



## Democratising forest business: a compendium of successful locally controlled forest business organisations

Duncan Macqueen, Anna Bolin and Martin Greijmans  
(Editors)



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**Edited by** Duncan Macqueen, Anna Bolin and Martin Greijmans

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# Brazil: Cooperativa Mista da Flona do Tapajós (COOMFLONA)

## A successful community-based forest enterprise

by Shoana Humphries, Dárlison Andrade and David McGrath

In 2000, a change in the law in Brazil gave indigenous communities the right to live within public forests. This coincided with growing recognition that local communities are essential in managing forest resources to both conserve the forest and create local sources of income. The Mixed Cooperative of the Tapajós National Forest (Cooperativa Mista Verde da Flona do Tapajós or COOMFLONA) is a community-based forest cooperative that manages a large-scale forest enterprise in the Brazilian Amazon, run by and for local communities. COOMFLONA has obtained FSC certification while creating much-needed jobs and income for community members. This chapter describes how, despite facing many challenges related to leadership, financial viability and access to forest resources, COOMFLONA has found that partnerships with social movements, government agencies, NGOs and the local university have been essential to overcoming these obstacles.

## 4.1 Context in which COOMFLONA operates

### 4.1.1 The enabling environment

Timber production is an important economic activity in the Amazon region. In the Brazilian Amazon, Pereira *et al.* (2010) estimate that the timber industry employed 203,705 people (or 2 per cent of the population) and generated US\$2.48 million. While the volume of timber produced in the region is falling (47 per cent from 2004 to 2011) (Pereira *et al.*, 2010; SFB, 2013), selling timber remains an important economic activity for rural families and there is much concern over the role timber harvesting can play in making forests susceptible to forest fires and conversion for crops and pasture. Among the various strategies for controlling deforestation in the region is the government's designation of public lands as conservation units and indigenous territories. According to Brazil's Chico Mendes Institute for Biodiversity Conservation (ICMbio, 2014), Brazil has 122 federal conservation units in the Amazon biome, of which 45 are extractive reserves (RESEX) and 32 are national forests (FLONAs). The RESEXs are designed to promote the sustainable use of resources by local communities who have historically lived in the forests, while FLONAs are designed for the use and protection of forests through concessions to companies and communities.

The Tapajós National Forest is located in Brazil's Amazon region in western Pará State along the eastern margin of the lower Tapajós River, mostly in the municipality of Belterra (Figure 4.1). Created in 1974, with approximately 527,000ha (IBAMA, 2004), this conservation unit contains a great diversity of landscapes, including more than 160

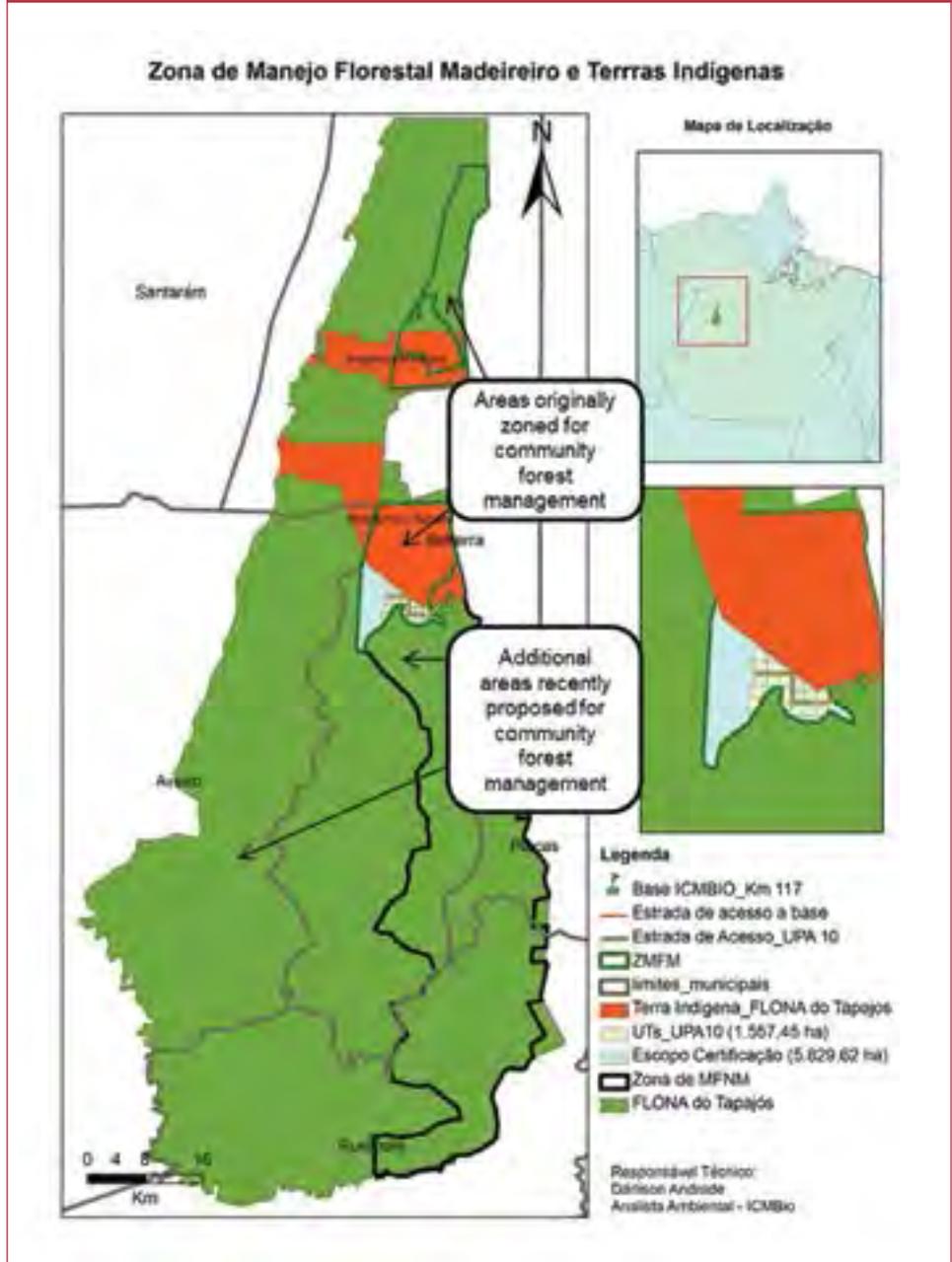
kilometres of shoreline, rivers, lakes, wetlands, upland forest, hills, plateaus, fields and açai palm groves. Since before the creation of the FLONA, the area has also been home to the Munduruku indigenous group and traditional peoples; riverine families with their own culture and customs (IBAMA, 2004). These communities have a long history of making a living from various productive activities, principally subsistence agriculture, fishing, hunting, and the extraction of non-timber forest products, such as natural latex ('cernambi'). Few income-generating activities exist in the region's rural areas, and communities located in the municipality of Belterra were ranked very low in the 2010 United Nations Development Programme (UNDP) Human Development Index (66 out of 143 municipalities in Pará State) (UNDP *et al.*, 2013).

The Tapajós FLONA was created without the consultation or consent of the communities living in the area and in the 1980s and mid-1990s there were several initiatives to remove families who had arrived after the establishment of the FLONA (IBAMA, 2004). The communities initially resisted and organised themselves, with the help of the Catholic Church and the Union of Rural Workers of Santarém, into three intercommunity associations in 1994. However, after a few more years of discussions, a plebiscite was held in 1996 and they voted to be excised from the FLONA. Two proposals for this purpose were submitted to the national congress but were never presented for a vote, and were subsequently archived (IBAMA, 2004).

In the late 1990s and early 2000s, the context of the tenure situation changed. In 1997, community members signed an agreement with the government responsible for the management of the FLONA regarding use rights. In 2000, Brazil's National System of Conservation Units Law (Law No. 9.985/2000) was passed, which provided the right for communities to live within public forests. This coincided with growing recognition of the need to involve local communities in managing forest resources as partners in both forest conservation and in creating local sources of income. Indeed, today the creation of conservation units is often done to resolve and/or avoid conflicts over land use, and to protect the rights of traditional families to live in and sustainably use forests.

Several projects implemented in the Tapajós National Forest in the late 1990s and early 2000s also influenced the situation in the FLONA, including the ProManejo project (Project to Support Forest Management in the Amazon) and an experimental timber-harvesting project financed by the International Tropical Timber Organisation (ITTO). The ProManejo project was part of the Pilot Project for the Protection of Tropical Forests in Brazil (PPG7) and in 1998 it began investing in the management of the Tapajós National Forest and in income-generation opportunities for families, such as small animal husbandry and small furniture workshops (ProManejo, 2006). From 1999–2002, the ITTO project tested the technical and financial feasibility of low-impact logging techniques in the Tapajós National Forest. This was the first experience in Brazil with a forest concession granted to a company to manage a public forest on a short-term, experimental basis. Local residents were indignant that a company was allowed to commercially harvest forest resources near their communities and began lobbying the agency managing the FLONA at the time (Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA) to give this right to communities.

Figure 4.1 Map of the Tapajós National Forest



Source: ICMBio (2014)

In 2003, IBAMA published Ordinance 40, which granted the three intercommunity associations the right to implement community forest management on an experimental basis in the FLONA Tapajós, and another plebiscite in the same year resulted in a majority vote for communities to stay in the FLONA (IBAMA, 2004). This led to the creation of the Mixed Cooperative of the Tapajós National Forest (Cooperativa Mista da Flona do Tapajós – COOMFLONA), and the Ambé forestry pilot project in 2005. The idea to form the cooperative was supported by community members, IBAMA staff and ProManejo consultants with whom they were collaborating to secure the communities' rights to harvest timber in the FLONA. The three intercommunity associations also formed the Federation of Organisations and Traditional Communities of the Tapajós National Forest (Federação das Organizações e Comunidades Tradicionais da Floresta Nacional do Tapajós – FCFT) in 2004, which continues to serve as the organisational base of the cooperative. A total of 37,928ha in the FLONA, organised into two units of approximately equal size, were designated for community forest management. In 2005, COOMFLONA received authorization to harvest timber in 100 ha within one of the units of approximately 19,000 ha (minus sensitive areas). The ProManejo project supported the first three annual harvests of timber (2005-2008).

After ten years of operation in the Tapajós National Forest, COOMFLONA is a model for community-based forest management in the Amazon region and an important global reference. It has faced many challenges over the years and responded in ways that can be instructive to others. It is also important to recognise the critical role that the cooperative's many partners have had in helping COOMFLONA to address these challenges and grow. Finally, the fact that the cooperative operates in a highly bureaucratic system and is surrounded by illegal logging activities means that the cooperative still faces risks and cannot take its success for granted. Among its main challenges today are access to markets, access to forest resources (the excision of indigenous lands from the FLONA in 2012 reduced the total area designated for community forest management to 13,000ha, not including 4,237ha for research), and protecting the financial integrity of the cooperative while responding to the many needs and demands of its members.

#### **4.1.2 The operating environment**

Brazil is a major producer, processor and consumer of timber, ranking among the top five countries for the production of wood fuel, industrial roundwood (logs), sawn wood and wood pulp (used mainly for paper products) (FAO, 2014). Within the tropical timber sector, Brazil is second (behind Indonesia) in terms of both tropical log production and tropical log consumption (ITTO, 2012). In 2011, 12.9 million m<sup>3</sup> of logs from tropical natural forests were produced in Brazil's Legal Amazon region, and this resulted in 5.9 million m<sup>3</sup> of sawn wood (SFB, 2013). The Legal Amazon of Brazil includes eight states and part of a ninth state in the north of the country, and covers approximately 60 per cent of Brazil's territory. The state of Pará, where COOMFLONA operates, produced 33 per cent of Brazil's tropical roundwood in 2011 (SFB, 2013).

Tropical timber production in the Brazilian Amazon is a highly informal industry. In 2009, 36 per cent of the tropical timber sold in Brazil was estimated to be illegal (Pereira *et al.*, 2010). While illegal logging may result in a few trees removed per hectare, operators tend to be indiscriminate when it comes to minimum tree diameters (except for sawmill requirements) and leaving seed trees. In addition, illegal logging is often essentially theft from the government or local families. Among the factors contributing to the large proportion of illegal timber is the fact that very few landowners have a legal land title (Amaral *et al.*, 2007) – an attempt to remedy this situation is the new Rural Environmental Registry (CAR), in which all rural properties must register by 2016 (Law No. 12.651/2012, Decree No. 8.235/2014).

In addition, permission must be obtained for the legal sale and transport of timber through either a forest suppression permit or a sustainable forest management plan. The processes for both, especially the latter, are expensive, time consuming and technically demanding. Furthermore, illegal logging is more lucrative in the short term as it is not constrained by the conservative rules for tree harvesting, including minimum tree-size diameters, the minimum number of seed trees to be left per species, nor by minimum wage legislation, safety regulations, or legal contracts with safeguards and fairly negotiated prices. As a result, legal operations such as COOMFLONA that pay fees and taxes and follow environmental and labour laws are at a disadvantage when competing with illegal loggers. On the other hand, as demand for timber with verified legal origin increases in importing countries such as the UK, which imported US\$405 million of timber in 2011 (SFB, 2013) demand for products from such operations may increase. The campaign by Greenpeace in 2014 which drew attention to the export of illegal timber to Europe by a timber company in Pará may help expedite this process (Greenpeace, 2014).

COOMFLONA has the only concession in a Brazilian national forest implemented by a cooperative. Operators in other national forests are industrial companies, despite the national government's intention to have a part of each national forest managed by local community associations. COOMFLONA is also unique among Brazil's community-based forest enterprises for its large contiguous annual harvest area (1,000ha in 2013 and 1,600ha in 2014), its sale of logs from a central log patio<sup>1</sup>, and its employment of local people for field activities (e.g. tree inventories, felling trees, measuring logs). In fact, the cooperative's timber and other productive activities have made it the principal source of employment for the communities in the FLONA (Andrade *et al.*, 2014), with almost 100 timber-related jobs created for local people in 2013. Other community forestry initiatives for timber production in Brazil are implemented in RESEXs, sustainable development reserves and in land reform settlements, and usually sell standing trees to companies who take over all technical activities related to timber extraction.

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1. A log patio is a space where logs are stored for longer periods of time, whereas a log deck is temporary log store.

## 4.2 About COOMFLONA as a business

### 4.2.1 Vision

In 2005, residents of the Tapajós National Forest formed COOMFLONA with the vision of facilitating forest management and the sale of sustainably harvested timber. The ProManejo project financed the first three years of operating costs, including infrastructure, technical assistance, equipment, training, materials and other services. COOMFLONA has gradually increased its direct role in forest management activities and increased the size of its annual harvest area. COOMFLONA has also increased its membership over time, with new members applying to join each year. After almost 10 years of strengthening its organisational and technical capacity, COOMFLONA achieved FSC certification for its timber production in 2013.

The cooperative implements other initiatives as well aimed at creating additional jobs and income opportunities for cooperative members and other residents of the FLONA. In 2012 it began restoring a carpentry workshop in one of the communities which was originally installed by the ProManejo project, and in 2013 it began using a portable sawmill (also obtained from the ProManejo project) to saw large branches and parts of tree trunks (residues from logging) into boards to supply the carpentry workshop. These initiatives fall under the purview of the COOMFLONA technical and operational team. The cooperative also assists community members in the production and sale of natural latex and latex products, medicinal oils and seeds, and recently opened a store in Santarém (in front of its main office) to sell finished products including doors, furniture and crafts (see photos). It is also working with external partners and communities to develop community-based tourism activities in the FLONA.



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COOMFLONA field camp in the Tapajós National Forest



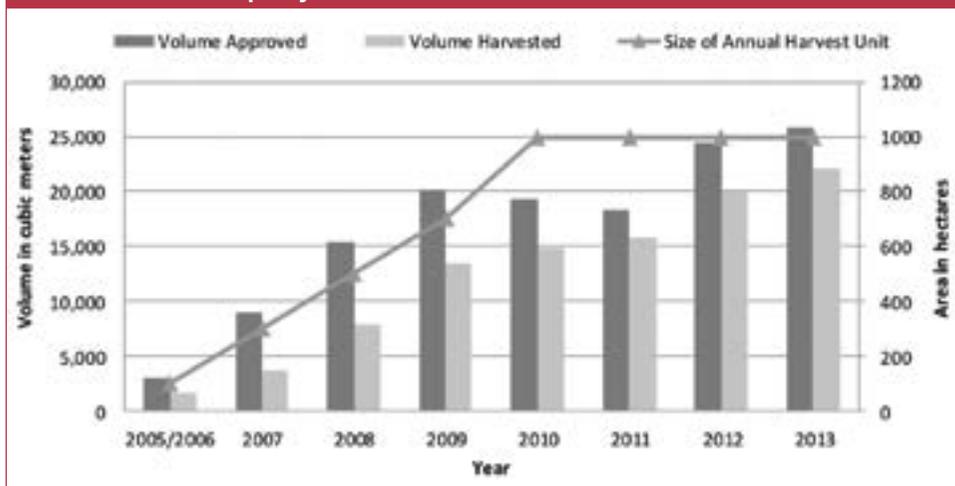
**Store run by COOMFLONA in the city of Santarém**

With few exceptions, the staff and temporary workers are from the communities in the FLONA and are members of the cooperative. There are currently 212 members, and approximately 96 were directly involved in forest management in 2013 (26 permanent staff and 70 temporary workers). The number has increased since 2004 based on the number of workers needed. Requirements for joining the cooperative include being at least 18 years of age, attending a course on cooperatives, being from a traditional family living in the FLONA, being a member of one of the two remaining intercommunity associations in the FLONA (see Section 3.4.1 for information on the removal of the third intercommunity association from the FLONA). In addition to being eligible to work in the timber operation, members also benefit by being able to decide how to allocate 20 per cent of the cooperative's profit, which is often paid out as a type of dividend. ICMBio staff estimate the cooperative provides direct and indirect benefits to about one quarter of the population of the FLONA.

The annual area and timber volume harvested have increased since the initial harvest in 2006 of 100ha to 1000ha in 2010 (Figure 4.2). The annual harvest area is expected to increase to 1600 ha in 2014 (the annual harvest area size for 2015 forward is currently under discussion). In 2013, COOMFLONA sold 22,023m<sup>3</sup> of logs at a central log patio through an auction (Figure 4.2). The average volume extracted was 22m<sup>3</sup>/ha<sup>-1</sup> over

1,000ha; this is well below the legal limit in Pará of 30m<sup>3</sup>/ha<sup>-1</sup> for a 35-year harvest cycle, but double what many Community Forest Enterprises (CFEs) harvest in the region (see Humphries *et al.*, 2012; Medina and Pokorny, 2014). The difference in the volume approved and volume sold can be due to many factors, including the selection of trees for felling that are later found to be unsuitable (e.g. hollow), delays in the authorisation of harvest activities (tree harvest and transport must be completed before the rainy season begins), and the early onset of the rainy season.

**Figure 4.2 Volume of timber authorised and harvested (m<sup>3</sup>) and area (ha) of annual harvest per year**



Source: COOMFLONA and ICMBio

The species sold include more valuable hardwoods and other lighter woods. Some hardwoods (e.g. *ipé*, Spanish cedar) can be sold for prices several times higher than other 'high value' species, but after some experimentation with selling wood in different price classes, the cooperative decided to sell all species together for one minimum price, which was R\$230/m<sup>3</sup> in 2013 (US\$106.73). Up to the 2013 harvest, the cooperative sold timber to the same local sawmill, with one additional buyer for the 2012 harvest (see Section 3.5.2 on the challenges to date of cultivating more buyers). For the 2012 timber harvest, COOMFLONA allowed another buyer to purchase part of its timber, but that buyer complained that the best logs were going to the other buyer. The cooperative decided to sell all the timber to only one buyer for the 2013 harvest, and to continue considering other options in the future. With FSC certification, the cooperative is hoping to attract buyers from the national and international markets. Currently the high-value hardwood species are processed into boards and/or finished products (e.g. for flooring or furniture) in Brazil and exported to Europe and the US. The other species supply national and local markets in various forms (such as boards for construction, plywood or furniture).

Analyses by Humphries *et al.* (2012) and Medina and Pokorny (2011, 2014) found positive rates of return on timber for COOMFLONA based on data for the second harvest in 2007

of 300ha. Humphries *et al.* (2012) found a 12 per cent rate of return under the scenario that the temporary workers were paid based only on days worked rather than the actual situation of being paid monthly salaries. Medina and Pokorny (2011, 2014) took estimated costs for 100ha (also multiplying daily rates by days worked instead of using monthly salaries) and multiplied them by 10 to get the estimated cost for 1,000ha which was the target annual harvest area at the time, and estimated an 80 per cent rate of return. In more recent analyses, a financial evaluation of COOMFLONA's sixth harvest (2011) found a profit of R\$1.6 million (US\$911,264) and a rate of return of 132 per cent, after including all operating costs for harvesting and transporting logs to the central log patio (Humphries *et al.*, forthcoming).

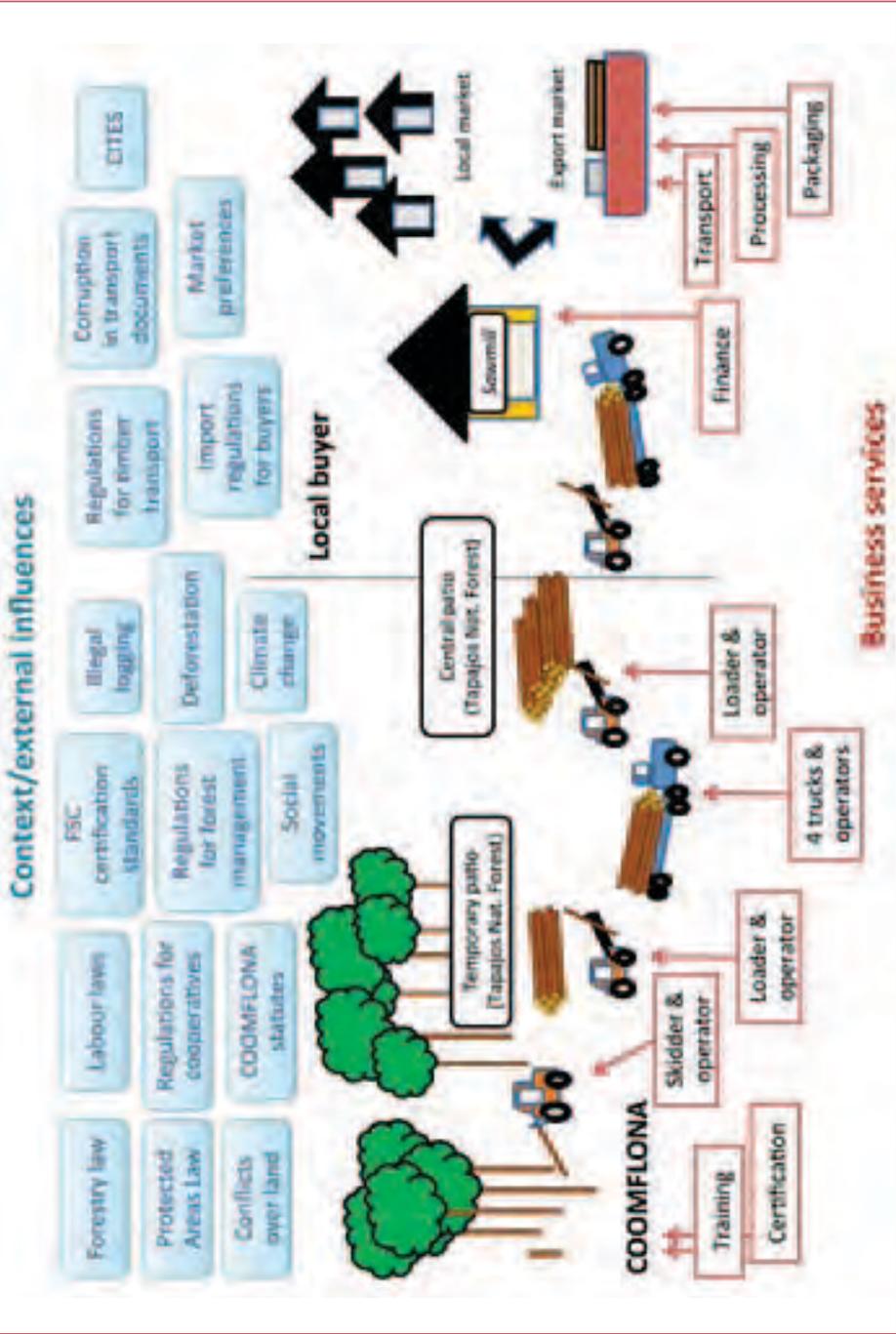
As mentioned, the cooperative supports many productive activities with its timber income, so the annual profitability of the cooperative as a whole is less than its profit from timber. The cooperative's overall profit was calculated to be R\$460,000 for 2011, which indicates it may have used approximately R\$1 million to support other activities and/or to reinvest in its timber operation. But there was no thorough analysis of the use of COOMFLONA's timber income in 2011. The most recent profit estimate by COOMFLONA's accounting team was R\$610,041 in 2013 (see Section 3.3 for more information on the cooperative's accounting system and how it allocates profit among different funds).

#### **4.2.2 Business inputs**

As previously mentioned, COOMFLONA received financial assistance for its first three years of operation (2005 to 2007) from the ProManejo project, a programme of the Pilot Project for the Protection of Tropical Forests in Brazil (PPG7), which was funded by Germany, the European Union, the UK, the Netherlands, USA, France, Italy and Russia (ProManejo, 2006). It saved income from its first three timber sales to build the capital it would need to operate independently. It had some financial difficulties in 2007/8 due to mismanagement, and received financial assistance from another internationally funded project, Floresta em Pé, in 2008. Since 2009, it has operated using primarily its own capital. However, it still receives subsidised inputs in the form of workshops and trainings offered as part of projects, a subsidised fee offered by the Tropical Forest Institute (IFT) for the use of a skidder, and financial assistance for preparing and paying for certification from The Amazon Alternative (TAA) Project and certification body the Institute of Agricultural and Forest Management and Certification (IMAFLOA) respectively.

The cooperative's access to the FLONA for timber production is in the form of a non-onerous concession, which exempts the cooperative from paying a set fee per cubic metre of timber harvested. This represents a significant subsidy from the government. Permission to harvest timber was obtained through submission of a sustainable forest management plan to IBAMA in 2005 (which was updated in 2013), as well as an annual operating plan, which details the specific trees to be felled and all related management activities for the year. It is anticipated that ICMBio will take over approval of management plans in the near future (2016). In addition, the cooperative must register its timber credits (received with the approval of the annual operating plan) in IBAMA's documentation of forest origin system (Sistema DOF) to facilitate the transport of its roundwood to saw mills.

Figure 4.3 Value chain for COOMFLONA's timber production



### 4.2.3 Main activities

COOMFLONA is an officially-registered cooperative and its timber production activities include pre-harvest activities (inventories, preparation of annual operating plans, planning of trails for log removal, road and patio construction); tree felling and transportation to a log patio in the forest with a skidder (a modified tractor or other heavy machinery that can pull a log from the forest); log measurement; loading and transportation of logs to a central log patio near the road with a truck; and cutting logs to a specific length for buyers (see photos and Table 4.1). COOMFLONA employed approximately 96 people in 2013 in positions related to timber production and administration of the cooperative. Buyers transport the logs from the FLONA to their processing facilities, and then either export the sawn wood of higher-value species or sell it to domestic secondary processing plants, which export final products (see Figure 4.3). The remainder is sold in local or national markets.

### 4.2.4 Technology

Before the beginning of the field season, COOMFLONA holds a members' assembly to discuss plans for timber-harvesting activities. Any changes, such as increases in the size of the annual harvest unit, are discussed and agreed upon in the assembly.

To complete the timber harvest-related activities (Table 4.1), COOMFLONA uses techniques that are required either by law and/or by the FSC certification standards. The specific reference for the FSC standards is FSC-STD-BRA-03-2013 V3-1 PT – FSC Standards for Small Scale and Low Intensity Forest Management (SLIMF) (Padrão de Certificação do FSC para o Manejo Florestal em Pequena Escala e de Baixa Intensidade). Brazilian legislation requires a one hundred per cent inventory of trees above a certain size and reduced impact logging techniques, which include methods for planning harvesting and log removal that aim to minimise environmental impacts. The FSC standards go beyond legislation in several ways, e.g. requiring a demonstration of the financial viability of the operation and the resolution of any social conflicts related to forest management activities.

### 4.2.5 Business partners

The cooperative's only business partners for timber production are related to machinery rental. These include local businesses as well as the non-profit organisation IFT, which rents a skidder to the cooperative at a greatly reduced price (R\$72/hour instead of R\$350/hour). IFT received funds to purchase the skidder from a private foundation in the US to use in its work to support community forest management. When funding to continue those efforts ended, IFT decided to lease the skidder to COOMFLONA at cost i.e. only charging them the value of annual depreciation and maintenance.

### 4.2.6 Customer groups and product types

Pereira *et al.* (2010) identified 31 processing companies in the Santarém region who produced 96,000m<sup>3</sup> of processed wood in 2009. The same study found that 60 per cent of timber sold in the state is obtained from third parties, including 28 per cent from smallholder lands (holdings of less than 500ha). High-value tropical timber is usually exported as lumber or finished products (e.g. flooring, furniture or musical instruments), while lower-value species are used for construction and furniture in domestic markets.

**Table 4.1 Activities related to timber harvesting and the number of workers involved**

Activity	Description	Number of workers
Administration (permanent employees)		
Administration	Leadership of the cooperative, planning and supervision of all timber-related activities and general support (including the leadership committee, other committee members, technical staff, accounting staff, lawyer, drivers, maintenance staff, cooks, guards)	26
Field activities (temporary workers)		
Inventories	Demarcation of the area to be inventoried; identification, measurement, tagging and notation of trees; cutting vines from trees of commercial species and with minimum diameter	14
Planning of roads and log decks/patios	Identification of where roads and log decks will be sited; processing of inventory data; preparation and submission of the annual operating plan; road and patio construction	5
Road and patio construction	Use of machinery to open roads and log patios/decks	1 (+ external machinery operators)
Tree felling	Once authorisation for harvest is received and the sale of the trees is negotiated, the trees are felled	10
Planning trails for removing logs	Identification of paths ('skid trails') for tree removal that will cause the least environmental damage and be cost effective	5
Log removal ('skidding')	The transport of trees from where they were felled to a temporary log deck with a tractor modified for this purpose ('skidder')	6
Log measurement	The measurement of the trees at the temporary log decks	14
Log loading and transport	The loading, transport, and unloading of logs to a central log patio where the buyer will retrieve them	1 (+ external machinery operators)
Field support activities	Food preparation; cleaning; transportation; inventories	14
	Subtotal	96

At the level of Pará State, in 2009 there were 1,067 processing facilities who sold 2.55 million m<sup>3</sup> of processed timber products, of which 80 per cent was sold as sawn wood, 8 per cent as finished products (e.g. doors, windows and floors), and 12 per cent as laminated panels or plywood (Pereira *et al.*, 2010).

In future, the cooperative plans to install a large capacity permanent sawmill. This will allow the cooperative to provide more jobs and capture more value from its timber through the sale of sawn wood or dimensional lumber, potentially in more lucrative national and international markets.

#### 4.2.7 Differentiation in the market place

Timber offered by COOMFLONA is differentiated by its verifiable legal source, in that it comes from a cooperative-run operation whose employees are almost entirely local community members, and that it is FSC certified. Products made entirely from the cooperative's wood, such as doors and furniture, would qualify to use the FSC's new community origin label, as long as the processing facility has FSC chain-of-custody certification (the small furniture workshops run by COOMFLONA do not have this yet). The buyers of COOMFLONA's wood up to the 2013 harvest were not FSC chain-of-custody certified.



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(Left to right) Tree felling; transporting logs to a temporary log patio; loading logs for transport to the central log patio; logs in central log patio.

## **4.3 Who controls COOMFLONA?**

### **4.3.1 Origin of the value proposition**

The discussion about establishing a community-based forestry initiative in the Tapajós National Forest began when communities complained of timber harvesting by outsiders during the ITTO project and proposed a project involving local community members in sustainable timber harvesting. In addition, a technical team of the ProManejo project lent support to the proposal for a community forestry initiative in the FLONA after visiting community forestry enterprises in Mexico (Medina and Pokorny, 2014). In the end, local community pressure and support from the ProManejo project and IBAMA (the government agency in charge of the forest at the time) led to the formation of the cooperative and its initiation of forest management activities and commercial timber production in 2005.

### **4.3.2 Control over forest resource access**

In 2007, the Chico Mendes Institute for Biodiversity Conservation (ICMBio) was created (Law No. 11.516/2007) to manage federal conservation units, including national forests and extractive reserves. At this time, the administration of the Tapajós National Forest was transferred from IBAMA to ICMBio. However, IBAMA has maintained authority over resource management activities within national forests, including timber harvesting (though it is anticipated this will be transferred to ICMBio in the near future). The FCFT has a concession from ICMBio to use part of the FLONA for timber production (approximately 19,000ha), which provides the legal basis for COOMFLONA's management of the forest, and COOMFLONA had authorisation from IBAMA (based on an annual operating plan) to harvest timber in 1,600ha in 2014. The process to obtain authorisation to harvest timber is regulated by Resolution No. 406, National Congress of the Environment (Congreso Nacional del Medio Ambiente, CONAMA), 02 February 2009. The process to obtain authorisation to transport timber is covered by Normative Instruction No. 21, IBAMA, 26 December 2013. (The original plan was to authorise a second area of almost 19,000ha after harvesting in the first area was complete, but see Section 4.4 for recent changes in the area of COOMFLONA's forest concession.)

### **4.3.3 Control of the business**

COOMFLONA is controlled by its members through an assembly. Membership was originally offered in 2005 to 24 members of the three intercommunity associations (8 members per association). This was based on the amount that ProManejo could invest as start-up capital for the cooperative of R\$200,000, and the estimation that each member would receive 85 quotas or shares with a value of R\$10 each. The number of members increased to 62 in 2009, and reached 212 in 2014. New members are expected to pay 10 quotas of R\$10 each within the first year of membership. Members have the right to work for and to receive a share of the cooperative's profit. Membership requirements and rules are defined in the statutes of the cooperative.

The cooperative is managed on a daily basis by the elected leadership committee, which includes a president, vice-president, treasurer, vice-treasurer, secretary and vice-secretary who work full time for the cooperative (Figure 4.4). The leadership committee is assisted by environmental and/or forest engineers and a part-time lawyer who together form the

technical and legal assistance team, and two or three cooperative members who form a financial committee. The leadership committee also works with the marketing and sales coordinator, the technical and operations coordination team and the financial and administrative assistance team. Only five permanent staff members who work in the technical and legal assistance and the administration and finance assistance teams are not members of the cooperative. Outside organisations who worked with COOMFLONA in 2014 included ICMBio and IBAMA from the government (who provide assistance and ensure compliance with laws and regulations) and the non-governmental organisations IFT, the Federal University of Western Pará (UFOPA) and the International Institute of Education in Brazil (IEB) (who provide technical and organisational assistance).

Women made up only 14 per cent of cooperative members in 2014, and have comprised a small proportion of the workers involved in timber production activities. In the same year, the cooperative employed five women in the main office (one non-member), three on the financial audit committee, and six in the field camp (e.g. as cooks, cleaners and administrators). No women performed tasks in the forest, although two women who had previously worked as forest technicians switched to administrative roles in the main office in 2013 (one as secretary of the cooperative and one as assistant coordinator of non-timber forest products).

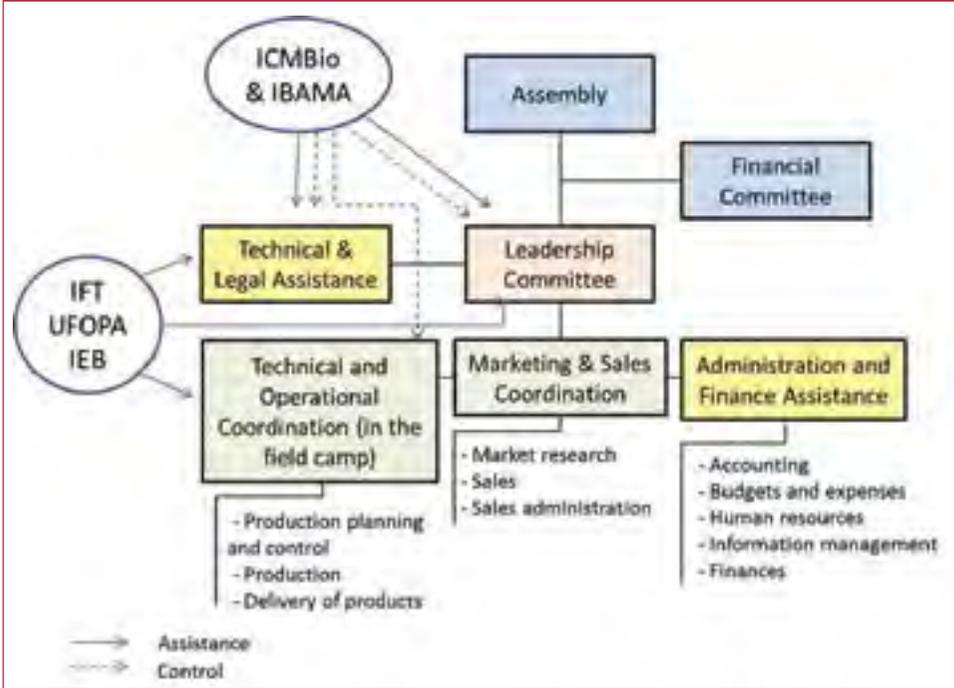
The main source of income for the cooperative is timber. The administration and finance team is responsible for day-to-day accounting. At the general assembly, held during the first three months of the year, the financial information for the previous year is presented and validated by the finance committee. In addition, members can ask to see the accounting records at any time. After accounting for all of the cooperative's expenditure (including for activities related to developing non-timber forest products and tourism), profit is allocated as follows: legal reserve (10 per cent); investment fund (45 per cent); a fund to help communities (15 per cent); healthcare fund (5 per cent); social, educational and technical assistance fund for cooperative members' education and training (5 per cent); and a fund which cooperative members decide how to allocate (20 per cent; this money is often paid in cash in equal shares to cooperative members, like a dividend).

#### **4.3.4 Staff selection and roles**

Before the beginning of field activities, representatives of the leadership and technical committees meet with representatives of the intercommunity associations to decide how to divide the jobs evenly among the association members. The members are then assigned to specific work teams, based on their experience and knowledge, and receive additional training as necessary.

The cooperative tries to spread out employment opportunities among families, and in cases where more than one family member is a cooperative member the family must decide who will work. The choice is usually for the male family member to work, as their earning potential is usually higher than for women. Two notable exceptions are two women who worked as forestry technicians before moving on to occupy the posts secretary of the cooperative (part of the leadership committee) and assistant coordinator of non-timber forest products (part of the technical team).

**Figure 4.4 Organisational chart of COOMFLONA and its main partners**



Adapted version of an organizational chart developed by Coomflona

### 4.3.5 Delivery options

COOMFLONA does not have the capacity to deliver the logs to the buyer, and has passed this responsibility and cost to the buyer.

### 4.3.6 Customer research

Tropical hardwoods are in higher demand and command higher prices than lighter wood species, and a subset of hardwoods can sell for very high prices. When the cooperative's annual operating plan is approved, the director of marketing distributes a list containing the volume of trees by species authorised for harvest to potential buyers in local, state and national markets. The cooperative completes the sale of the logs before harvesting begins, which ensures that only trees that will be purchased are felled.

For the 2013 harvest, instead of allowing different buyers to purchase specific species at differentiated prices, the cooperative decided to offer all of its timber in bulk for one price per cubic metre of wood. This decision was made after issues with the 2012 harvest when one of the two buyers complained that the other buyer had received higher-quality logs, and after calculating the potential savings from not separating logs in the log patio into value classes. In addition, the cooperative is hoping to capture greater value for its timber resources through FSC certification and through primary processing with its own permanent sawmill in the next few years.

### **4.3.7 Promotion and marketing**

The director of marketing and the leadership committee promote the cooperative's timber products through various means: posting the list of species and volumes approved for harvest on a local municipality's blogspot, delivering the list to potential buyers and promoting the timber auction via the local newspaper and radio stations. Promotion is limited to letting the potential buyers know about the auction, but no further work is done to promote the product to others (their buyer undertakes his own promotion and has his own network of clients that he will sell primary processed products to).

## **4.4 How has COOMFLONA overcome key challenges?**

### **4.4.1 Challenges relating to the value proposition**

The key challenges for COOMFLONA in establishing and developing its community-based forest enterprise have been obtaining the legal right to manage the forest, ensuring the financial viability of the cooperative and maintaining access to forest resources. In facing all of these challenges, partnerships with government and non-governmental organisations and strong internal leadership have been essential.

Regarding key financial challenges to keeping the business in operation, in 2008, the cooperative's president began distancing the cooperative from its government and non-governmental collaborators. Local IBAMA representatives were very concerned about how the cooperative was managing ProManejo project funds, and there were rumours COOMFLONA was going to lose its forest-use concession. A sufficient number of cooperative members supported a mid-term election and a new president was elected by a small margin. It was discovered that the cooperative had not only spent the capital it had saved from the first three timber sales, but had also accumulated approximately R\$180,000 in debt according to the person who was elected to replace the president in the mid-term election in 2008. COOMFLONA's new leadership secured financial assistance from the Floresta em Pé project for the 2008 harvest season, and scaled back expenses; after a few years it was able to pay off the debt and rebuild the cooperative's capital.

There have also been two major conflicts over land since the use concession was granted to the Federation of Intercommunity Associations in 2003. The first had major financial repercussions, and the second significantly reduced COOMFLONA's forest access. First, in 2012, after years of discussion and previous efforts, four communities that belonged to one of the intercommunal associations were excised from the Tapajós National Forest (these communities were not traditional families). This meant they could no longer be cooperative members and this reduced the number of intercommunal associations in the FLONA from three to two. As compensation for being expelled from the cooperative, in 2013 COOMFLONA paid 55 members a sum of R\$550,000 (US\$255,475). This was a significant and unexpected financial burden, but resolved a long-standing conflict within the FLONA. Second, in 2010 three communities self-identified as indigenous and claimed an area within the FLONA designated for community forest management of approximately 20,700ha. Their claim for territory was acknowledged in 2012 and ICMBio received a recommendation from the Federal Prosecutor's Office to discontinue allowing timber harvesting in the disputed area. The repercussions for COOMFLONA are discussed in Section 3.4.2.

#### **4.4.2 Overcoming legal challenges**

COOMFLONA has worked closely with IBAMA and ICMBio to ensure compliance with all legal requirements and to resolve issues related to resource access and financial challenges. The cooperative has faced two major issues related to resource access. The first major resource access issue was the legal right of communities living in the FLONA to manage the forest. This right was granted to the communities of the Tapajós National Forest in 2003 (Ordinance 40, IBAMA).

The second major resource-access challenge was when three communities self-identified themselves as indigenous and requested that the forests they traditionally used were removed from the area that COOMFLONA manages for timber. This reduced the total area within the FLONA designated for community forest management from 38,000ha to approximately 17,000ha: the first unit was reduced from 19,001ha to 11,576ha and the second unit was reduced from 18,927ha to 5,661 ha.

COOMFLONA will complete its last harvest in the first unit in 2014, and is in the process of obtaining authorisation to harvest the second unit, which now has only enough land to support timber harvests for 2015 and 2016. It is currently working with ICMBio to receive authorisation for a completely new area of approximately 79,000ha which, as a less ecologically sensitive area, is expected to provide 75,000ha (Figure 4.1). This will mean new investments in infrastructure, as the current field facilities (canteen, sleeping quarters, storage buildings and field office) are far from the new area. This will be an additional financial burden, but will strengthen the cooperative's access to resources.

#### **4.4.3 Overcoming ownership and benefit-sharing challenges**

Employment opportunities are spread evenly among the 21 communities that participate in the cooperative. The communities are represented by two intercommunity associations: one association represents 14 communities and the other represents seven. The cooperative has clear guidelines for the allocation of profit, and any changes must be proposed, discussed and approved in the annual assembly.

#### **4.4.4 Overcoming labour challenges**

Sustainable selective logging of tropical forests is a highly technical and dangerous activity. It requires a great deal of training and teamwork. COOMFLONA received considerable financial assistance from the ProManejo project for training and staff during the first few years of operation. Training was provided by IFT, which specialises in tropical forestry planning and harvesting operations, and from the UFOPA regarding inventories of commercial species and, beginning in 2011, with the processing of large branches into rough lumber. Training in basic technology was an important part of this process, as many of the original workers had no previous experience with mobile phones or computers.

Today, the cooperative has a capital reserve that covers its operating costs (though it still benefits from some subsidies) and its more experienced staff train new workers (for example, they took extra work teams to the field for on-the-job training in 2013 in preparation for the larger annual harvest unit in 2014). The cooperative recognises the

importance of bringing young people into the cooperative and investing in their education and training. To underscore this point, the former cooperative president noted in an interview that he and many of the workers were in their 40s when the project started, and they no longer have the physical capacity to fell big trees.

#### **4.4.5 Overcoming delivery challenges**

COOMFLONA delivers logs to a central log patio within the FLONA, where the company who purchases the logs retrieves them. Only two delivery problems to date were identified. In one case, some logs were cut shorter than the buyer had specified. The problem was resolved quickly and follow-up training was carried out. Second, in 2013, as noted earlier, when the logs from the 2012 harvest were divided and sold to two buyers, one buyer complained that the best logs had been allocated to the other buyer. In this case, COOMFLONA decided to return to selling all of the timber as a package deal to avoid this problem in the future.

#### **4.4.6 Overcoming marketing challenges**

COOMFLONA staff report that the key to keeping customers happy is to immediately respond to their concerns and to correct any mistakes with additional training as soon as possible. For example, when the problem regarding the short logs occurred, the president of the cooperative immediately took responsibility for the problem and went to the field to ensure workers understood the dimensions that had been requested and were correctly measuring logs. As a result of their efforts, the same buyer has returned every year.

Prior to 2013, COOMFLONA did little to distinguish its products. This is now changing, since COOMFLONA earned FSC certification in 2013. The FSC Brazil office is helping to promote timber from COOMFLONA as having the added value of being not only certified, but also from a community-based forest enterprise. Given the tough competition in the tropical timber market, the hope is that the relatively small volume of wood products from an FSC-certified community forest will appeal to organisers of special events, such as the organising committee for the 2016 Olympic Games in Brazil.

### **4.5 Key lessons**

#### **4.5.1 Keeping down costs**

A recent study (Humphries *et al.*, forthcoming) undertaken with COOMFLONA staff and partners found the total cost of production for the 2011 harvest was R\$1.28 million (US\$689,741). Materials and services were over half of the total costs (57 per cent), followed by labour (37 per cent) and machinery and equipment (6 per cent). Administrative costs were high (33 per cent), and the most costly field activity was loading and transporting logs from the forest to the central patio (30 per cent).

The cooperative has implemented many measures for reducing costs. First, in the first few years of operation, temporary workers were paid set wages for each 25-day period they spent at the field camp, whether they worked every day or not. In order to make labour more efficient in terms of time and to reduce total costs (e.g. food, fuel), this was

changed to a system of payment based on production. For example, for the activity tree felling, workers are paid based on the number of trees they fell, not how many days they work. If they finish the job quickly, they receive the same pay and can return home to do other productive activities, while consuming less food in the field camp and decreasing transportation costs. In addition, the cooperative offers bonuses to independently contracted machinery operators as an incentive to finish their work as quickly as possible.

The cooperative has taken steps to reduce administrative costs, as well. For example, a bid system is used for the purchase of materials (e.g. fuel, food) and services (heavy machinery), and contracts are awarded to the lowest bidders. In addition, the cooperative staff agreed to maintain 2013 salary rates for 2014.

One of the problems in keeping costs down is that COOMFLONA uses the heavy machinery it rents for maintaining logging roads to help maintain the roads for the communities within the FLONA. This is a significant benefit to the communities, but represents a large expense for COOMFLONA, which comes out of the cooperative's reinvestment fund, not the community or profit-sharing funds.

#### **4.5.2 Retaining customers and willingness to pay**

To date, COOMFLONA has had a very limited customer base for several reasons. Its first three annual production areas (100 to 500ha) and volumes were quite small. This and the high costs of transporting logs from the FLONA to processing facilities limited the financial attractiveness of its timber sales. In addition, in order to maximise transparency and to encourage competition, COOMFLONA used an auction system that required the receipt of bids before a certain date. The common perception among COOMFLONA and local government agency staff is that few timber companies in the surrounding region meet the legal qualifications (including being up-to-date on all relevant income and labour taxes) to participate in an auction of logs harvested from a national forest. The bureaucracy involved in participating in the auction also further discourages participation. In retrospect, this sales method has had the adverse effect of minimising competition, with one buyer setting the price for all but one of the last eight harvests. As a result, the cooperative decided to consider other methods for timber sales for 2014, such as direct negotiation with buyers. Recent increases in its annual harvest area and volume, FSC certification, and the increased efforts of the government to crack down on illegal timber sources will likely increase the number of buyers interested in COOMFLONA's timber and improve prices in the future.

#### **4.5.3 Success factors**

COOMFLONA staff members report that the cooperative's success to date is due in large part to the strong organisational and financial operating bases it has built with the help of its partners. An early partnership with the local workers' union helped form and strengthen the intercommunity associations as well as the cooperative. Several partners have helped the cooperative access funds and lower costs. Government agencies, including IBAMA, ICMBio and the Brazilian Forest Service (SFB) have helped channel funds to the cooperative from projects (including both the ProManejo and Floresta em

Pé projects). The local university (UFOPA) and NGOs (IFT, IEB, Earth Innovation Institute) have offered training at reduced or no cost. Finally, the staff at IBAMA and ICMBio have helped COOMFLONA navigate the complex bureaucracy for obtaining authorisation to manage part of the Tapajós National Forest, and helped manage internal conflicts (such as the association that left the cooperative in 2012). Other important factors include the abundance of commercial timber species in the forest; the relatively large production area and volume in recent years; an effort to continuously create new sources of jobs within the FLONA, which helps maintain community support; and reinvesting in the cooperative itself in terms of training, infrastructure and equipment.

Other observations by COOMFLONA staff include the importance of avoiding the 'patrão' system (where specific people become entrenched as leaders) by constantly investing in the new leaders of tomorrow and by changing leadership every three years. Indeed, the strong focus on building human resources within the cooperative is notable, and several members of the Leadership Committee are continuing their education at local institutions in the evenings.

With a new, larger area for forest management and timber production expected and its investments to date in infrastructure, leadership and worker capacity, COOMFLONA is poised to consolidate a long-term, sustainable forestry operation. However, it still faces risks associated with forest resources (the income-generation potential of the new area remains to be seen), bureaucracy and social conflicts. COOMFLONA will need to continue to learn, reflect and improve as an organisation, and to maintain good relationships with partners to ensure its long-term success.

In considering COOMFLONA as a model for the region, it is notable that cooperative members are currently working in collaboration with ICMBio and UFOPA to prepare a new cooperative in the neighbouring Tapajós-Arapiuns Extractive Reserve to manage their forest area and produce timber for commercial markets. This is a marked contrast to the initiation of forest management by COOMFLONA, and will be an important test of replicability of the COOMFLONA model with markedly less initial investment and the use of local experts and technical teams instead of people from outside the region.



## References

- Ackzell, L. (2009) '100 years of Swedish forest owner associations: challenges ahead.' Presentation to the international conference Taking Stock of Smallholder and Community Forestry: Where Do We Go From Here? Montpellier, France, 24–26 March 2010. Federation of Swedish Family Forest Owners, Stockholm, Sweden.
- ADB (2002) Indigenous peoples/ethnic minorities and poverty reduction in the Philippines. Asian Development Bank. See: [www.adb.org/publications/indigenous-peoples-ethnic-minorities-and-poverty-reduction-philippines](http://www.adb.org/publications/indigenous-peoples-ethnic-minorities-and-poverty-reduction-philippines)
- Amaha, A. (2013) Conservation and livelihood impacts of decentralized forest governance in Ethiopia. PhD dissertation, Faculty of Science, University of Copenhagen, Denmark.
- Amaral, P., Amaral Neto, M., Nava, F.R. and Fernandez, K. (2007) Manejo florestal comunitário na Amazônia Brasileira: avanços e perspectivas para a conservação florestal. Brasília: Serviço Florestal Brasileiro and ProManejo/IBAMA. See: [www.florestal.gov.br/publicacoes/apoio-didatico/manejo-florestal-comunitario-na-amazonia-brasileira](http://www.florestal.gov.br/publicacoes/apoio-didatico/manejo-florestal-comunitario-na-amazonia-brasileira)
- Andrade, D.F.C., Carvalho, F.M., Silva-Ribeiro, R.B., Dantas, J.B. (2014) Manejo florestal comunitário como estratégia de gestão e melhoria da qualidade de vida da população tradicional da Floresta Nacional do Tapajós. In: Simpósio Nacional De Áreas Protegidas. Viçosa, Minas Gerais. Anais [do] III Simpósio Nacional de Áreas Protegidas, 28–30 May 2014. Viçosa: MG. UFV, DEF.
- Angkasith, P. (1991) Attitude of hilltribe coffee growers towards coffee growing and extension in the highlands. *Kasetsart Journal* 25, 68–75.  
See: <http://research.rdi.ku.ac.th/world/showitem.php?itemID=117675&lang=en>
- Antinori, C. and Bray, D.B. (2005) Community forest enterprises as entrepreneurial firms: institutional and economic perspectives from Mexico. *World Development* 33(9): 1529–1543. See: [www2.fiu.edu/~brayd/Antinori-Bray percent20WD.pdf](http://www2.fiu.edu/~brayd/Antinori-Bray%20WD.pdf)
- APCOB–CICOL (2000) Dueños del bosque: manejo de los recursos naturales por indígenas chiquitanos de Bolivia. See: <http://tinyurl.com/apcob-cicol-2000>
- BaoMoi.com (8th January 2011) Quang Tri: Khanh thanh Nha may che bien nhua thong Quang Phu (Quang Tri: Inauguration of rosin processing factory Quang Phu). See: [www.baomoi.com/Quang-Tri-Khanh-thanh-Nha-may-che-bien-nhua-thong-Quang-Phu/45/5515706.epi](http://www.baomoi.com/Quang-Tri-Khanh-thanh-Nha-may-che-bien-nhua-thong-Quang-Phu/45/5515706.epi)
- Bard, A.K., Coltorti, M., DiBlasi, C.M., Dramis, F., Fattovich, F. (2000) The environmental history of Tigray (Northern Ethiopia) in the middle and late Holocene: a preliminary outline. *African Archaeological Review* 17: 65–86.
- Belmonte, A. (2014) Interview with authors William Lozano and Azaharel García, 2 August 2014.
- Ben Hai Forestry Company (2010) Sustainable forest management plan for the period of 2011–2020. Quang Tri, Vietnam. 2010
- Biggs, S. and Messerschmidt, D. (2005) Social responsibility in the growing handmade paper industry of Nepal. *World Development* 33(11), 1821–1843.
- Bolin, A., Lawrence, L. and Leggett, M. (2013) Land tenure and fast-tracking REDD+: time to reframe the debate? Oxford: Global Canopy Programme.

- Bowler, D., Buyung-Ali, L., Healey, J. R., Jones, J. P. G., Knight, T., and Pullin, A. S. (2010) The evidence base for community forest management as a mechanism for supplying global environmental benefits and improving local welfare: Systematic review. CEE review 08–011 (SR48). *Environmental Evidence*. See: [www.environmentalevidence.org/SR48.html](http://www.environmentalevidence.org/SR48.html)
- BPS (2014) Poverty profile in Indonesia September 2013. Statistic official news 06/01/Th. XVII. 2nd January, 2014.
- Bray, D.B. (2010) Toward post-REDD+ landscapes: Mexico's community forest enterprises provide proven pathway to reduce emissions from deforestation and forest degradation. CIFOR InfoBrief 30. See: [www.cifor.org/publications/pdf\\_files/infobrief/3272-infobrief.pdf](http://www.cifor.org/publications/pdf_files/infobrief/3272-infobrief.pdf)
- Bray, D.B., Merino-Perez, L., Negreros-Castillo, P., Segura-Warnholtz, G., Torres-Rojo, J.M. and Vester, H.F.M. (2003) Mexico's community-managed forests as a global model for sustainable landscapes. *Conservation Biology* 17 (3) 672–677. See: [www.commdew.org/userfiles/mexicos\\_community\\_managed\\_forests.pdf](http://www.commdew.org/userfiles/mexicos_community_managed_forests.pdf)
- Bray, D.B., Antinori, C. and Torres-Rojo, J.M. (2006) The Mexican model of community forest management: the role of agrarian policy, forest policy and entrepreneurial organization. *Forest Policy and Economics* 8, 470–484. See: <http://are.berkeley.edu/~cmantinori/fpe.pdf>
- Butler, R. (2014) Cambodia. *Mongabay.com* website. See: <http://rainforests.mongabay.com/20cambodia.htm>
- Butzer, K.W. (1981) Rise and fall of Axum, Ethiopia: a geo-archaeological interpretation. *American Antiquity* 46: 471–495.
- Camara, K. (2007) Community eco-tourism enterprises for poverty reduction: lessons from the Gambia. In: Donovan, J. (Ed) *Small and medium enterprise development for poverty reduction*. Conference proceedings from the international conference on small and medium enterprise development for poverty reduction: opportunities and challenges in globalised markets, Turrialba, Costa Rica. Tropical Agricultural Research and Higher Education Center (CATIE).
- Cavallo, E. with Lawrence, S. and Imhof, A. (2008) Poverty reduction in Laos: an alternative approach. In: *Power surge: the impacts of rapid dam development in Laos*. International Rivers: Berkley, CA, USA. See: <http://tinyurl.com/power-surge-rivers>
- CBI (2014) Tailored information: product characteristics of West African cashew nut kernels. CBI Ministry of Foreign Affairs. See <http://tinyurl.com/cbi-cashew>
- CBS (2011) Nepal living standards survey 2010–2011. Central Bureau of Statistics, National Planning Commission Secretariat, Kathmandu. See: <http://cbs.gov.np/nada/index.php/catalog/37>
- CBS (2012) National population and housing census 2011. National Report Volume I, Central Bureau of Statistics. National Planning Commission Secretariat, Kathmandu.
- CEDAC (2012) Wild honey market survey in Cambodia. CEDAC, Phnom Penh, Cambodia.
- CEESP (2008) Recognising and Supporting Indigenous & Community Conservation: Ideas & experiences from the grassroots. CEESP briefing note 9. See: [www.rightsandresources.org/documents/files/doc\\_1049.pdf](http://www.rightsandresources.org/documents/files/doc_1049.pdf)
- Chao, S. (2012) Forest peoples – numbers across the world. Forest Peoples Programme, Moreton-in-Marsh, UK. See: <http://tinyurl.com/chao-2012-forest-peoples>
- Charnley, S. and Poe, M.R. (2007) Community forestry in theory and practice: where are we now? *Annual Review of Anthropology* 36: 301–336.

- CIA (2014) World factbook: Nepal. Central Intelligence Agency. See: [www.cia.gov/library/publications/the-world-factbook/geos/np.html](http://www.cia.gov/library/publications/the-world-factbook/geos/np.html)
- CIOEC (2009) Primer censo nacional de OECA's Organizaciones Económicas Campesinas, Indígenas y Originarias (CIOEC): aporte de las OECA's al índice de desarrollo productivo. La Paz, Bolivia.
- CNSM (2014) Salarios mínimos 2014. Secretaría del Trabajo y Previsión Social, Mexico, 2014. Comisión Nacional de Salarios Mínimos. See: [www.conasami.gob.mx/pdf/tabla\\_salarios\\_minimos/2014/01\\_01\\_2014.pdf](http://www.conasami.gob.mx/pdf/tabla_salarios_minimos/2014/01_01_2014.pdf)
- Conexión (2011) Municipio San Antonio de Lomerío: línea base: Nivel Municipal, Características Generales. See: [www.conexion.org.bo/uploads/Santa\\_Cruz\\_San\\_Antonio\\_de\\_Lomerio.pdf](http://www.conexion.org.bo/uploads/Santa_Cruz_San_Antonio_de_Lomerio.pdf)
- Coppen, J.J.W. (2005) Overview of international trade and markets. In: Ben, C. and Enrico, C. (eds) *Production and marketing of gum resins: frankincense, myrrh and opoponax*. FAO/NGARA. See: [www.ngara.org/Production%20and%20Marketing%20of%20Gum%20Resins.pdf](http://www.ngara.org/Production%20and%20Marketing%20of%20Gum%20Resins.pdf)
- CSA (2007) Population and housing census report – country 2007. Central Statistical Agency. See: [www.csa.gov.et/index.php/2013-02-20-14-51-51/2013-04-01-11-53-00/census-2007](http://www.csa.gov.et/index.php/2013-02-20-14-51-51/2013-04-01-11-53-00/census-2007)
- Delnoye, R. and Phelan, L. (undated) Stories of hope: portraits of Lao upland farmers. SADU-NAFRI-NAFES, Laos.
- deMarsh, P., Boscolo, M., Savenije, H., Campbell, J., Zapata, J., Grouwels, S. and Macqueen, D. (2014) Making change happen – how governments can strengthen forest producer organisations. Forest and Farm Facility Working Paper, FAO, Rome, Italy.
- DLGLM (2002) Local Government Act. Department of Local Government, Lands and Mines, the Gambia.
- DoCSI (2013) Industrial promotion statistics. Department of Cottage and Small Industries, Ministry of Industry, Government of Nepal.
- Doepke, M. and Tertilt, M. (2014) Does female empowerment promote economic development? NBER Working Paper 19888. National Bureau of Economic Research, Massachusetts. See: [http://faculty.wcas.northwestern.edu/~mdo738/research/Doepke\\_Tertilt\\_0411.pdf](http://faculty.wcas.northwestern.edu/~mdo738/research/Doepke_Tertilt_0411.pdf)
- DoF (undated) Community forests national database. Unpublished database. Accessed March 2014, Department of Forests, Ministry of Forest and Soil Conservation, Nepal.
- DoF (1996) The forest policy of the Gambia (1996–2005). Banjul, the Gambia.
- DoF (1998) Forest Act and Regulation. Department of Forestry, Banjul, the Gambia.
- Doi Chaang Coffee Company (19 December 2013) Doi Chaang Coffee's commitment to sourcing and supplying only wild civet coffee. *A Cup of Doi Chaang* website. See: <http://tinyurl.com/dccc-19-12-13>
- Donovan, J., Stoian, D. and Poole, N. (2008) Global review of rural community enterprises: the long and winding road for creating viable businesses and potential shortcuts. CATIE, SOAS, San José, Costa Rica. See: <http://tinyurl.com/donovan-et-al-2008>
- DOS (2015) Districts identified as poor. Laos Atlas, Department of Statistics (DOS), Ministry of Planning and Investment. See: [www.laoatlas.net/links/Section%20A/a8.html](http://www.laoatlas.net/links/Section%20A/a8.html)
- DTI (2013) Abaca industry profile in the whole world. Department of Trade and Industry, Malaybalay City, Philippines.
- Durst, P.B., Brown, C., Tacio, H.D. and Ishikawa, M. (2005) In search of excellence: Exemplary forest management in Asia and the Pacific. FAO and RECOFTC, Bangkok, Thailand.

- Elson, D. (2012) Guide to investing in locally controlled forestry. Growing Forests Partnership in association with FAO, IIED, IUCN, The Forest Dialogue and the World Bank. IIED, London, UK. See: <http://pubs.iied.org/13565IIED.html>
- Emana, B. (2009) Cooperatives: a path to economic and social empowerment in Ethiopia. Series on the status of cooperative development in Africa. CoopAFRICA working paper, ILO, Geneva. See: <http://econpapers.repec.org/paper/iloilowps/446712.htm>
- Equipos Mori (2010) Estudio del mercado de miel y subproductos: estudio realizado en las ciudades de Santa Cruz y La Paz. CEPAC. See: <http://tinyurl.com/equipos-mori-2010>
- Estremera, S.A. (2012) The future in their hands. Sun Star News, the Philippines. See: <http://archive.sunstar.com.ph/weekend-davao/2012/11/25/future-their-hands-254976>
- European Union (2010) Council Regulation (EC) No 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs KAFAE DOI CHANG. *Official Journal of the European Union*.
- FAO (2005) Empowering communities through forestry: community-based enterprise development in the Gambia. See: [www.fao.org/docrep/008/j6209e/j6209e00.HTM](http://www.fao.org/docrep/008/j6209e/j6209e00.HTM)
- FAO (2009a) Nepal forestry outlook study. Asia Pacific Forestry Sector Outlook Study II, Food and Agriculture Organization of the United Nations (FAO) Regional Office for Asia and the Pacific, Bangkok. See: [www.fao.org/docrep/014/am250e/am250e00.pdf](http://www.fao.org/docrep/014/am250e/am250e00.pdf)
- FAO (2009b) Thailand forestry outlook study. FAO Regional Office for Asia and the Pacific. See: [www.fao.org/3/a-am617e.pdf](http://www.fao.org/3/a-am617e.pdf)
- FAO (2010) Global forest resources assessment 2010 main report. Forestry Paper 163, Food and Agriculture Organization of the United Nations. See: [www.fao.org/docrep/013/i1757e/i1757e00.htm](http://www.fao.org/docrep/013/i1757e/i1757e00.htm)
- FAO (2011) State of the world's forests. See: [www.fao.org/docrep/013/i2000e/i2000e.pdf](http://www.fao.org/docrep/013/i2000e/i2000e.pdf)
- FAO (2013) Strength in numbers: effective forest producer organizations. FAO, Rome, Italy.
- FAO (2014) Yearbook of forest products 2008–2012. FAO Forestry Series 47. FAO Forestry Statistics 203. Rome: Food and Agriculture Organization. See: [www.fao.org/publications/card/en/c/4c4c7538-ea53-405b-83c1-e4e84e19d820/](http://www.fao.org/publications/card/en/c/4c4c7538-ea53-405b-83c1-e4e84e19d820/)
- FAO (2015) FAOSTAT database. See: <http://faostat3.fao.org/download/F/FO/E>
- Feris and Greijmans, M. (undated) Community forest enterprises: Stages of development. RECOFTC, Bangkok, Thailand.
- FPD (undated) Forest Protection Department of Vietnam. See: [www.kiemlam.org.vn](http://www.kiemlam.org.vn)
- FSC (2014) FSC principles and criteria for forest stewardship, FSC-STD-01-001 V5-1 EN. Forest Stewardship Council. See: <https://ic.fsc.org/principles-and-criteria.34.htm>
- FSC (2015) Success stories – benefits that FSC certification has brought to smallholders. See: <https://ic.fsc.org/success-stories.595.htm>
- FSC and Smartwood (2006) Public certification resumé: Ixtlán de Juárez community. Certificate: SW-FM/COC-147, Smartwood Programme c/o Rainforest Alliance. See: [www.rainforest-alliance.org/forestry/documents/Ixtlán\\_juarez.pdf](http://www.rainforest-alliance.org/forestry/documents/Ixtlán_juarez.pdf)
- G3 (2011) Investing in locally controlled forestry. Growing Forest Partnerships briefing, January 2011. The G3 (Global Alliance of Community Forestry (GACF), the International Family Forestry Alliance (IFFA) and the International Alliance of Indigenous and Tribal Peoples of Tropical Forests (IAITPTF)). See: [www.fao.org/forestry/26528-063e711845fdb85651e572c333a4dd3e4.pdf](http://www.fao.org/forestry/26528-063e711845fdb85651e572c333a4dd3e4.pdf)

- García Tamayo, M. (undated) President of Ixtlán's present Community Commissariat, interview with authors.
- GBoS (2013) Personal communication with staff at the Gambia Bureau of Statistics.
- GMA News Online (21 July 2014) Pests threaten Aklan abaca plantations. See: [www.gmanetwork.com/news/story/371305/scitech/science/pests-threaten-aklan-abaca-plantations](http://www.gmanetwork.com/news/story/371305/scitech/science/pests-threaten-aklan-abaca-plantations)
- Gole, T.W., Borsch, T., Denich, M. and Teketay, D. (2008) Floristic composition and environmental factors characterizing coffee forests in southwest Ethiopia. *Forest Ecology and Management* 255: 2138–2150
- GoN (1988) Building on success: the national conservation strategy for Nepal. National Planning Commission, Government of Nepal.
- GoTG (2009) Agriculture and natural resources policy 2009–2015. Government of the Gambia (GOTG).
- Greenpeace (2014) The Amazon's silent crisis: logging regulation and 5 ways to launder. See: [www.greenpeace.org/usa/Global/usa/planet3/PDFs/Forests/SilentCrisisTimberReport.pdf](http://www.greenpeace.org/usa/Global/usa/planet3/PDFs/Forests/SilentCrisisTimberReport.pdf)
- GSO (undated) General Statistics Office of Vietnam. See [www.gso.gov.vn](http://www.gso.gov.vn)
- Gurung, K. (2015) Interview with authors about HBTL and FSC-certified handmade paper, 14 February 2015.
- Gutiérrez, VHR. (2010) Determinación de costos de aprovechamiento forestal de troza de bosque bajo manejo en Organizaciones Forestales Comunitarias beneficiarias del Proyecto Baba Carapa – Versión 2.0. Fundación Puma, Región de Guarayos, 2010, Santa Cruz Bolivia
- Hajjar, R. and Timko, J. (2014) Small forest based enterprises in the Gambia: opportunities and challenges. In: Katila, P., Galloway, G., de Jong, W., Pacheco, P. and Mery, G. (eds.) *Forests under pressure: local responses to global issues*. IUFRO World Series Volume 32, Vienna.
- Hansen, M.C., Potapov, P.V., Moore, R., Hancher, M., Turubanova, A., Tyukavina, A., Thau, D., Stehman, S.V., Goetz, S.J., Loveland, T.R., Kommareddy, A., Egorov, A., Chini, L., Justice, C.O., and Townshend, R.G. (2013) High-resolution global maps of 21st-century forest cover change. *Science* 342: 850-853.
- Hernández Miguel, B.I. (2011) Organización comunitaria para la producción e innovación sustentable: el caso de la Unidad Comunal Forestal Agropecuaria y de Servicios de Ixtlán de Juárez Oaxaca. CIIDIR Oaxaca. See: <http://tinyurl.com/Hernandez-Miguel-2011>
- Herrera, E. (2006) Community forestry in Mexico. Reforestamos México for FERN, Mexico, August 2014.
- Humphries, S., Espada, A.L., Dantas, J., dos Santos, M. and Feitosa, R.J. (forthcoming) O Caso da Cooperativa Mista da Flona do Tapajós – COOMFLONA. Projeto Fortalecendo Empreendimentos Florestais Comunitários na Amazônia.
- Humphries, S., Holmes, T., Kainer, K., Koury, C., Cruz, E. and Miranda Rocha, R. (2012) Are community-based forest enterprises in the tropics financially viable? Case studies from the Brazilian Amazon. *Ecological Economics* 77: 62–73.
- IBAMA (2004) Floresta Nacional do Tapajós: Plano de Manejo, Volume 1. See: [www.icmbio.gov.br/portal/images/stories/imgs-unidades-coservacao/flona\\_tapajoss.pdf](http://www.icmbio.gov.br/portal/images/stories/imgs-unidades-coservacao/flona_tapajoss.pdf)

- ICEM (2003) Thailand national report on protected areas and development: review of protected areas and development in the Lower Mekong River Region. See: [www.mekong-protected-areas.org/thailand/docs/thailand\\_nr.pdf](http://www.mekong-protected-areas.org/thailand/docs/thailand_nr.pdf)
- ICOFE (2014) Índice de competitividad forestal estatal. IMCO and Reforestamos México See: <http://tinyurl.com/icofe-2014>
- ICMBio (2014) Unidades de Conservação por Bioma. See: [www.icmbio.gov.br/portal/images/stories/servicos/geoprocessamento/DCOL/dados\\_tabulares/UC\\_por\\_Bioma\\_IBGE\\_fev\\_2015.pdf](http://www.icmbio.gov.br/portal/images/stories/servicos/geoprocessamento/DCOL/dados_tabulares/UC_por_Bioma_IBGE_fev_2015.pdf)
- IRD (2012) Cashew business basics: The Gambia River Basin Cashew Value Chain Enhancement Project (CEP). International Relief and Development (IRD), pp 1–65.
- IRD and USDA (2009) Memorandum of understanding: the Gambia River Basin Cashew Value Chain Enhancement Project (CEP): USDA food for progress grant (FCC-635-2008/029-00)
- IRD and USDA (2014) The Sene-Gambia Cashew Value Chain Enhancement Project (CEP 2) cashew farmers training manual: business innovation, marketing and farmer organization (BIMO 2): a guide for CEP 2 partner trainers and local cashew facilitators. International Relief and Development.
- ITTO (2012) Annual review and assessment of the world timber situation. Yokohama, Japan: ITTO. 196 p. See: [www.itto.int/annual\\_review](http://www.itto.int/annual_review)
- IUCN (2015) The IUCN red list of threatened species. International Union for Conservation of Nature. See [www.iucnredlist.org](http://www.iucnredlist.org)
- Khoun District Planning and Investment Office (2010) Report on the implementation of socio-economic development in 2010–2011.
- Khoun District Planning and Investment Office (2012) Khoun District socio-economic development plan 2012.
- Killeen, T.J., Chavez, E., Peña-Claros, M., Toledo, M., Arroyo, L., Caballero, J., Correa, L., Guillén, R., Saldías, M., Soria, L., Uslar, Y., Vargas, I. and Steininger, M. (2006) The Chiquitano dry forest: the transition between humid and dry forest in eastern lowland Bolivia. In Pennington, R.T. and James, A. Ratter (eds): Neotropical savannas and seasonally dry forests: plant diversity biogeography and conservation. Taylor and Francis, London.
- Lehmann, L., Greijmans, M. and Shenman, D. (2003) Forests and trees of the central highlands of Xiengkhouang, Lao PDR: a field guide. NAWACOP, DED, Lao Tree Seed Project and Natural Resources and Environment Programme (DANIDA). <http://tinyurl.com/Lehmann-et-al-Laos-2005>
- Lemenih, M. and Kassa, H. (eds) (2011) Opportunities and challenges for sustainable production and marketing of gums and resins in Ethiopia. Bogor, Indonesia: CIFOR. See: <http://tinyurl.com/lemenih-kassa-2011>
- Macqueen, D., Bose, S., Bukula, S., Kazoora, C., Ousman, S., Porro, N. and Weyerhaeuser, H. (2006) Working together: forest-linked small and medium enterprise associations and collective action. IIED Gatekeeper Series No. 125. IIED, London, UK
- Macqueen, D.J. (2008) Forest Connect: reducing poverty and deforestation through support to community forest enterprises. *International forestry review* 10 (4): 670–675.

- Macqueen, D. and Morrison, E. (Editors) (2008) Developing a toolkit for facilitation of support for small forest enterprises – Proceedings of the first international Forest Connect workshop at the National Museum of Scotland, Edinburgh, 2-4 July 2008. IIED, Edinburgh, UK.
- Macqueen, D.J. and Rolington, L. (Editors) (2011) Testing and enriching guidance modules for the facilitation of support for small and medium forest enterprises – proceedings of the second international Forest Connect workshop at the Global Hotel, Addis Ababa, Ethiopia, 16-18 February 2011. IIED, Edinburgh, UK.
- Macqueen, D.J. and Rolington, L. (Editors) (2013) Prioritising scarce resources for facilitated support of small forest and on-farm tree enterprises – proceedings of the third international Forest Connect workshop at the Everest Hotel, Kathmandu, Nepal 12-15 February 2013. IIED, Edinburgh, UK,
- Macqueen, D., DeMarsh, P., Pandey, G., Castro Diaz, E., Robinson, L. and Lewis, S. (2012a) Investing in locally controlled forestry – natural protection for people and planet. Big ideas in development pocket book. IIED, London, UK.
- Macqueen, D., Buss, C., and Sarroca, T. (2012b) TFD Review: Investing in Locally Controlled Forestry. The Forest Dialogue, New Haven, USA.
- Macqueen, D. (2013a) Landscapes for public goods: multifunctional mosaics are fairer by far. IIED Briefing. International Institute for Environment and Development, London, UK.
- Macqueen, D. (2013b) Enabling conditions for successful community forestry enterprises. *Small-scale forestry* 12 (1): 145–163.
- Macqueen, D., Campbell, J. and deMarsh, P. (2014) The Forest and Farm Facility: building strength in numbers. IIED briefing paper, London, UK.  
See: <http://pubs.iied.org/17210IIED>
- Macqueen, D.J., Bolin, A. and Warren, G. (Eds) (2015) Organisation for locally controlled forest business – learning from success: proceedings of the fourth international Forest Connect workshop, Hanoi, Vietnam 15–18 January 2015. IIED, Edinburgh, UK.  
See: <http://pubs.iied.org/G03900.html>
- Madrid, L., Nuñez, J.M., Quiroz, G. and Rodriguez, Y. (2009) La propiedad social forestal en México. Instituto Nacional de Ecología y Cambio Climático, Mexico. See: [www.revista.inecc.gob.mx/article/view/75/67](http://www.revista.inecc.gob.mx/article/view/75/67)
- Madrid, L. (2009) La actividad forestal en el estado de Oaxaca. Consejo Civil Mexicano para la Silvicultura Sustentable (CCMSS), Mexico.
- Maling, A. (2007) Socio-economic profile of communities around the Mondulkiri protected forest. WWF, Phnom Penh, Cambodia. See: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/socio\\_eco\\_profile\\_\\_final.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/socio_eco_profile__final.pdf)
- MARD (2001) Lam trung quoc doanh: thach thuc va co hoi phat trien (State forest enterprises: challenges and development opportunities). Ministry of Agriculture and Rural Development (MARD), Hanoi, Vietnam.
- MARD (2014) Forest Sector Development Report of 2013. 2014. Hanoi, Vietnam.
- Marshall, E., Schreckenber, K. and Newton, A.C. (eds) (2006) Commercialization of non-timber forest products: factors influencing success. Lessons learned from Mexico and Bolivia and policy implications for decision-makers. UNEP World Conservation Monitoring Centre, Cambridge, UK.

- MASA (2013) Situation de référence des filières forestières, fauniques et halieutiques prioritaires au Burkina Faso. Ministère de l'Agriculture et de la Sécurité Alimentaire, Ouagadougou, Burkina Faso.
- Mayers, J. (2006) Poverty reduction through commercial forestry: What evidence? What prospects? Tropical Forest Dialogue Background Paper. The Forest Dialogue, New Haven, USA.
- McKinnon, J. (1989) TRI-ORSTOM Project - Agriculture Development and the Impact on Land Use: Progress Report on Doi Chang. Paris: Département Société, Développement, Urbanisation.  
See: [http://horizon.documentation.ird.fr/exl-doc/pleins\\_textes/divers12-12/40670.pdf](http://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers12-12/40670.pdf)
- MEDD (2014) Annuaire des statistiques sur l'environnement 2012. Ministère de l'Environnement et du Développement Durable, Ouagadougou, Burkina Faso.
- Medina, G. and Pokorny, B. (2011) Avaliação financeiro do manejo florestal comunitário. *Novos Cadernos NAEA* 14(2): 25–36.
- Medina, G. and Pokorny, B. (2014) Avaliação financeira do manejo florestal comunitário. Goiânia: Kelps.
- Ministry of Agriculture (2012) Harmonized national PFM guideline. Ministry of Agriculture, Addis Ababa, Ethiopia.
- Ministry of Forestry (2012) Regulation of the Minister of Forestry P.36 /Menhut-II/2012 on procedures for distribution of returns revolving fund for forest and land rehabilitation, Jakarta in 2012. Jakarta, Indonesia.
- MoCS (2010) Nepal trade integration strategy 2010. Ministry of Commerce and Supplies, Government of Nepal.
- Molnar, A., Liddle, M., Bracer, C., Khare, A., White, A. and Bull, J. (2007) Community-based forest enterprises: their status and potential in tropical countries. ITTO Technical Series No. 28, International Tropical Timber Organization, Yokohama, Japan. See: [www.fao.org/sustainable-forest-management/toolbox/tools/tool-detail/en/c/217878/](http://www.fao.org/sustainable-forest-management/toolbox/tools/tool-detail/en/c/217878/)
- MONRE (2015) Current information: weather forecast for today. Department of Meteorology and Hydrology, Ministry of Natural Resources and Environment. See: <http://dmhlao.etlao.com>
- Npstad, D., Schwartzman, S., Bamberger, B., Santilli, M., Ray, D. Schlesinger, P., Lefebvre, P., Alencar, A., PrinZ, E., Fiske, G. and Rolla, A. (2006) Inhibition of Amazon deforestation and fire by parks and indigenous lands. *Conservation Biology* 20 (1) 65–73. [http://icfcanada.org/docs/Npstad\\_et\\_al\\_2006.pdf](http://icfcanada.org/docs/Npstad_et_al_2006.pdf)
- Nguyen, D.V., To, M.D. Ha, C.C., Trinh, H.D. and Nguyen, K.H. (2001) Lam nghiep Vietnam 1945–2000 (Vietnamese forestry 1945–2000). Agricultural Publishing House, Hanoi, Vietnam.
- Ojha, H.R., Pandey, G., Dhungana, S., Silpakar, S. and Sharma, N. (2009) 'Investing in community managed forestry for poverty reduction in Nepal: a scoping of investment opportunities.' Paper presented at the second international dialogue on Investing in Locally Controlled Forestry 21–24 September 2009, Kathmandu, Nepal. See: [http://theforestdialogue.org/sites/default/files/tfd\\_ilcf\\_nepal\\_backgroundpresentations\\_ojha.pdf](http://theforestdialogue.org/sites/default/files/tfd_ilcf_nepal_backgroundpresentations_ojha.pdf)

- Ortega Ponce, L. (2004) Las comunidades indígenas forestales de la Sierra de Juárez: estudio de caso sobre innovación participativa. United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Oaxaca, Mexico. See: [www.cepal.org/ddpe/agenda/3/19633/oaxaca.pdf](http://www.cepal.org/ddpe/agenda/3/19633/oaxaca.pdf)
- Ostertag, C., Lundy, M., Gottret, M., Best, R. and Ferris, S. (2007) Identifying market opportunities for rural smallholder producers. CIAT rural agroenterprise development Good Practice Guide 3. CIAT, Cali, Colombia.
- Peredo, A.M. and Chrisman, J.J. (2006) Toward a theory of community-based enterprise. *Academy of Management Review* 31(2): 309–328.
- Pereira D, Santos, D., Vedoveto, M., Guimarães, J. and Veríssimo, A. (2010) Fatos florestais da Amazônia. Belém: IMAZON.
- Piketty, T. (2014) Capital in the twenty-first century. Harvard College, USA.
- Pisailert, C., Pisailert, N., Pisailert, A., Pisailert, W., Pisailert, P., and Saisawangthammakul, W. (2014) Focus group discussion facilitated by author Alyssa Cheung, February 2014.
- Pisailert, C. (January 2014) Interview with Alyssa Cheung.
- Pisailert, M. (January 2014) Interview with Alyssa Cheung.
- Pisailert, N. (January 2014) Interview with Alyssa Cheung.
- Pitoyo, J. (2012) Hand Forestry Employers' Association of Gunung (ASPECT HANDAYANI GK). Powerpoint presentation, meeting of the Association of Community Forestry Entrepreneurs Indonesia (Asosiasi Wirausaha Kehutanan Masyarakat Indonesia, AWKMI), Semarang, 21 June 2012.
- Porter-Bolland, L., Ellis, E.A., Guariguata, M.R., Ruiz-Mallén, I., Negrete-Yankelevich, S. and Reyes-García, V. (2012) Community managed forests and forest protected areas: an assessment of their conservation effectiveness across the tropics. *Forest Ecology and Management* 268: 6–17.  
See: [www.cifor.org/publications/pdf\\_files/articles/AGuariguata1101.pdf](http://www.cifor.org/publications/pdf_files/articles/AGuariguata1101.pdf)
- PNUD, FJP, IPEA (2013) Atlas do desenvolvimento humano no Brasil 2013. Programa das Nações Unidas para o Desenvolvimento, Fundação João Pinheiro, Instituto de Pesquisa Econômica Aplicada. See: [www.atlasbrasil.org.br/2013/pt/perfil/belterra\\_pa](http://www.atlasbrasil.org.br/2013/pt/perfil/belterra_pa)
- ProManejo (2006) Relatório de Atividades. ProManejo and IBAMA, Brasília, Brazil.
- PT TUV Rheinland Indonesia (2013) Surveillance report I: certification of sustainable community-based forest management (PHBML) LEI standards 5000-3, Cooperative Wana Manunggal Lestari. Gunungkidul Regency, Yogyakarta.
- Quang Tri Bureau of Statistics (undated). Hanoi, Vietnam.  
See: <http://cucthongke.quangtri.gov.vn>
- Quang Tri PPC (2008) Data on present land use of state forestry companies in Quang Tri province after restructuring. Quang Tri Provincial People's Committee, Hanoi, Vietnam.
- Rainforest Alliance (2001) Ixtlán de Juárez Community Public Certification Resume. See: [www.rainforest-alliance.org/forestry/documents/ixtlan\\_juarez.pdf](http://www.rainforest-alliance.org/forestry/documents/ixtlan_juarez.pdf)
- Raworth, K. (2012) A Safe and Just Space for Humanity. Oxfam Discussion Papers. Oxfam, Oxford, England.
- Ribot, J.C. and Peluso, N.L. (2003) A theory of access. *Rural Sociology* 68(2), 153–181.
- Ribot, J.C. and Larson, A. (2012) Reducing REDD risks: affirmative policy on an uneven playing field. *International Journal of the Commons* 6(2), 233–254.

- Ritpreecha, O. (2008) Doi Chang Coffee. Chiang Rai, Thailand: Trimit Im-Ex Limited Partnership. See: <http://issuu.com/teerasaktom/docs/57909498-doi-chaang-coffee-book>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, III, F.S., Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, W.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. and Foley, J. 2009. Planetary boundaries: Exploring the safe operating space for humanity. *Ecology and Society* 14 (2): 32.
- Roongwong, A. (2013) Site information: Ban Doi Chang. Bangkok, Thailand.
- RRI (2014a) Recognising indigenous and community rights – priority steps to advance development and mitigate climate change. Rights and Resources Initiative, Washington, USA.
- RRI (2014b) What future for reform? Progress and slowdown in forest tenure reform since 2002. Washington: Rights and Resources Initiative.
- SADU (2011) Report on coffee activities in Kumban Keoset – statistics, December 2011. Smallholder Agricultural-Market Development in the Uplands project.
- Sastre Merino, S. (2008) Análisis de la gestión forestal comunitaria y sus implicaciones sociales en Ixtlán de Juárez, Oaxaca (México). Technical University of Madrid. See: [http://oa.upm.es/1022/1/PFC\\_SUSANA\\_SASTRE\\_MERINO.pdf](http://oa.upm.es/1022/1/PFC_SUSANA_SASTRE_MERINO.pdf)
- SEMARNAT (2015) Anuario estadístico de la producción forestal 2005–2010. Secretaría de Medio Ambiente y Recursos Naturales, Mexico. See: [www.semarnat.gob.mx/temas/gestion-ambiental/forestal-y-suelos/anuarios-forestales](http://www.semarnat.gob.mx/temas/gestion-ambiental/forestal-y-suelos/anuarios-forestales)
- Seymour, F., la Vina, T and Hite, K. (2014) Evidence linking community-level tenure and forest condition: an annotated bibliography. Climate and Land Use Alliance. See: <http://tinyurl.com/seymour-bibliography-2014>
- SFB (2013) Florestas do Brasil em resumo – 2013: dados de 2007–2012. Brasília: Serviço Florestal Brasileiro.
- Stevens, C., Winterbottom, R. Spinger, J. and Reyta, K. (2014) Securing rights, combatting climate change – how strengthening community forest rights mitigates climate change. Washington: Rights and Resources Initiative. See [www.wri.org/sites/default/files/securingrights-full-report-english.pdf](http://www.wri.org/sites/default/files/securingrights-full-report-english.pdf)
- Subedi, B.P., Binayee, S., and Gyawali, S. (2006) Handmade paper value chain of Nepal: prospects and challenges in growth, distributional equity and conservation. In: Proceedings of the 11th conference of the International Association for the study of common property, Bali, Indonesia, 19–23 June 2006.
- Subedi, B.P., Ghimire, P.L., Koontz, A., Khanal, S.C., Katuwal, P., Sthapit, K.R. and Khadka Mishra, S. (2014) Private sector involvement and investment in Nepal's forestry: status, prospects and ways forward. Study report, Multi Stakeholder Forestry Programme, Service Support Unit, Babarmahal, Kathmandu, Nepal. See: <http://tinyurl.com/ansab-ps-forestry-2014>
- Subedi, B.P. and Khanal, S.C. (2014) NTFP-based enterprises: learning from Nepal for green and fair value-chain development. In: *Sustainable forest management for multiple values: a paradigm shift*. Forest Research Institute, Dehradun, India, 783–803.

- Subedi, B.P., Ojha, H.R., Nicholson, K. and Binayee, S.B. (2002) Community based forest enterprises in Nepal: case studies, lessons and implications. Asia Network for Sustainable Agriculture and Bioresources and SNV/Nepal, Kathmandu. See: <http://tinyurl.com/ansab-cb-forestry-2002>
- Sunderlin, W., Hatcher, J. and Liddle, M. (2008) From exclusion to ownership? Challenges and opportunities in advancing forest tenure reforms. Washington, DC: RRI.
- Supayabe, I. (undated) Personal communication with Ignacio Supayabe, technician and leader, APMIL.
- Taufiq, JPM (2014) People's forest: masterpiece of maestros. Presented at the Multistakeholders Workshop of People's Forest Development and Market Chain of Wood in Gunungkidul, 20th May 2014.
- Temesgen, T., Irwin, B. and Jordan, G.J.M. (2007) Forests, use them or lose them: an argument for promoting forest-based livelihoods rather than alternative non-forest-based livelihoods within PFM programmes. In: Kelbessa, E. and De Stoop, C. (eds.) Participatory forest management (PFM), biodiversity and livelihoods in Africa. Proceedings of the international conference, 19–21 March 2007. Government of Ethiopia in collaboration with other stakeholders, Addis Ababa, Ethiopia. See: [https://lirias.kuleuven.be/bitstream/123456789/404195/1/pfm\\_per\\_cent2Bconference\\_proceeding.pdf](https://lirias.kuleuven.be/bitstream/123456789/404195/1/pfm_per_cent2Bconference_proceeding.pdf)
- Temesgen, Z. and Lemenih, M. (2012) Gaps assessment and analysis of participatory forest management activities in Ethiopia. Ministry of Agriculture (MoA), Addis Ababa, Ethiopia.
- TEPC (2014) Trade statistics. Trade and Export Promotion Centre website, Government of Nepal. See: [www.tepc.gov.np/tradestatistics](http://www.tepc.gov.np/tradestatistics)
- Thoma, W. and Camara, K. (2005) Community forestry enterprises: a case study of the Gambia. Food and Agriculture Organization of the United Nations, Rome. See: [www.fao.org/sustainable-forest-management/toolbox/cases/case-detail/en/c/235394/](http://www.fao.org/sustainable-forest-management/toolbox/cases/case-detail/en/c/235394/)
- To, X.P. (2012) The sustainable development of the export-oriented timber processing industry requires a new mindset. Unpublished report.
- tradeKorea.com (2015) SPARK series. See: [www.tradekorea.com/product/detail/P342324/SPARK-Siries.html](http://www.tradekorea.com/product/detail/P342324/SPARK-Siries.html)
- Trading Economics (2015) Forest area as a percentage of land area. See: [www.tradingeconomics.com/cambodia/forest-area-percent-of-land-area-wb-data.html](http://www.tradingeconomics.com/cambodia/forest-area-percent-of-land-area-wb-data.html)
- Tree Aid (2012) Rapport narratif final projet EC VTE, August 2012. Tree Aid, Ouagadougou, Burkina Faso.
- UNDP, FJP, IPEA (2013) Atlas do desenvolvimento humano no Brasil 2013. Programa das Nações Unidas para o Desenvolvimento, Fundação Joao Pinheiro, Instituto de Pesquisa Econômica Aplicada.
- USAID (2010) Ethiopia coffee industry value chain analysis: profiling the actors, their interactions, costs, constraints and opportunities. COMPETE (Competitiveness and Trade Expansion Programme), East Africa Trade Hub, Nairobi Kenya.
- Vadillo, A., Salgado, J. and Muiba, S. (2013) Gobernanza de los recursos naturales en Lomerío. Fundación Tierra, Central Indígena de Comunidades Originarias de Lomerío. Santa Cruz, Bolivia.

- Váldez, G.V.V. (2009) Opportunities and limitations for community forest enterprises: case of TIP Muebles, Oaxaca, Mexico. Oregon State University.  
See: <http://tinyurl.com/valdez-2009>
- WBISPP (2004) Forest resources of Ethiopia. Woody Biomass Inventory and Strategic Planning Project, Addis Ababa.
- WECS (2010) Energy sector synopsis report. Water Energy Commission Secretariat, Government of Nepal. See: [www.weecs.gov.np/pdf/snyopsis.pdf](http://www.weecs.gov.np/pdf/snyopsis.pdf)
- Wiersum, K.F. (1997) From natural forest to tree crops, co-domestication of forests and tree species, an overview. *Netherlands Journal of Agricultural Science* 45: 425–438.  
See: <http://tinyurl.com/wiersum-1997>
- Winston, E., Op de Laak, J., Marsh, T., Lempke, H. and Chapman, K. (2005) Arabica Coffee Manual for Lao PDR, FAO, FAO Regional Office for Asia and the Pacific, Bangkok, Thailand. See: [www.fao.org/docrep/008/ae939e/ae939e03.htm#TopOfPage](http://www.fao.org/docrep/008/ae939e/ae939e03.htm#TopOfPage)
- Woldeamanuel, T. (2011) Dryland resources, livelihoods and institutions: diversity and dynamics in use and management of gum and resin trees in Ethiopia. PhD dissertation, Wageningen University.
- World Bank (2014) World development indicators.  
See: <http://data.worldbank.org/sites/default/files/wdi-2014-book.pdf>
- World Bank (2015) Poverty headcount ratio at \$1.25 a day (PPP) (% of population). See: <http://data.worldbank.org/indicator/SI.POV.DDAY>

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The small and medium forest enterprise sector is of major significance for livelihoods and yet these are largely invisible economies. Raising the sector's visibility such that its impacts can be better assessed, and then going on to explore how the positive links to sustainability, livelihoods and poverty reduction can be enhanced, is a major challenge.

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Human populations and economies are growing in a finite planetary environment. Combining equitable human development and environmental protection is therefore an ever more pressing challenge. Within that broad context, there are increasing overlapping claims on forest land. It is not enough that forests are protected for their biodiverse ecological integrity on which the climatic future of the global public depends. Forests must also cater to the multiple more immediate needs of almost 1.3 billion local forest-farm producers who live in or next to forests and derive food, fuel, construction materials, water flows and a host of other diversified medicinal, cosmetic and craft products that help them survive and adapt to climate change.

Reconciling the overlapping claims on forests of these 'right-holders' is best handled democratically. Democratising forest governance has therefore long been on the forest agenda. But the conventional architecture of business has largely escaped democratic scrutiny – despite its lamentable track record of reconciling human development with environmental protection.

This book is a very partial compendium comprising 19 more democratic business model cases from 14 countries across Africa, Asia and Latin America that have a better track record. Each model to some extent replaces the conventional business paradigm of 'capital seeking natural resources and needing cheap local labour' with 'local rights-holders managing natural resources and seeking capital'. Understanding how these cases have succeeded (or at least survived) is critical if we are scale-up models of business that deliver equitable human development and environmental protection together. Each case study therefore explores the origins of the business model, how their value-chain activities are structured, how democratic control and benefit distribution was organised, and what lessons were learned along the way.

Can democratic forms of business that cater to the full range of economic social and environmental interests of their members, compete in the modern market economy? This compendium makes the case that they can, and indeed must, if we are to reconcile equitable human development with environmental protection. So the emerging lessons on how to organise and scale-up a process of democratising forest business have global relevance.



## Research report

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