit value and is mainly traded by harvesters selling directly to wholesalers or larger agents and distinctly within the administrative delineation of the wholesalers license, ‘Mai khi khuan’ is traded along the route from harvesters to agents and then to wholesalers but also directly to wholesalers and often across areas with different licenses. ‘Mai dii’ is sold along all trade routes and also abroad, notably to Vietnam.

Markets are defined by their distance to transit markets in Bangkok, Singapore and Dubai, by number of actors and their level of competition, and do not refer to location or geographic coverage. With all buyers purchasing in districts and provinces and often residing in villages adjacent to newly opened harvesting areas, markets occur at all sites.

On harvesting trips, harvesters frequently do not detect any harvestable trees and divert to opportunistic harvesting: commercial hunting of larger mammals and birds, extraction of other commercial NTFPs and collection of *Aquilaria* wildlings. Opportunistic harvesting can be interpreted as a sign of declining agarwood resources and is likely to influence income negatively.

Socio-economic characteristics are included to unravel livelihood aspects of harvesting yet without any in-depth investigation at household level and encompass subjective assessments of wealth status and purpose of harvesting and whether advances are routinely received from agents, traders or wholesalers.

Harvesting groups differ with respect to number of harvesters, duration of harvesting trips and quantity harvested. Furthermore, the dataset includes information on number of trips and collection days in 2004 and whether harvesting is a full-time or part-time occupation.

Investment in harvesting as measured by average direct variable costs, mainly on transport and consumables, is likely to be positively correlated with income.

Knowledge and experience is important when it comes to identifying trees with agarwood in the forest. Since only 1 out of 10 trees forms agarwood it is important to check trees for indices of agarwood formation. The indices *inter-alia* include stem form, presence of bore holes and bark structure. If indices are not known, trees will be cut indiscriminately. The estimated number of trees with agarwood formation per 10 trees with DBH >10 cm (FREQ10) was used as a check on knowledge and experience, lower estimates indicating profound knowledge. A proxy for experience is number of trips and days spent on harvesting during the preceding five years, i.e. 1999-2003.

Statistical analysis

Using the initial grouping of harvesters, ethnic Vietnamese, Professionals and Local people, as point of departure for the typology, sets of independent variables were explored for patterns, relationships and correspondence through analysis of correlation matrices and frequency tables. The next stage of the analysis aimed at developing the typology and included dimensional simplification using principal component analysis and graphical analysis. Initial groups were compared with alternative sets of groups created through cluster analysis. Graphical representation was used to analyze similarities between members of the various clusters and differences between clusters as regards income were tested by analysis of variance. Having decided how to group harvesters we proceeded with the modelling stage, aiming to identify income determinants other than the harvester category. First, all possible models with 1-10 independent variables were tested, and for selected models parameter estimates, i.e. signs and values, and residuals were analysed. It turned out that residuals were generally characterised by considerable heteroscedasticity. This problem was eliminated by logarithmic transformation of the dependent variable (average daily income) and selected models with 3-7 variables were examined in more detail. Parameter estimates were examined and collinearity problems were sought diagnosed. Finally, the structure of the residuals was examined graphically, tests of normality were made and a final model was selected, which was characterised by acceptable parameter estimates, good explanatory power and well-behaved residuals.

This model was interpreted and the typology further developed by application of qualitative data from interviews. The option of adding sub-groups and a more descriptive approach was hereby left open.

4. Results

Table 1 summarises the independent variables considered. The mean of INCODAY across all groups is 73,000 Kip (approx. 7 USD), which compares to a daily wage for unskilled work of 25,000-40,000 Kip (approx. 2.5-4.0 USD) and thus indicates how lucrative agarwood harvesting is. However, the risk of not detecting a single *Aquilaria* tree with agarwood is high, especially for local people, and INCOMIN is therefore 0 and minimum of INCODAY is positive but below the wage rate. INCOMAX and maximum of the other variables are high and should be treated as extremes.

In Table 2, a total of 40 independent variables are presented. Along with mean and standard deviation, minimum and maximum values are included to indicate the observed range of values.

Table 1 Summary of dependent variables

| Dependent variables | Description | Mean | Std.dev. | Min. | Max. |
|---------------------|--|-----------|-----------|--------|------------|
| INCOMIN | Minimum income from harvesting trip (in Kip) | 567,403 | 1,105,387 | 0 | 6,000,000 |
| INCOAVG | Average income from harvesting trip (in Kip) | 1,765,000 | 2,681,829 | 10,000 | 12,000,000 |
| INCOMAX | Maximum income from harvesting trip (in Kip) | 6,123,835 | 8,888,390 | 25,000 | 40,000,000 |
| INCODAY | Average income per day (in Kip) [†] | 73,735 | 40,178 | 10,000 | 200,000 |

[†] INCOAVG/DAYSAVG

Table 2 Summary of independent variables

| Variable | | Mean | St.dev | Min. | Max. |
|------------------------------------|---|-------|--------|------|-------|
| <i>Dummy variables (1/0):</i> | | | | | |
| VIET | 1 for Vietnamese citizens, 0 otherwise | 0.16 | 0.36 | 0 | 1 |
| PROF | 1 for non-local Lao citizens | 0.34 | 0.48 | 0 | 1 |
| LOCAL | 1 for local people, 0 otherwise | 0.51 | 0.50 | 0 | 1 |
| EXLEGAL | 1 for extralegal harvesting, 0 otherwise | 0.21 | 0.41 | 0 | 1 |
| SEMILEG | 1 if harvesting with permit, 0 otherwise | 0.29 | 0.46 | 0 | 1 |
| LEGAL | 1 if harvesting under customary rights | 0.50 | 0.50 | 0 | 1 |
| POOR | 1 for poor harvesters, 0 otherwise | 0.49 | 0.50 | 0 | 1 |
| RICH | 1 for rich harvesters, 0 otherwise | 0.01 | 0.10 | 0 | 1 |
| LIVELIH | 1 if harvest for livelihood purposes only | 0.47 | 0.50 | 0 | 1 |
| DISCRETI | 1 if harvest for discretionary purposes | 0.15 | 0.35 | 0 | 1 |
| ADVANCE | 1 if advance received, 0 otherwise | 0.10 | 0.30 | 0 | 1 |
| DII [†] | 1 if price > 500 Baht/kg, 0 otherwise | 0.81 | 0.40 | 0 | 1 |
| KHILAI | 1 if price 80-500 Baht/kg, 0 otherwise | 0.78 | 0.42 | 0 | 1 |
| PHAKTOO | 1 if price < 80 Baht/kg, 0 otherwise | 0.28 | 0.45 | 0 | 1 |
| LOCMAR [‡] | 1 if agarwood sold to local market | 0.42 | 0.50 | 0 | 1 |
| REGMAR | 1 if agarwood sold to regional market | 0.53 | 0.50 | 0 | 1 |
| NATMAR | 1 if agarwood sold to national market | 0.36 | 0.48 | 0 | 1 |
| INTMAR | 1 if agarwood sold internationally | 0.16 | 0.36 | 0 | 1 |
| TRADER | 1 if harvesters are trading in agarwood | 0.47 | 0.50 | 0 | 1 |
| STOCK | 1 if harvesters keep stock, 0 otherwise | 0.47 | 0.50 | 0 | 1 |
| FULLTIME | 1 if harvesting agarwood all year round | 0.26 | 0.44 | 0 | 1 |
| NTFP | 1 if harvesting other commercial NTFPs | 0.26 | 0.44 | 0 | 1 |
| SEEDLI | 1 if harvesting seedlings, 0 otherwise | 0.34 | 0.48 | 0 | 1 |
| HUNTING | 1 if commercial hunting during trips | 0.14 | 0.34 | 0 | 1 |
| INDICES | 1 if indices of agarwood are well known | 0.79 | 0.41 | 0 | 1 |
| <i>Continuous-scale variables:</i> | | | | | |
| KGMIN | Min. harvest quantity, kg fresh weight | 6.25 | 5.65 | 0 | 20.0 |
| KGAVG | Avg. harvest quantity, kg fresh weight | 16.09 | 5.01 | 7.5 | 27.5 |
| KGMAX | Max. harvest quantity, kg fresh weight | 28.86 | 14.78 | 12.5 | 80.0 |
| DAYS MN | Min. duration of harvesting trips, days | 10.03 | 15.49 | 1 | 90.0 |
| DAYS AVG | Avg. duration of harvesting trips, days | 16.84 | 19.53 | 1 | 90.0 |
| DAYS MX | Max. duration of harvesting trips, days | 28.07 | 27.82 | 1 | 100.0 |
| SIZEMIN | Min. number of harvesters in group | 5.91 | 8.08 | 1 | 30.0 |

| | | | | | |
|---------|---|-------|-------|-----|-------|
| SIZEAVG | Average number of harvesters in group | 9.81 | 12.03 | 1.5 | 60.0 |
| SIZEMAX | Max. number of harvesters in group | 17.54 | 23.48 | 2.0 | 100.0 |
| TRIPS04 | Number of harvesting trips in 2004 | 8.77 | 5.39 | 1.0 | 30.0 |
| COLLD04 | Average collection days in 2004 | 92.25 | 83.73 | 1.0 | 300.0 |
| COSTAVG | Average cost per trip in 2004, 1000 Kip | 265 | 378 | 0 | 2,000 |
| FREQ10 | No. of trees with agarwood out of 10 | 3.98 | 3.11 | 0.5 | 10 |
| TRIPS5Y | Avg. number of harv. trips 1998-2003 | 40.45 | 35.91 | 1.0 | 300.0 |
| COLLD5Y | Avg. annual collection days, 1999-2003 | 110.6 | 102.5 | 0.4 | 378.0 |

[†] DII, KHILAI and PHAKTOO are not mutually exclusive

[‡] LOCMAR, REGMAR, NATMAR and INTMAR are not mutually exclusive

An extract of the correlation matrix is shown in Table 3. Only variables with coefficients of correlation exceeding 0.70 are included in the table and the number of variables is therefore only 20. Most noticeable is the absence of socio-economic variables, yielding the impression that socio-economic aspects are less important. This could be explained by the very high prices of some grades of agarwood and potential high income from harvesting so that it is an attractive activity not only for the poor. It is less obvious why FREQ10 and INDICES do not appear but it turned out that they reappear in the regression models. VIET correlates with a range of variables, clearly suggesting that Vietnamese stand out from other groups. PROF and LOCAL bond with access and withdrawal rights, and grouping based on legal aspects seems to be synonymous with the initial grouping. LOCAL correlates with LOCMAR since locals often sell to agents and traders who operate locally and an effect of product is probably present. The TRADER-STOCK relation is easily explained as trading is contingent upon stocking of wood. The fact that FULLTIME is strongly related to COLLD04 is a consequence of COLLD04 being derived as TRIPS04 × DAYSAVG and full-time harvesters will have more trips in a year *ceteris paribus*. The FULLTIME-LOCMAR link appears spurious but may result from a confounding effect of KHILAI and the need to cover costs in less successful harvesting trips by selling products that normally would be left behind.

Table 3. Variables with coefficients of correlation numerically greater than 0.70

| Variable | Correlated with |
|----------|---|
| VIET | EXLEGAL, INTMAR, DAYSMAX, DAYSAVG, DAYSMIN, SIZEMAX, SIZEAVG, SIZEMIN, COSTAVG, HUNTING |
| PROF | SEMILEG |
| LOCAL | LEGAL, LOCMAR |
| FULLTIME | COLLD04, LOCMAR |
| TRADER | STOCK |

Following a series of analytic steps outlined earlier, the selected regression model with five independent variables is shown in Table 4. The dependent variable is the logarithm of INCODAY. LOCAL is the reference category and therefore not included in the model.

Table 4. Multiple regression result with ln(INCODAY) as dependent variable. Currency: Kip. LOCAL is the reference category. N = 103, RMSE = 0.3284, R² = 0.7177

| | Intercept | VIET | PROF | PHAKTOO | HUNTING | FREQ10 |
|-----------|-----------|---------|--------|---------|---------|----------|
| Estimate | 11.25 | 0.8565 | 0.1997 | -0.5169 | -0.3432 | -0.05324 |
| Std.error | 0.086 | 0.183 | 0.089 | 0.109 | 0.178 | 0.0152 |
| Pr> t | <0.0001 | <0.0001 | 0.027 | <0.0001 | 0.057 | 0.0007 |

The parameter estimates in Table 4 are generally in line with expectations. They follow patterns from the analysis of correlation and the rather high coefficient of determination (R^2), statistical significance of all five variables and signs of coefficients confirm the validity of the model. Addition of more variables in any of the tested models increased R^2 slightly but the maximum observed for any model was 0.75, i.e. only 0.03 greater than for the selected model. As shown in the table, *FREQ10* re-emerged as a statistically significant factor, indicating that knowledge and experience plays an important role. In this model and, for that matter, all other models that were tested socio-economic variables (*RICH*, *POOR*, *LIVELIH*, *DISCRETI*, *ADVANCE*) turned out to have no significant effect. Market and product relations are represented in the model by *PHAKTOO* and even more so through the strong relationship with *VIET*. Opportunistic harvesting is represented by *HUNTING*.

5. Discussion

While the relevance of statistical modelling of this kind is undisputed, it must be kept in mind that the preceding analyses are advances based solely on empirical data and variables that vary together. It is not possible to establish causal relationships and reach irrefutable conclusions based on these methods alone. To this effect, contributions from qualitative approaches and findings from interviews are taken into account. Other actors in the trade, agents, traders and wholesalers hold a bird's eye view on stratification of harvesters and the distribution of income between them, and suggest a more detailed model in which *PROF* and *LOCAL* be divided in 'PROF full-time', 'PROF part-time', 'LOCAL strictly', and 'LOCAL broadly'. For *LOCAL*, *INDICES* act as proxy marker between *LOCAL* harvesting strictly within village boundaries (*INDICES*=0) and *LOCAL* harvesting in village forests and other nearby forests, especially protected forests (*INDICES*=1).

In Figure 1, these categories are presented with *INCODAY* as dependent variable. As will appear from the confidence intervals the income level of Vietnamese harvesters (*VIET*) is again distinctly different from that of other groups. The remaining four groups are pairwise *PROF* full-time/*PROF* part-time and *LOCAL* strictly/*LOCAL* broadly not significantly different. However, means are at different levels and *PROF* full-time is significantly different from *LOCAL* broadly and *PROF* part-time is from *LOCAL* strictly. For this reason, the model 1) *VIET* 2) *PROF* full-time 3) *PROF* part-time 4) *LOCAL* broadly 5) *LOCAL* strictly is kept as final result.

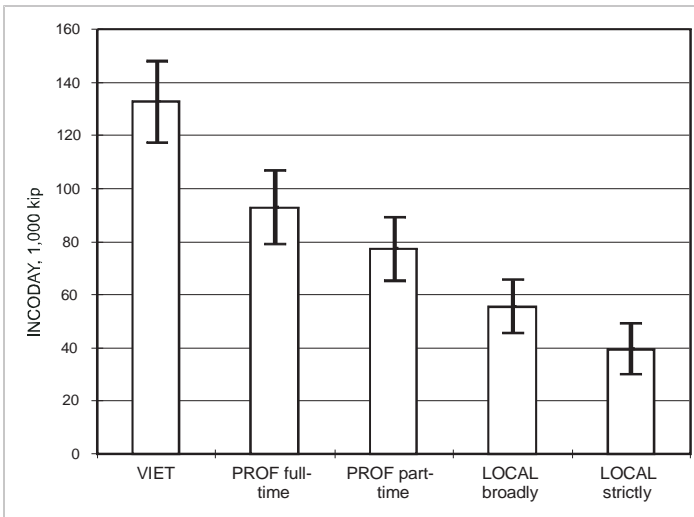


Figure 1. Typology with five groups and 95% confidence intervals for mean income per day (INCODAY, 1000 kip)

6. Conclusion

The final typology includes five groups of agarwood harvesters. The groups can be described as follows:

Highly professional, migrant harvesters

In this group, which is represented by harvesters coming from Vietnam, are found skilful, efficient and thievish harvesters with international market access. They are quality seekers as they primarily deal with valuable high-quality products and are able to recover high transportation costs. They harvest in large groups and over many days.

Full-time professional, mobile harvesters

These harvesters share characteristics with Vietnamese harvesters but generally operate in smaller groups and spend shorter time on harvesting. They harvest a wider range of products and have good market access but only within Laos.

Part-time, semi-professional, mobile harvesters

Like the full-time professional harvesters, harvesters in this group have an authorized harvest permit and are both quality and quantity seekers. They only harvest during the dry season.

Local harvesters

Local harvesters harvest under customary rights and are primarily quantity seekers. They mainly go for ‘mai khi khuan’ and ‘mai phaktoo’ and sell their products to local agents and traders. Some local harvesters may become professionals later if they manage to move up the learning curve.

Restricted local harvesters

This sub-group under local harvesters has generally scant knowledge and experience and only harvest within village boundaries and for quantity. Their income level is similar to wage labour.

References

Alton, C. & Rattanavong, H. 2004. Service delivery and resettlement: Options for development Planning. Final Report Livelihoods Study, Lao/03/A01, UNDP/ECHO, Vientiane, Lao P.D.R.

- Arnold, J.E.M. & Ruiz Perez, M. 1998. The role of non-timber forest products in conservation and development. In: Wollenberg, E. and Ingles, A. (eds.) *Incomes from the forest: methods for the development and conservation of forest products for local communities.*, pp. 17 – 42. CIFOR/IUCN. Bogor, Indonesia.
- Belcher, B.M. 1998. A production-to-consumption systems approach: lessons from the bamboo and rattan sectors in Asia. In: *Incomes from the forest: methods for the development and conservation of forest products for local communities.* CIFOR, Bogor, Indonesia.
- Brahmin, A. & Phoumphone, K. 2003. Study on local coping mechanisms in disaster management: case studies from the Lao P.D.R. Concern. Vientiane, Lao P.D.R.
- Dove, M.R. (1994) *Marketing the Rainforest: 'Green' panacea or red herring? Analysis from the East-West Center* 13, 1-7
- Foppes, J. (ed.) 2005. Draft Summary Report: Workshop on Marketing Information Systems (MIS) for Agriculture and Forestry Products. NAFRI, Vientiane, Lao P.D.R.
- Foppes, J. & Ketphanh, S. 2005. Non-timber forest products for poverty reduction and shifting cultivation stabilisation in the uplands of the Lao P.D.R. In: *Poverty reduction and shifting cultivation stabilization in the uplands of Lao PDR: Technologies, approaches and methods for improving upland livelihoods - Proceedings of a workshop held in Luang Prabang, Laos PDR, January 27-30, 2004.* NAFRI, Vientiane, Lao PDR.
- Foppes, J. & Khetpanh, S. 1997. The use of non-timber forest products in Lao P.D.R. Paper presented at the Workshop on Sustainable Management of Non-Wood Forest Products at IDEAL, UPM. Serdang, Selangor, Malaysia, 14-17 October, 1997. IUCN/DoF, Vientiane, Lao P.D.R.
- Gansberghe, D. 2005. Agriculture and Forestry in the National Growth and Poverty Eradication Strategy. In: *Improving Livelihoods in the Uplands of Lao PDR.* NAFES/NAFRI/NUOL, Vientiane, Lao P.D.R.
- MAF 2004. *Forestry Strategy to the year 2020 (FS2020) of the Lao PDR.* Ministry of Agriculture and Forestry, Vientiane, Lao P.D.R.
- Olsen, C.S. & Bhattarai, N.K. 2005. A typology of economic agents in Himalayan plant trade. *Mountain Research and Development* 25(1), 37-43.
- Olsen, C.S. 1998. The trade in medicinal and aromatic plants from central Nepal to northern India. *Economic Botany* 52(3), 279-292.

