

# Improving the management of commercial Non-Timber Forest Products in Cambodia for the benefit of local communities

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**Photograph 1.**  
Women taking home bunches of small rattan stems collected  
in Kampong Chhnang, Cambodia.  
Photo M. Boissière.

## RÉSUMÉ

### AMÉLIORER LA GESTION DES PRODUITS FORESTIERS NON LIGNEUX COMMERCIALISÉS POUR LE BÉNÉFICE DES COMMUNAUTÉS LOCALES DU CAMBODGE

Les produits forestiers non ligneux (Pfnl) jouent un rôle important dans le mode de vie des communautés rurales dépendantes des ressources forestières tropicales. Au Cambodge, cette étude a permis d'identifier les problèmes liés à la gestion durable de Pfnl par les populations locales. Ces problèmes concernaient l'accès aux ressources et aux marchés, les activités d'extraction non durables, la pression démographique, le manque d'information sur la demande du marché, les prix, les redevances et un système d'autorisation trop complexe pour être appliqué au niveau local. Au Centre et à l'Est du Cambodge, des approches participatives ont été utilisées pour interroger les collecteurs de Pfnl dans 16 villages de 4 provinces. Des réunions et des groupes de discussion ont permis de discuter des choix et des préférences des villageois. Des échantillons d'herbier de Pfnl, jugés importants par la population locale, ont également été collectés dans les forêts de chaque village. L'étude a révélé que pour améliorer la gestion, l'utilisation et le commerce des produits forestiers non ligneux, il est nécessaire de prendre en compte des informations sur l'emplacement et le contexte économique de chaque village (infrastructures et investissements du secteur privé), la densité de population, les groupes ethniques, et l'état de la forêt. Une approche par étapes devrait inclure l'identification de Pfnl non seulement importants pour l'économie locale, mais aussi dont l'extraction a le moins d'impact sur la forêt. En conclusion, l'étude recommande de développer un réseau de collecteurs, de planter les Pfnl importants et rares, et de développer la filière de transformation des matières brutes.

**Mots-clés:** forêt communautaire, produits forestiers non ligneux, utilisation durable, activités extractives, genre, réduction de la pauvreté, Cambodge.

## ABSTRACT

### IMPROVING THE MANAGEMENT OF COMMERCIAL NON-TIMBER FOREST PRODUCTS IN CAMBODIA FOR THE BENEFIT OF LOCAL COMMUNITIES

Non-Timber Forest Products (NTFPs) play an important role in the livelihoods of rural communities in tropical forest areas. This study in Cambodia identified issues that limit local people's sustainable management of NTFPs. These included access to resources and markets, unsustainable extractive activities, demographic pressure, lack of information on market demands, prices, royalties and authorization systems too complex to be applied at the local level. In Central and Eastern Cambodia, participatory approaches were used to interview NTFP collectors in 16 villages in 4 provinces. During focus groups and community meetings, choices and preferences were debated. Herbarium samples of NTFPs that local people consider important were also collected from the forests near each of the villages. The study revealed that information on the location of the villages, population density, ethnic groups, village context (recent situation in terms of infrastructure and private sector investments), and the condition of the forest all need to be taken into account when developing activities to improve NTFP management, uses and trade. A step-by-step approach should include identifying NTFPs as important to the local economy and as the extractive activity with the smallest negative impact on the forest. The study concluded with a recommendation to develop a collectors' network, to plant important and depleted NTFP species, and to develop processed products from NTFP raw materials.

**Keywords:** community forest, Non Timber Forest Products, sustainable use, extractive activities, gender, poverty alleviation, Cambodia.

## RESUMEN

### MEJORAR EL MANEJO DE PRODUCTOS FORESTALES NO MADEREROS COMERCIALIZADOS EN BENEFICIO DE LAS COMUNIDADES LOCALES DE CAMBOYA

Los productos forestales no madereros (PFNM) desempeñan un importante papel para la subsistencia de las comunidades rurales en los bosques tropicales. En Camboya, el estudio identificó los problemas que limitan el manejo sostenible de los PFNM por parte de las poblaciones locales. Estos problemas incluyen el acceso a los recursos y mercados, las actividades extractivas no sostenibles, la presión demográfica, la falta de información sobre los requisitos del mercado, los precios, las regalías y los sistemas de autorización demasiado complejos para ser aplicados a nivel local. En Camboya central y oriental, se utilizaron enfoques participativos para entrevistar a los recolectores de PFNM en 16 pueblos de 4 provincias. Se discutieron las opciones y las preferencias de las asambleas comunitarias en grupos de debate. También se recolectaron especímenes de herbario, en los bosques cercanos a los pueblos, de aquellos PFNM considerados importantes por la población local. El estudio reveló que, cuando se elaboren las actividades para mejorar el manejo, utilización y comercialización de los PFNM, se debe tener en cuenta la información sobre la ubicación de los pueblos, la densidad de población, los grupos étnicos, el contexto del pueblo (situación reciente en términos de infraestructuras e inversiones del sector privado) y el estado del bosque. Un enfoque por etapas debería incluir la identificación de los PFNM importantes para la economía local y la extracción que cause el menor impacto negativo en el bosque. Por último, el estudio recomendó el desarrollo de una red de recolectores, la siembra de los PFNM importantes y raros y la transformación de los PFNM primarios.

**Palabras clave:** bosque comunitario, productos forestales no madereros, utilización sostenible, actividades extractivas, género, reducción de la pobreza, Camboya.

## Introduction

A scientific debate in the early 2000s concluded that Non-Timber Forest Products (NTFPs) provide little in the way of conservation benefits (SUNDERLIN, 2006; BELCHER & SCHRECKENBERG, 2007; BELCHER, 2003; ARNOLD & RUIZ PÉREZ, 1998). While the contribution of NTFPs to conservation and the livelihoods of forest dependent people is considered minimal, compared to other forest products, *exempli gratia*, timber, NTFPs are important. This is especially true in Cambodia, where deforestation has had a negative impact on rural communities.

Over the last 20 years Cambodia's annual deforestation rate has ranged between 1.1 and 1.3%, representing between 53 and 57% of the overall forest cover (FAO, 2011; VANTOMME *et al.*, 2002). With more than 80% of Cambodia's 13.4 million population living in rural areas (NIS, 2008<sup>1</sup>), it is difficult to ignore the importance of NTFPs (MOTZKE *et al.*, 2012; TOLA, 2009). This large rural population must search for NTFPs in highly degraded forests or land surrounding their villages and rice fields. When looking at sustainable management of NTFPs we must take into account each local situation, including the village size, presence and condition of forest, potential and limitations for extraction and trade of NTFPs (RUIZ PEREZ & BYRON, 1999; ARNOLD & RUIZ PÉREZ, 2001). To improve the trade in NTFPs, and therefore the local economy, it needs to consider what processing skills are

available in the rural communities. It is also imperative to facilitate access to markets, be aware of what the national laws related to NTFP management are and how they support local collectors (CFI, 2006).

This paper presents a development-oriented approach to local NTFP collection in 16 villages located in four provinces of Cambodia: Kampong Chhnang, Kampong Thom, Ratanakiri and Mondul Kiri (figure 1), to improve local people's benefits from NTFPs. For the purpose of this article the term NTFPs is used, although in the study the contributions of wood as a source for charcoal, poles, posts and carvings was not considered.

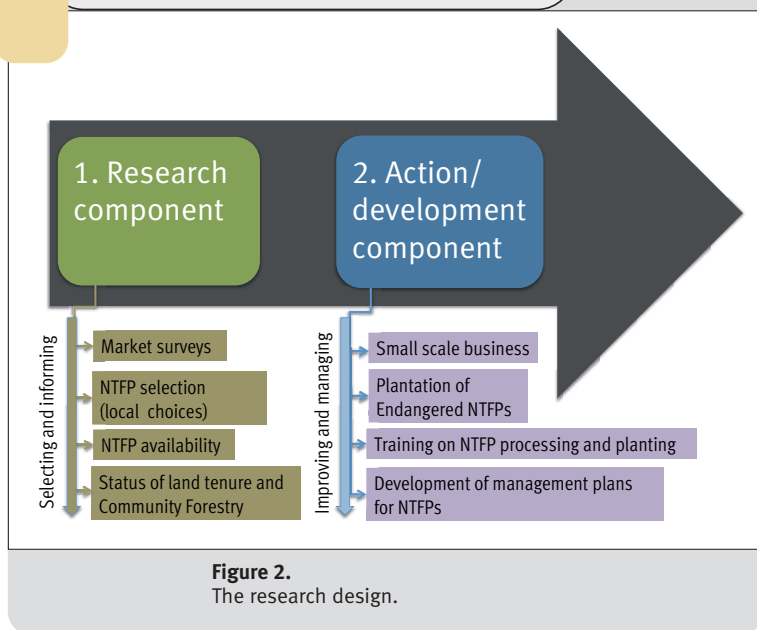
The approach followed two steps: in the first part, information on the villages, NTFPs in each site and market demands were studied. The second part was concerned with oriented actions such as developing plantations, processing raw materials to add value and management of NTFPs.

The results of the approach, for each site, were analysed based on the available NTFPs, villagers' preferences, access, governance and market demand. Finally, this article presents how villagers assessed the project's activities and results and the caveats and potentials for scaling up the approach.

<sup>1</sup> NIS website:  
[http://www.nis.gov.kh/nis/CSES/Data/CSES\\_Demography.html](http://www.nis.gov.kh/nis/CSES/Data/CSES_Demography.html)



**Figure 1.**  
Map of Cambodia and location of the 16 research sites.



**Figure 2.**  
The research design.

## Methods

The approach was divided into two complementary parts. The first, understanding the local situation included: dependency of each village on NTFPs, diversity of exploited NTFPs and existing trade networks. This helped to select NTFPs for which trade could be improved, in a participatory way according to different criteria. In the second part various ways were proposed to improve NTFP management and trade, through developing nurseries, processing raw NTFPs and management strategies.

Figure 2 shows the main steps for data collection and development actions.

### Data collection

As most of the project team were government staff from the Forestry Administration (FA) who were not used to interacting with villagers, developing participatory activities or asking for local preferences, capacity building was an important first step.

### Capacity building of Forestry Administration staff

The Community Forestry Office, part of the Forestry Administration, was responsible for the implementation of this ITTO-funded project, which aimed to increase the benefits from NTFPs for rural communities. The activities involved four staff from the national level, in Phnom Penh and eight local staff, because of their knowledge of the field conditions in the four provinces. The capacity of FA staff was built in participatory methods and plant collection. A participatory rural appraisal (PRA) was conducted in each of the provinces (NTFPs PROJECT 2007a, b, c, d). This provided information on demography, ethnicity, education, main sources of livelihoods, main NTFPs used by the local communities, presence or absence of community forestry (CF), climatic data and infrastructure. Training was also provided on plant collection and herbarium preparation with the help of a botanist.

### Information on important NTFPs

During community meetings in each of the 16 villages, with the support of an ethnobotanist from Cirad, the objectives of the approach were explained to gain local approval. Focus group discussions with one group of men and one group of women, all adults with knowledge of NTFPs, in each village provided a first list of important NTFPs per category of use. Based on these lists, herbarium samples were collected by foresters between 2007 and 2008 with the help of villagers and two botanists. The plants were identified at the Royal University of Agriculture in Phnom Penh. This list was reduced to 10 plants focusing on the main commercial NTFPs. From these 10 plants, the three most valuable NTFPs in each village were selected based on their market value, availability, the involvement of men and women in their collection, their seasonality and access.

### Information on market channels in Cambodia and Vietnam

Two socio-economists conducted a market analysis in each village, in each provincial capital (CENGEL & SORN, 2010). They went across the Vietnam border from Ratanakiri Province to study the NTFP trade between Ratanakiri and the closest town on the Vietnam side. They used secondary data and interviews with villagers, traders and middlemen to identify market networks and opportunities for trading NTFPs.

### Development actions

Figure 2 shows the main steps in the participatory actions used in each selected village to improve local management of NTFPs.

### Identification of groups of interest

Villagers interested in these activities were asked to form two groups. NTFP collectors formed one group who would provide the raw materials from the forest around the village and would develop nurseries for plantation. Nurseries were developed either on communal land or private land depending on the village involved and land tenure. When the collectors couldn't provide enough seedlings, the project purchased seeds and seedlings for the group. When the seedlings were big enough, the group transplanted them on private land or in the community forest. A second group focused on processing the raw NTFPs into products to be traded at the local market or sold to middlemen.

### Building the capacity of villagers to manage nurseries and process the raw NTFPs

Each group was trained in nursery management to produce baskets, furniture or to improve the processing of dipterocarp resin. A study tour was organized to take the villagers to other provinces where similar activities were already established. A trainer built local capacity in approximately two weeks per village (at least one training session per village and in some two sessions were organized at the villagers' request). Each session was adapted to each local situation according to the selected NTFPs and to the end products.

### Development of management plans

In one village with secure tenure, Tom Or (Kampong Thom Province) the community forest was officially recognized. As part of the community forest agreement, a forest management plan had to be prepared by the villagers and submitted to the forestry authorities. Only the part of the management plan related to NTFPs was focused on. Discussions concentrated on preparing plans for sustainable management of the selected NTFPs. In this plan, villagers had to provide information on the quantity of harvest of the selected NTFPs, the harvest turnover within the village territory, how villagers' proposed to deal with encroachment and how depleted NTFPs would be managed (through nurseries and replanting). Based on these discussions and proposals, a management plan was submitted by the local community to the Forestry Administration for approval.

### Securing tenure via community forest management

Taking into account the difficulties in developing any activities with NTFPs without secure access to land and to forest resources, we developed plans in parallel with Community Forest Management (CFM) in each of the villages, with national and local forestry staff as well as villagers. These plans were developed through community meetings, discussions with the CF committee at the village level and ground checks using GPS to identify boundaries for future CF.

### Site description and context

The government of Cambodia, because of the importance of NTFPs for the local economy, has prepared a legal framework for the extraction and trade of NTFPs by local communities, from community forests. This has been recognized in Forestry Law (NS/RKM/0802/016) and in a Sub Decree (N° 79/2003) on CFM.

### Forestry law on NTFPs

Article 53 of the Forestry Law (2002) explains that local communities collecting and selling NTFPs from State Forest under customary user rights or from community forest under a Community Forest Agreement should not be asked to pay any royalties or premiums. However, the Sub-Decree on Community Forest Management (N°79/2003) states that the harvest, process, transport and sale of NTFPs should be under article 55 of the Forestry Law, which requires the payment of royalties and premiums. Law enforcement institu-



**Photograph 2.**

Extraction of dipterocarp resin in Kampong Thom, Cambodia. Photo M. Boissière.

tions at checkpoints exploit this ambiguity to collect informal fees from local NTFP collectors and traders, during transportation of forest products.

### Site location

Sixteen villages (16) were studied in four (4) Provinces, in which there were four ethnic groups (see table I and figure 1). The villagers were mostly farmers, whose main crop was rice, but they also collect and trade NTFPs (e.g., bamboo, dipterocarp resin, mushrooms and firewood). Table I shows information regarding each of the sites.

**Kampong Chhnang:** the five selected villages are located around a small community forest (173 ha), not far from the main road, about 70km from Phnom Penh. This forest was replanted with assistance from Concern Worldwide (an NGO). The community forest was originally planted with the support of another NGO, Kongrey, in the early 1990s. The small size of the forest and the poor quality of the sandy soil has meant growth has been slow (a maximum growth rate of 1m per year) and the pressure on forest resources is high. Villagers rely on the CF for bamboo, rattan, firewood and mushrooms (photograph 1).

**Table I.**

Demographic information from the research sites (source: Forestry Administration, 2010).

Province	Number of Villages	Number of Households	Number of Community forest households	Population	Ethnic Groups
Kampong Chhnang	5	1,065	734	5,279	Cham, Khmer
Kampong Thom	3	440	377	1,803	Khmer
Mondulkiri	4	367	--	1,493	Phnornng, Khmer, Cham
Ratanakiri	4	466	--	2,275	Charay



**Photograph 3.**

Woman of the Phnong ethnic group, in Mondulkiri (Cambodia), carrying agricultural produce and forest products in a basket (kapha).  
Photo M. Boissière.

**Kampong Thom:** the three selected villages are located in the most forested province of the lowlands of central Cambodia. The presence of a 160,000 ha state-owned logging concession has created tension between the local communities and private companies (occasionally migrants). Local livelihoods depend largely on resin from dipterocarp trees (photograph 2), located in the middle of the logging concession. A ban on log transportation, in 2002, forced the company to halt its activities.

A rubber plantation covering 8,000 ha has also resulted in the degradation of most of the forest resources near the villages. However, the economy of the small town of Tomring depends on the plantation. The presence of outsiders moving into Tomring looking for work and business opportunities with the concession has increased the pressure on forest products. The boundaries and planning of CF were under discussion at the time of the survey.

**Mondulkiri:** four study villages in this province had no community forest at the beginning of the research. The province is near the Vietnam border far from Phnom Penh (one day's drive). It is famous for its ethnic minorities (Photograph 3), spectacular landscape and hill forests (about 1,000 m asl).

This area experiences regular illegal logging, although development of ecotourism has recently increased and may have a positive effect on this situation. In addition to forest degradation private sector investments and the construction of a new road, by a Vietnamese company, have led to an increase in the prices of land making it difficult for local communities to secure land rights.

**Ratanakiri:** this province is located not far from the Lao and Vietnam borders. The four study villages in this province are the furthest from Phnom Penh (one and half day's drive), also located in hills (about 500 m asl). A CF was planned by a project called SEILA, but since the end of the project encroachment has increased. A road construction company from Vietnam is collecting stones in the community forest for the road. Agro-industry for cashews and rubber has also encroached on the CF area. Tensions are high, local morale low and the CF is being increasingly degraded.

## Results

In this section, the results are presented for the selection of NTFPs, the preparation of planting groups, the capacity building of groups of interest, the discussions on management plans and the role of community forests in each of the pilot sites.

### Selected NTFPs in the pilot sites

A list of 15 NTFPs (plants and one species of edible spider) was made with the local communities. The focus was on species easy to find in abundance and/or to plant in nurseries (CHHANG, 2009). The main NTFPs were rattan, bamboo and resin. During community meetings, villagers also asked for non-indigenous species such as Eucalyptus for reforestation (e.g. in K. Chhnang). The list in table II shows all the potential NTFPs that could benefit from more attention from the Forestry Administration (seed production, nursery and plantation development).

### Planting groups per site

After the participatory selection of important NTFPs for trade, villagers agreed on separating activities between NTFP management (including NTFP collection and development of plantations) and processing raw materials (CHAY, 2010). A planting group was formed in some of the villages with high potential (i.e., villagers' interest, decrease in NTFP collection and forest degradation). Each planting group visited an established NTFP nursery and plantation in another village. Table III shows the results of the plantations per village.

In each collecting and planting group there were between six to ten villagers, with a small proportion of women (less than 30% per group). The most dynamic and interested groups were in K. Chhnang Province, as they were well connected to the market (located near the main road) and convinced that developing NTFP trade would increase cash revenue for the households involved (photograph 4). In K. Thom a nursery was necessary only in Tom Or, located near the town, because the other two villages had sufficient NTFPs. In both Mondulkiri and Ratanakiri it was difficult to find villagers interested in developing nurseries. The main problems identified during discussions with the villagers were the difficulty selling NTFPs from a nursery and the risks of planting them on

**Table II.**  
Selection of NTFPs and their use in 16 villages in 4 provinces of Cambodia.

Scientific name	Village*	English name	Khmer name	Uses	Remarks**
-	a, b	Black tarantula	A Ping	Food	MV+++ R
-	d, n	Mushroom	Phoseth	Food	MV+++ A+ (wet season)
<i>Bambusa bambos</i> (L.) Voss. ex Vilm.	e, g, m	Bamboo	Russey Prey	Furniture	MV+ CV+ A+
<i>Calamus salicifolius</i> Becc.	c, f	Rattan	Ro Peak	Handicraft, furniture, basket, food	A+++ MV+ CV+
<i>Calamus viminalis</i> Willd.	o, p	Rattan	Phdao Chhvaing Krek	Furniture	MV++ CV++
<i>Cananga latifolia</i> (Hk. F. & Th.) Fin. & Gagnep.	c	Flagrant flowers	Chker Sreng	Medicine	MV+ CV+
<i>Dendrocalamus nudus</i> Pilg.	n, o, p	Bamboo	Russey Sruk	Furniture	MV++ CV++
<i>Dipterocarpus costatus</i> C.F. Gaertn.	a, b	Dipterocarp	Chheuteal Breus	Glue, paint, cosmetics	Liquid resin: MV+++
<i>Daemonorops jenkinsiana</i> (Griff.) Mart.	a, b	Rattan	Phdao Som	Furniture, food	MV+ A+++
<i>Litsea glutinosa</i> (Lour.) C.B. Rob. var. <i>Glutinosa</i>	m	Indian Laurel	Kropul Bay	Medicine, incense	MC+ CV+
<i>Memecylon scutellatum</i> (Lour.) Naud.	h	-	Khmeuss	Medicine	A+++ CV+
<i>Myrialepis paradoxa</i> (Kurtz) J. Dransf.	c	Rattan	Phado Chhnour	Furniture	A+ (in forest) CV+
<i>Shorea siamensis</i> Miq. Var. <i>siamensis</i>	i, j, k, l	Dipterocarp	Rang Phnom	Hard resin for glue, paint, cosmetics	MV+++ A++
<i>Thyrsostachys siamensis</i> (Kurz. ex Munro) Gamb.	d, e, f, g, h	Bamboo	Russey Pingpong	Furniture, construction	MV+++ A+
<i>Vandopsis gigantea</i> (Lindl.) Pfitzer	i, j, k, l	Orchid	Phkar Orkide Prey	Ornamental	MV+

Note:

\* K. Thom: Chom svay (a), Som Orng (b), Tom Or (c); K. Chhnang: Kanh Chhong (d), Oroung (e), Saray Andat (f), Svay Bakau (g), Svaykroam (h); Mondulkiri: Poukeng (i), Poukroch (j), Pouloung (k), Pouradet (l); Ratanakiri: Som Kaning (m), Somkul (n), Somtrok Thmei (o), Somtrok (p).

\*\* Market Value (MV); Conservation Value (CV); Rare (R); Availability (A); + is low; ++ medium and +++ high.

**Table III.**  
Plantations of valuable NTFPs in the four provinces.

Name of province	Species planted	Nursery (number)	Remarks
K. Chhnang	<i>Daemonorops jenkinsiana</i> , <i>Calamus viminalis</i> , <i>Cananga latifolia</i> , <i>Eucalyptus sp*</i> , <i>Acacia mangium*</i>	4	One village was not interested in these activities. Rattan was directly reintroduced into the community forest.
K. Thom	<i>Myrialepis paradoxa</i> , <i>Calamus salicifolius</i>	1	Only one village needed a nursery because forest products were largely available around each of the other villages.
Mondulkiri	<i>Daemonorops jenkinsiana</i> , <i>Calamus viminalis</i> , <i>Shorea siamensis</i> var. <i>Siamensis</i>	1	Only one village had concerns about the depletion of NTFPs because of illegal logging and rubber plantations.
Ratanakiri	<i>Daemonorops jenkinsiana</i> , <i>Calamus viminalis</i> , fruit seeds ( <i>Durio zibethinus</i> , <i>Artocarpus heterophyllus</i> , <i>Mangifera indica</i> , <i>Annona squamosa</i> )**	4	Because of forest degradation (stone mining, encroachment, agro-industry development) NTFPs were being depleted. Developing nurseries was considered a possible answer to the problem.

Note: \* Introduced species. This was a request from the villagers as these fast growing species were mixed with Dipterocarps during previous reforestation programs. \*\* introduced fruit species were developed based on local demand.



**Photograph 4.**

Woman watering seedlings in a nursery, in Kampong Chhnang province, Cambodia. Photo M. Boissière.



**Photograph 5.**

Bags of resin ready to be sold to middlemen in Kampong Thom, Cambodia. Photo M. Boissière.

common land. Except for more isolated villages, outsiders have access to Community Forests making it difficult to ensure outsiders or cattle do not harm NTFP seedlings. Finding and purchasing seeds suited to each site's climate and soil conditions was also difficult particularly for developing nurseries in the hills of Ratanakiri and Mondulhiri.

#### Groups interested in processing products from raw NTFPs

In addition to the development of nurseries, other groups of villagers who were interested in learning to make products from raw NTFPs (mainly rattan and bamboo) were also identified (HEM, 2010).

The training was divided into two parts. The first part, a series of study tours of two to five days each, provided 20 villagers from each province with an insight into how other villages and provinces were processing NTFPs. This included making bamboo baskets and handicrafts and rattan furniture. The second part, after having assessed local market demands, consisted of eight-day trainings in each village to teach villagers how to make new products. In Kampong Thom no specific training was needed for dipterocarp resin (photograph 5), as collectors were already skilled. Instead, the study focused on making products from other NTFPs (e.g., rattan, see photograph 6).

A higher proportion of women attended the training sessions on making commercial products than the training on nursery development (table IV). This was particularly visible in K. Chhnang, where women normally take care of the trade in baskets and traditional jar supports (photographs 7 and 8). In Mondulhiri, however, there were more men in the training sessions on bamboo and rattan furniture production.



**Table IV.**  
Training villagers in processing raw NTFPs.

Province	Villages	Target products	Training Duration (days)	Number of Participants (women)
K. Chhnang	Svay Bakao	Bamboo baskets	9	8 (6)
	Kanh Choung	Bamboo baskets	63	4 (2)
	Saray Andeth	Bamboo baskets	5	8 (8)
K. Thom	Tom Or	Rattan furniture	25	8 (5)
	Chorm Svay	Rattan furniture	15	6 (1)
Ratanakiri	No training for making commercial products			
Mondulkiri	Pouloung	Rattan and bamboo Furniture: chairs, tables, baskets, racks	10	12
	Pou Kroch	Rattan and bamboo Furniture: chairs, tables, baskets, racks	10 x 2	12

**Table V.**  
Situation of community forest agreements in the 15 research sites.

Province	Size (Ha)	Community Forest Management Status	Remarks
K. Chhnang	173	Small CF process by KONGREY (NGO), with at least 5 villages. Difficult to get official agreement from MAFF	Encroachment from villages located further from the CF. Easy access by road. Presence of cattle.
Ratanakiri	2270 and 1030 according to the plantation company (cashew and rubber)	The boundaries of two CF were marked during SEILA project (2003), but there was no official agreement	Encroachment by a Vietnamese company extracting stone and an agro-industry concession. Degraded forest.
Mondulkiri	1231, 944, 1323 and 678	The boundaries of 4 CF have been marked by the local Forestry Administration, but no official recognition by MAFF yet.	Encroachment and intensive illegal logging by outsiders.
K. Thom	1446	In Tom Or village the CF has been officially agreed by MAFF.	Two of the 3 villages were in a logging concession. Still on-going negotiations regarding the boundaries of the CF

Note: CF = Community Forest.

### Community Forest Management: land tenure

The Community Forest Sub Decree (article 3/2003) states that Community Forests are state public property, but the right to manage CF is given to elected community members (article 4/2003). Even if a CF is in the common domain, the community has customary rights over it (Article 40/2002 of the Forestry Law). Community Forestry in Cambodia is therefore a way to secure access to land and forest resources for local communities, as long as extraction of forest resources is sustainable. But in the project sites, the level of implementation of CFM varied (table V).

Community Forest territory agreements take time; no matter whether the area is isolated or not, hampered by various threats or has a high population density. Official recognition of the new status of a CF also takes time (anywhere from months to years). During the process some forests become too degraded to be of much benefit to the community without extensive reforestation, such as in Ratanakiri. Under these conditions any extraction would not be sustainable. Villagers in Ratanakiri now have difficulty finding NTFPs they used to collect in the past. According to the villagers, the status of the CF doesn't prevent encroachment. It only gives legal status in case official concessions overlap the CF.



**Photograph 6.**

Transportation of furniture made of rattan from Kampong Thom to other provinces in Cambodia. Photo M. Boissière.



**Photograph 7.**

Woman rolling a rattan stem to make a basket in Kampong Chhnang, Cambodia. Photo M. Boissière.

As explained in the CF Sub Decree, the law does not only give rights to communities, but also duties, through a management plan that needs to be developed once the CF status is made official.

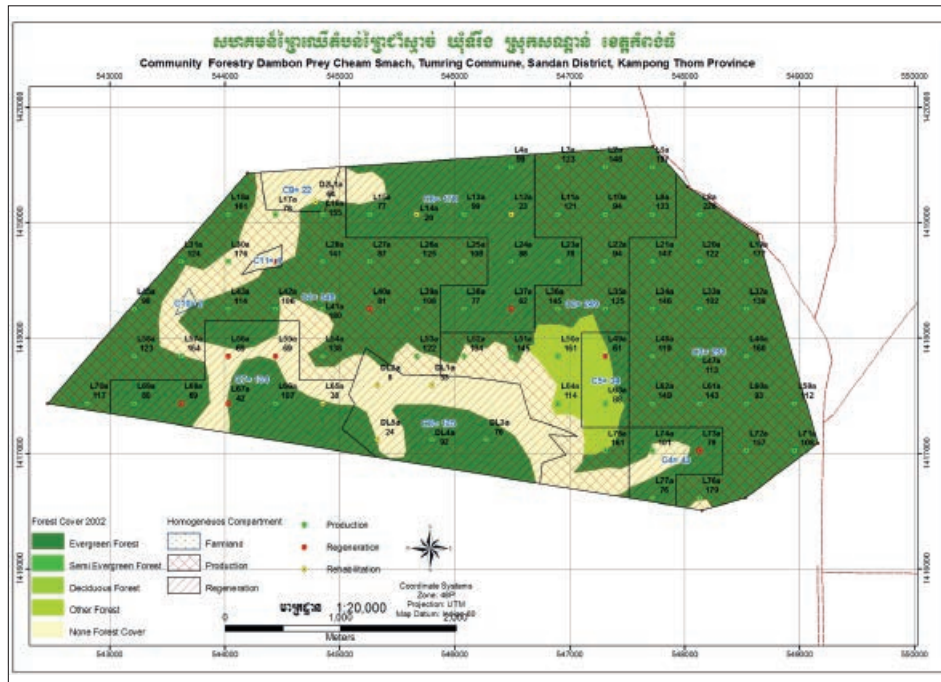
### Management plan

Only Tom Or village (K. Thom Province) had, at the end of our research, a CF officially recognized by the government. The management plan is the last step of the CF agreement. Discussions were initiated about zoning according to different extractive activities. Locations for an NTFP plantation with seedlings from the nurseries, were also identified inside the Tom Or CF, far enough from the main road and therefore encroachment was less likely. Rotation cycles were also decided for each of the selected NTFPs, including the management of a spider resource, an important although limited source of income in Kampong Thom (photograph 9). The maps illustrating the management plan were prepared at the end of the project and submitted to the Forestry Administration when our activities were completed (figure 3).

### Perceptions of villagers about the research on NTFPs

At the end of the project, each village was visited again and asked for their feedback on these research and development activities. Table VI is a summary of the feedback.

Table VI shows that the villagers requested training to improve their sources of income. However, in some cases, their requests were not addressed by the project. Sometimes this was because of research fatigue, lack of incentives, slow return on investment, or mismatch between local expectations and project objectives (*e.g.*, villagers asking for roads, water sanitation and new crops, such as in Kampong Thom). These identified mismatches need to be discussed further for future research and development activities in Cambodia.



**Figure 3.** Map developed by the Forestry Administration with the participation of villagers from Tom Or (Kampong Thom) that represents the management plan of NTFPs in the community forest.

**Table VI.**  
 Local perceptions about the project’s achievements using aggregated results by province.

Province	Positive points	Identified issues
K. Chhnang	<ul style="list-style-type: none"> <li>- General interest in developing a nursery for other NTFPs (e.g., bamboo)</li> <li>- Processing groups began to sell their products</li> <li>- New products to sell</li> <li>- Training provided capacity that can be adapted to market demand</li> <li>- Selling baskets provides more benefits than off farm activities</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of solution for insect pests</li> <li>- Lack of provincial market information</li> <li>- Nursery needs to be located on communal land, not private</li> <li>- Some seedlings could not be sold</li> <li>- Need loans</li> <li>- Some seasonal products are difficult to sell</li> <li>- Lack of participation (villagers)</li> <li>- Difficult to get sufficient income for daily needs especially from the nursery</li> </ul>
K. Thom	<ul style="list-style-type: none"> <li>- Capacity building for processing raw rattan or bamboo in one village</li> <li>- Training on planting rattan</li> </ul>	<ul style="list-style-type: none"> <li>- If no funding to maintain the nursery, it will quickly degrade</li> <li>- Better income from labour than selling NTFPs</li> <li>- Return on investment not quick enough</li> <li>- Expectations not about NTFP trading but infrastructure, transportation, services (education, health), water pump, household sanitation, microcredit for buying cows, agricultural extension</li> <li>- Difficult to interact with the project staff because they are from the Forestry Administration</li> </ul>
Ratanakiri	<ul style="list-style-type: none"> <li>- Learning from study tour outside the province was motivating for local people</li> <li>- Villagers in general interested in a follow-up</li> </ul>	<ul style="list-style-type: none"> <li>- Project staff should visit more regularly</li> <li>- Training on processing raw materials requested, especially for bamboo</li> <li>- Not enough resources and seeds. Villagers don't have the skill to plant seedlings</li> <li>- Need incentives for building the nursery, even if it is for the benefit of villagers</li> <li>- In one village the seedlings in the nursery dried up</li> </ul>
Mondulkiri	<ul style="list-style-type: none"> <li>- Capacity building</li> <li>- Villagers were interested in the training and tools provided</li> <li>- Better to work with small groups of villagers instead of the whole village</li> </ul>	<ul style="list-style-type: none"> <li>- No visible result: villagers discouraged</li> <li>- Lack of interest and incentive in participating</li> <li>- Villagers more involved in off farm activities</li> <li>- Research fatigue with too many NGOs</li> <li>- During meetings villagers were too shy to speak</li> <li>- Lack of information on market</li> <li>- Bad experience in the past with projects not keeping their promises</li> </ul>



**Photograph 8.**  
Rattan baskets used as support for water jars in Kampong Chhnang, Cambodia.  
Photo M. Boissière.



**Photograph 9.**  
Spiders are collected in Kampong Thom (Cambodia) to be sold for food.  
Photo M. Boissière.

## Discussion

Research to improve trade and management of NTFPs has highlighted different issues. Table VI above provides some insights into how local people perceived our activities and their participation in them. This range of local perceptions shows that the first step in any action-research project should be discussion at the beginning of the project. Local priorities and project topics of interest of the local communities need to be fully explored and discussed rather than simply asking villagers to participate and support an already framed project. Exiting approaches that gather the local point of view should be used at the planning stage of the research (SHEIL *et al.*, 2002).

There are a number of other issues related to this specific project that need to be addressed further:

**Legal issues:** Forestry Law and Community Forestry Sub Decree provide a legal framework for acknowledging and supporting the extraction and trade of NTFPs by local communities. It is, however, still too complicated and articles of the law can sometimes contradict each other (e.g., those related to royalties). Simplification and clarification is necessary to avoid illegal exploitation of NTFP traders and collectors (informal fees at checkpoints on the way to market). Despite the fact that community forests provide an interesting way to make NTFP trade legal, transportation remains the main limiting factor.

**Information sharing on market channels and demand:** market information was a clear demand from the NTFP collectors who wished to identify products and product potential in different markets (*i.e.*, local, provincial, national (Phnom Penh) and abroad in some cases). Collecting information from the market was the first step of our study and shows that the market does not always correspond with what villagers consider good value NTFPs. In some cases, *e.g.*, in Ratanakiri and Mondulakiri, market demand could not be met by local NTFP collectors because of forest degradation and depletion of forest products. In Kampong Thom, aside from dipterocarp resin, spiders have good potential. However, the resource is limited and its exploitation has already reached the limits of sustainability (CENGEL & SORN,

2010). In Kampong Chhnang, bamboo baskets show good potential for trade in the provincial capital. In Ratanakiri, our study shows that dried bamboo shoots from Cambodia are successful across the border, in Vietnam, because they are considered a “natural organic product”. However, this resource is becoming scarce due to forest degradation. In Mondulakiri, dry resin had good potential, but in the target villages, most of the resin trees have been logged over and the resin trade has shown a rapid fall in the last 5 years. Gaps between market demand and available NTFPs in the research sites show that information needs to be more regularly updated and available to collectors. Ways to keep them up-to-date with the market should be developed and could include the use of hand phones, largely available in the country with fair networks, even in most rural provinces.

Technical training for nursery development: developing nurseries for seedlings was an idea that villagers supported from the beginning. It brings, however, some issues and limitations that need to be stressed. First the availability of seedlings is not always guaranteed. Sometimes we needed to look for seedlings in other provinces where the climate and soil conditions did not match those of the project site. Second, once the seedlings have grown it can be difficult to find an appropriate place to plant them. If planted in the community forest, there is a risk that outsiders or cattle will damage or destroy the seedlings. In Kampong Chhnang cows ate most of the rattan planted in the CF. If planted on private land, the seedlings become the property of the land owner and with this come issues of common access to that particular resource. Third, once the seedlings are ready to be planted, it is difficult for the planting group to sell them in the local market, i.e., the farmers who want to process raw NTFPs. Fourth, regular funding needs to be provided, at least during the first few years, to maintain seedling stocks and in case of environmental stress (long drought for example). This is difficult to secure unless there is a follow-up or continuation of the development project. Fifth, the nurseries should grow cuttings, when possible, as they are less fragile than seedlings.

Training on processing products from raw NTFPs, for example furniture and handicrafts: training and tools were provided in most of the research sites. However, maintaining drills and other machines of small enterprises processing bamboo furniture, such as in Kampong Chhnang, will need longer-term financial and technical support. Some training could not be provided because of a lack of time and is still needed. In some cases (e.g., in Mondulakiri or in Kampong Chhnang), groups of villagers processing NTFPs were motivated to explore new designs in products and to sell them in the provincial capital or local markets. These groups would have benefited from longer engagement with the project in terms of financial and technical support. Another issue is the impact of new products on more traditional ones, which are being replaced and for which the skills to make them may be quickly lost (Photograph 10). It is difficult to keep this knowledge alive when villagers are abandoning these products due to a lack of raw materials, use of more modern tools, or a lack of market demand without a clear incentive. Ecotourism could help, but many of these villages are inaccessible and this may prevent tourists from visiting them.



**Photograph 10.**

Woman preparing a homemade torch in Kampong Thom, Cambodia. This technique is disappearing with the increasing use of electric torches. Photo M. Boissière.

Working on access: access is not only related to tenure, but can also include the construction of roads. Some villages, such as in Kampong Thom, wanted road construction, when asked about their more urgent needs. Sometimes the need is identified without considering what a road would bring in terms of side effects, such as newcomers looking for land to cultivate and encroachers. The natural resources of some of these villages have been preserved because of their isolation, which is also the reason why they still lack access to services and regular income. This is also why it is difficult to develop a sustainable and profitable NTFP trade.

Issues of time: the length of a project is generally three years. This does not provide sufficient time or financial and technical support for monitoring and follow-up work after the time consuming activities required for identifying the relevant NTFPs to manage in each village. At the end of the project, the nurseries had been built and planted and groups of volunteers trained. But regular assessments were missing. These would have provided ideas for different and more needed crops, additional training and funding and assistance with adaptation for new actions.

## Conclusion

It is not enough to work with local communities to improve their sources of income from the trade in NTFPs. Projects, scientists and policy makers need to ask villagers what their needs and priorities are and how they see their contribution to the proposed projects. This information should then be shared with decision-makers.

This research was a success in areas well connected to the market and where local collectors had a clear idea of what their needs were in terms of NTFP trade. In more isolated places, where issues of land encroachment, illegal logging, a lack of infrastructure and agricultural extension services were the most salient, NTFP management was not the main focus of these communities. This needs to be acknowledged.

When projects are introduced, they are almost always accepted by local communities, with the hope that they will not only deliver the announced outputs, but also bring some new ideas and help villagers to address their more pressing issues and worries. They expect projects and institutions involved to be more interested in their priorities. When the projects depart, however, they frequently leave a general impression of dissatisfaction, incompleteness and project/research fatigue. This needs to be taken into account in future research. Flexibility is key to adapting the aim of a project to local people's needs. This is especially true when the needs are related to poverty reduction.

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