# 5 Synthesis

The regional assessments canvassed 46 relevant MFM initiatives - 15 in the Amazon Basin, eight in the Congo Basin and 23 in Southeast Asia - in 13 tropical countries. Nineteen of these are the initiatives of private companies with concession contracts on public forestlands, mainly in Southeast Asia (e.g. 9 of 10 cases in Indonesia) and the Congo Basin. Local (indigenous) communities or associations of smallholders represent around one-third of all canvassed initiatives, mainly in the Amazonian countries, and six MFM initiatives are under direct government responsibility, of which five are in Southeast Asia (notably Malaysia). This report provides an overview of these initiatives, the constraints they face, and the opportunities they have for diversifying and integrating products and services within the same FMU. The evidence, opinions and perceptions gathered through interviews and surveys indicate that the practical application of MFM is a complex and challenging task in the prevailing conditions. In this sense, it can be stated, as suggested by García-Fernández, Ruiz-Perez and Wunder (2008), that "MFM remains a valid management alternative under specifically favourable local context conditions, especially when practiced at the landscape scale".

There is wide variation in the forest area encompassed by the surveyed MFM initiatives, from 1 900 hectares to almost 1 million hectares in the Amazon Basin, from almost 11 000 hectares to more than 2.1 million hectares in Southeast Asia, and from 4 800 hectares to almost 200 000 hectares in the Congo Basin. It should be mentioned, however, that in many cases it is unclear what constitutes the actual area managed for multiple uses. The smaller areas are mostly forests managed by indigenous peoples (e.g. in Papua New Guinea and Peru) or by associations of small-scale extractors (e.g. rubber-tappers in extractive reserves in Brazil). Initiatives described as pilot or experimental were found only in the Amazon Basin, but this may only reflect differences in information sources. There are also differences in the timeframes of initiatives. Those in Southeast Asia are mostly more than 10 years old, while in the other regions the largest proportion has been under way for 6–8 years. The more recent initiatives are mostly those where an ecosystem service is part of management outputs.

In many of the countries analysed in this report and for certain categories of actor, MFM remains an interesting yet barely operational concept due to economic, technical and administrative constraints. Timber is still the only forest commodity with major lucrative markets, whose operation is based on a reliable body of technical knowledge, and which provides a significant contribution to national economies. The dominant model of timber harvesting is, however, being undermined in some regions by the arrival of investors interested in agroindustrial or mining projects, for which the financial benefits can be much higher

than those associated with sustainable timber harvesting. In this new context, MFM could increase the economic benefits of SFM. Several initiatives, such as certification and legality schemes, could help support the implementation of MFM, although generally forest management certification has so far failed to yield significant increases in timber prices.

## **OVERVIEW OF MANAGEMENT OBJECTIVES AND OUTPUTS**

Tables 6, 7 and 8 present a synthesis of the management outputs of surveyed initiatives in each of the target regions. It shows that, in terms of economic outputs, timber production remains by far the main primary objective, followed by the production of NTFPs. Four-fifths of the initiatives combine both uses. For those initiatives in the Amazon, a first observation is the importance of palms. Palm species are indeed key livelihood resources in Amazonia, where they are ubiquitous and, in many cases, naturally abundant. Palms have a diversity of uses and are essential food sources for wildlife. Some have high economic value and are therefore managed for increased production (Porro and Cotta, 2009). The combination of NTFP production and ecotourism is also relatively common among the surveyed initiatives, in all cases involving indigenous communities, often in partnership with private operators.

Fisheries are important in the Amazon, and three of the initiatives include fish production in their management objectives. Traditional communities in the region have developed promising integrated management practices and techniques to ensure fish production and forest conservation (e.g. McGrath *et al.*, 1993). In Southeast Asia, the production of fuelwood and charcoal is important in forests managed by communities. Ecotourism is a secondary management objective in some initiatives (in Indonesia, Malaysia and the Philippines), often linked with the production of NTFPs (e.g. rattan from the Calamoideae subfamily of palms). Relatively little information was available on the identified initiatives in the Congo Basin, likely reflecting difficulties in incorporating NTFPs and ecosystem services in industrial-scale forest concessions (Lescuyer *et al.*, 2012).

TABLE 6
Main outputs of selected MFM cases in the Amazon Basin, with indication of the responsible entity for management decisions

Main outputs	Initia	tivea													
	Brazi	ı					Peru							Boliv	ia
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Management responsibility <sup>b</sup>	С	С	С	G	С	С	С	С	С	С	С	С	С	С	С
Forest certification <sup>c</sup>	-	х	х	х	-	-	-	-	-	-	-	х	х	х	-
Wood production															
timber	Х	Х	Х	Х	Х	Х					Х	Х	Х	Х	Х
roundwood – poles (e.g. for construction)							Х								
fuelwood/charcoal											Х				
Non-wood production															
alms (fibre, fruits, seeds, leaves), including rattans	Х		Х			Х	Х	Х	Х	Х	Х	Х	Х	X	
fruits, nuts		Х	Х	X	Х			Х					Χ	Х	Х
latex, resins and exudates		Х	Х	Х	Х									Х	
oils	Х	Х	Х												
medicinal plants							Х								
bamboo and vines					Х										
Wildlife management and conservation															
wildlife management (e.g. peccaries – <i>Tayassu</i> spp.)								х							
(Restoration of) hunting wildlife species															
wildlife conservation															
Agroforestry								Х	Х						
Fisheries (artisanal and commercial fisheries)							Х	Х					Х		
Ecotourism/recreation					Х	Х		Х	Х	Х	Х				
Biodiversity conservation									Х						
Landscape restoration/ forest rehabilitation									Х						
Ecosystem conservation (e.g. white-sand forests)							Х								
Soil and water conservation (e.g. water supply, protection of headwaters)								х							
Carbon storage and sequestration								Х					Х		
Protection of sites of special cultural, religious or archaeological importance															

Notes: <sup>a</sup> 1 = Tapajos National Forest – Projeto Ambé; 2 = Chico Mendes PAE – Seringal Cachoeira; 3 = Porto Dias PAE; 4 = Antimari State Forest; 5 = Uatumā RDS; 6 = Mamirauā RDS; 7 = Alto Nanay-Pintuyacu-Chambira *área de conservación regional*; 8 = Comunal Tamshiyacu Tahuayo *área de conservación regional*; 9 = Matsés indigenous community; 10 = Veinte de Enero community; 11 = Río Momón Basin; 12 = Junín Pablo community; 13 = Pueblo Nuevo del Caco community; 14 = SAGUSA Pando forest concession; 15 = Tahuamanú company and communities of Puerto Oro and Nuevo Belén. <sup>b</sup> C = community; G = government/state; P = private company; <sup>c</sup> X indicates that an output applies in the given initiative.

TABLE 7 Main outputs of selected MFM cases in Southeast Asia, with indication of the responsible entity for management decisions

Main outputs											Initi	Initiativeª										
	sibodmsD	∗AOG PDR*					Indonesia	esia						Mai	Malaysia			Phillip	Philippines	∍9Nd		Viet Nam
	-	2	м	4	2	9	_	- - -	6	10	11	12	13	41	15 1	16 1	17 1	18	19 2	20 21	1 22	23
Management responsibility <sup>d</sup>	U	U	۵	۵	ט	۵	_	_	_	_	4		<sub>0</sub>	ט	G G	4			U		Δ.	ט
Forest certification <sup>e</sup>	,	×	×		×	×	×	×	×	×	×	×	×		×	'	'	'	'	'	'	'
Wood production																						
timber		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
roundwood – poles	×																					
fuelwood/charcoal	×				×								×	×				_	×	×	×	
Non-wood production																						
palms, including rattans		×	×	×		×	×	×	×	×	×	×			×		_	×	×	×		
fruits, nuts	×																					
latex, resins and exudates					×																	
oil																						
medicinal plants													×									
bamboos and vines													×									×
Wildlife management and conservation																						
wildlife management																						
(Restoration of) hunting wildlife species																						
wildlife conservation																						
Agroforestry																						
Fisheries resources (artisanal and commercial fisheries)														×							×	

																		J
Ecotourism/recreation				×			×		×	×		_	×		×	×		
Biodiversity conservation	×		×	×	×				×		×	×	×		×		×	
Landscape restoration/forest rehabilitation				×					×			^	×	×	×			
Ecosystem conservation (e.g. white-sand forests)																		
Soil and water conservation (e.g. water supply, protection of headwaters)	×	×	×	×	×				×		×	^	×	×	×		×	
Carbon storage and sequestration			×												×			
Protection of sites of special cultural, religious or archaeological importance				×	×							^	×	×	×			

Kemakmuran Berkah Timber; 13 = Deramakot; 14 = Matang mangroves; 15 = Model Forest Management Area Sarawak; 16 = Kumpulan Pengurusan Kayu Kayan Terengganu Sdn. Bhd.; 17 = Tama Abu and Suling-Selaan; 18 = SUDECOR (Surigao Development Corporation); 19 = Ifugao muyongs; 20 = Batangan Forest; 21 = FPCD; 22 = Loc Bac State Operating Company; 23 = DakTo Forestry Company beople's Democratic Republic; Papua New Guinea; d C = community; G = government/state; P = private company; « X indicates that an output applies in the given initiative; \* Lao People's Notes: 3 1 = Bos Thom and other communities in Siem Reap; 2 = SUFORD project, Dong Phousoi and Dong Sithouane; 3 = PT Diamond Raya; 4 = Berau Forest Carbon Programme; 5 = Perum Perhutani; 6 = PT Erna Djuliawati; 7 = PT Narkata Rimba; 8 = PT Roda Mas Timber Kalimantan; 9 = PT Sari Bumi Kusuma; 10 = PT Suka Jaya Makmur; 11 = PT Belayan River Timber; 12 = PT Democratic Republic.

Main outputs of selected MFM cases in the Congo Basin, with indication of the responsible entity for management decisions

Main outputs				Init	Initiative <sup>a</sup>			
		Cameroon		9	Gabon	Democrat	Democratic Republic of the Congo	f the Congo
	_	2	ĸ	4	2	9	7	8
Management responsibility <sup>b</sup>	۵	۵	U	۵	۵	۵	۵	U
Forest certification <sup>c</sup>	×	×	,	×		×	,	
Wood production								
timber	×	×	×	×	×	×	×	×
roundwood – poles								
fuelwood/charcoal								
Non-wood production								
palms (fibre, fruits, seeds, leaves), including rattans			×					
fruits, nuts								
latex, resins and exudates								
oil								
medicinal plants								
bamboo and vines								
Wildlife management and conservation								
wildlife management								
(restoration of) hunting wildlife species								
wildlife conservation								
Agroforestry	×							
Fisheries resources (artisanal and commercial fisheries)								
Ecotourism/recreation								
Biodiversity conservation								
Landscape restoration/forest rehabilitation								
Ecosystem conservation (e.g. white-sand forests)	×							
Soil and water conservation (e.g. water supply, protection of headwaters)								
Carbon storage and sequestration								
Protection of sites of special cultural, religious or archaeological importance								

Notes: <sup>a</sup> 1 = TRC - UFA 00 004; 2 = ALPICAM - UFA 10 51; 3 = COPAL; 4 = CEB-Precious Woods - Bambidie and Okondja; 5 = IBNG - Kango; 6 = SIFORCO - Bumba; 7 = SODEFOR - Mai Ndombe; 8 = Mubala (Indigenous community association); <sup>b</sup> C = community; G = government/state; P = private company. <sup>c</sup> X indicates that an output applies in the given initiative.

## CONSTRAINTS ON MFM IMPLEMENTATION

Table 9 presents a synthesis of the available information from the selected initiatives about the main factors constraining the implementation of MFM. Policy and institutional constraints appear to be major obstacles in all three regions. Economic and financial constraints are also of major concern to community and private-sector MFM initiatives in the three regions. Of the listed social and technical constraints, a lack of organizational, administrative and technical human resource capacities is common to all three regions.

TABLE 9
Factors constraining or limiting MFM in the three regions

Constraint factors/issues	Amazon Basin	Southeast Asia	Congo Basin
Political and institutional constraints			
Illegal logging and encroachment	Xa	Xp	Х
Inadequate legislation	Xc	Х	Х
Government interference – requirements and bureaucracy (e.g. cumbersome procedures and delays in the approval of FMPs)	Xd	х	Х
Conflicts with local (indigenous) people over land rights and claims for compensation (use rights)	Х	х	Х
Lack of long-term tenure security	Х	Х	
Infrastructure development (e.g. roads, hydropower plants) leading to forest conversion (e.g. oil palm, timber plantations, coal mining)	Х	х	
Lack of government support for local value-added processing of forest resources	Х	Х	
Lack of rights on forest resources for indigenous and local communities			Х
High government royalties or tax payments in relation to sales income		Xe	
Economic and financial constraints			
Lack of economic profitability of implementing MFM	Х	Х	Х
Unfair competition from low-priced illegal wood products	Х	Х	Х
Low prices for forest products/low income from timber sales for community forestry products (e.g. poles)/very low price premium for certified timber	Х	Х	Х
Poor access to markets (e.g. due to poor transport infrastructure)	Х	Х	Х
Financial constraints/low funding for forest management from financial agencies	Х	х	Х
Lack of economic or financial incentives	Х		
Lack of economic information – prices, demand, markets, production forecasts	Х		
Lack of or inadequate marketing strategy for forest products	Х		
Lack of processing machinery for product value-adding	Х		
Social and technical constraints			
Insufficient personnel for SFM implementation/limited human resources capacity/lack of skilled personnel	Х	х	Х
Community weaknesses in the areas of negotiation, human-resource management and marketing	Х		Х
Insufficient community training in productive activities and business management	Х		Х
Poor supervision and control of logging and forest management operations in general	Х	х	
Lack of or poor consultation (by private companies or the forest administration) with local stakeholders		х	
Lack of/low incentives (e.g. for RIL operations)		Х	
Poor forest condition – overharvesting and high logging damage		Х	
Deficiencies in road planning, construction and maintenance	Х	Х	
Poor implementation of RIL techniques		Х	
Overestimation of forest growth rates		Х	
Lack of technical/silvicultural information (particularly on NTFPs)	Х		
Lack of a system or procedures for incorporating monitoring results into FMPs		Х	

Notes: <sup>a</sup> e.g. occupation of unauthorized squatters in part of the forest concession, or invasion by *barraqueros* (owners of rubber-forest estates), who illegally remove the nuts; <sup>b</sup> a high population density outside the forest has led to encroachment and illegal logging; <sup>c</sup> e.g. the requirement to prepare and submit an FMP for each product to be harvested; <sup>d</sup> e.g. the difficulties posed by employees of the regional forestry administration, who impede the normal conduct of activities; <sup>e</sup> these payments are usually higher than the sale price for wood products (e.g. poles in Cambodia).

#### KEY VARIABLES INFLUENCING MFM IMPLEMENTATION

Considering the barriers and bottlenecks affecting the implementation of MFM, it is clear that major shifts in policies and institutional arrangements and on various economic, social and technological fronts are needed if MFM is to become more widespread. The data gathered from the 46 initiatives in which some form of MFM is being practised at the FMU level are insufficient for a definitive conclusion on the circumstances or conditions by which MFM can be implemented successfully. Nevertheless, some of the key variables are set out below.

# Forest tenure and use rights, and responsibility for management decisions

Of the 46 initiatives surveyed, forest tenure and use rights are well defined or at least not identified as a constraint in only two cases. Most MFM initiatives are based in local communities, often assisted by external entities such as NGOs and governments.

#### **Forest condition**

The majority of MFM initiatives take place in production forests that have been logged but retain their original structure. This means that the potential for MFM is relatively high. Sometimes it is the abundance of a particular valuable resource that matters most for product diversification, as seen in forests with a relatively high abundance of Brazil nut trees or *Mauritia* groves in the Amazon and *mubala* in the Democratic Republic of the Congo.

# Management objectives and outputs

There are clear indications that the legal framework in most of the countries analysed either hampers or inhibits MFM. Although, in most countries, MFM is mentioned in legal frameworks, in practice it is often ignored, thus making it difficult to formalize multiple-use approaches. A few reasons for this can be identified. First, there is still a bias towards timber and a lack of clarity on NTFPs in legal frameworks, which hinders the approval of management plans that include NTFPs. In addition, national regulations in several countries require the preparation of management plans for every non-timber forest species to be harvested and commercialized. Other objectives, such as ecotourism and wildlife management, also require separate plans, and diversified management options are not explicitly encouraged. There is a lack of institutional and financial incentives for long-term private investment, and norms for small producers are the same as those applied to medium-to-large businesses, which generally have a much greater capacity to comply. The restrictive and punitive approaches of most legal frameworks, with their emphasis on prohibitions, clearly hinder the implementation of MFM. Legislation is therefore needed that helps realize the potential of forests for MFM by encouraging the development of diverse forest uses and expanding the benefits obtained from them.

### **Forest certification**

MFM initiatives are strongly associated with certification: half the surveyed initiatives have certified their timber-related forest management and two have certified NTFPs (Brazil nuts and copaiba oil). In Southeast Asia and the Congo Basin, most certified operations are managed by private companies in forest concessions, while in the Amazon the certified operations are community-based. An observation on these regional differences is that the inclusion of one or more non-timber outputs in the FMPs of certified forest concessions might be related to the certification requirements for community participation in the benefits of forest management (i.e. communities within the concession area are free to use the forest in a traditional manner). The process of obtaining FSC certification has increased MFM in forest concessions in the Congo Basin. The situation in the Amazonian context is different: with more favourable tenure and forest-use rights, communities are the protagonists of MFM initiatives, and certification – in all cases with strong external support – is part of marketing strategies.

#### Value-added and economic benefits

Product value-adding and the economic benefits obtained from MFM are related. Deficits of both are among the main constraints faced by MFM initiatives in general and particularly those involving communities. One way to overcome deficiencies in value-adding and economic benefits in local communities is to establish partnerships or other kinds of arrangement with the private sector. This has happened in several surveyed initiatives, and it is clear from published studies and the information gathered in this study that such arrangements are indeed an important factor facilitating the implementation of MFM (see also Box 1). In all three regions, initiatives have made efforts to add value through processing and marketing in the following ways:

- capacity-building activities
  - o timber harvesting techniques and processing
  - o techniques of tapping and processing of latex into sheets
  - o business management;
- technical assistance
  - primary processing of timber to improve production and product value-adding
  - veneer manufacturing from small logs;
- processing of NTFPs
  - o charcoal production in kilns
  - o manufacture of gum resin
  - manufacture of therapeutic products from plants
  - o il extraction and processing (e.g. from *Mauritia*, *Copaifera*)
  - production and export of handicrafts using palm fibres
  - elaboration of thatched roofs from palm leaves
  - o production of bio-jewels from palm seeds (e.g. Phytelephas)
  - o spring water, honey, silk, eggs and cocoons;

- marketing assistance
  - facilitation of business contacts with potential customers
  - working together with organizations experienced in promoting certified timber in export markets to inform and negotiate with buyers
  - supporting the commercialization of forest products, including handicrafts made from wood and natural fibres
  - o auction sales of timber from public forests;
- forest certification (in almost all cases for timber and by private companies);
- facilitation of institutional arrangements (e.g. for a wildlife conservation programme);
- project development preparation for income-generation activities;
- research (e.g. on NTFPs for use diversification and value-adding).

Adding value to timber and NTFPs in MFM initiatives is a key area in which much work needs to be done, but significant technical, organizational, financial and institutional constraints remain.

# Policy and institutional frameworks

Policy and institutional frameworks are not explicitly described in the surveyed initiatives. Responses to the question "are current policy and institutional frameworks supportive of MFM and, if not, explain why not?" were generally too vague for detailed analysis. In some countries, existing laws have already been noted as an important constraint, but there are indications of recent positive changes. In Brazil, for example, the law determines that forestry in the Amazon should be guided by the multiple-use principle, and there are no norms for NTFPs at the federal level, which reduces unnecessary bureaucracy in the process of obtaining approvals for management plans for multiple uses. In Bolivia (Plurinational State of), current laws and policies create a favourable framework for MFM and promote integrated forest management. They also promote activities to be undertaken by rural and indigenous communities in community forest organizations and processes for the management, processing and marketing of timber and NTFPs in production forest areas.

# **MOVING FORWARD**

What can be done to overcome the current constraints to MFM implementation? What mechanisms, incentives or strategic (policy, institutional and technological) interventions are needed? Table 10 presents proposals for addressing the constraints on MFM identified in the regional assessments and global survey. Governments have a key role to play in creating favourable environments. Development actors (including NGOs) and financial institutions are also keys in actively establishing or supporting strategies and measures to overcome the economic (market), financial, social and technical barriers to MFM, particularly for communities and smallholders.

TABLE 10 Incentives for MFM implementation

Incentives	Responsibility <sup>a</sup>
Political and institutional	
Clarify land tenure and property rights and/or forest resource use rights, including ecosystem services offered at the FMU level	Gov
Formalize and ensure the effective application of customary use rights (e.g. in forest concessions)	Gov
Develop an adequate legal framework that allows the submission of flexible management plans for multiple uses, avoiding current requirements to prepare management plans for each product extracted from the forest	Gov
Design mechanisms to reward decentralized public staff for the full enforcement of national regulations on MFM	Gov
Provide a legal incentive for user rights-holders applying MFM – e.g. priority treatment in approving permits or licences for management and processing activities	Gov
Integrate forest management planning with land-use planning at the local and national scales	Gov
Apply tax cuts and other incentives to facilitate operations for the harvest, use and management of NTFPs in MFM initiatives until they become profitable	Gov
Reduce taxes on management plans that include non-traditional NTFPs and other forest uses to encourage MFM	Gov
Accelerate the formulation of regulations and mechanisms to facilitate the implementation of global initiatives for PES	Gov
Introduce the concept of MFM to international negotiations on climate change and forests in order to take advantage of the incentives offered by REDD+ and forest management initiatives in production landscapes	Gov
Economic and financial	
Promote and provide incentives and finance access to value-added processing of products from managed forests	Gov, fin
Strengthen marketing partnerships for the commercialization of multiple products	Gov, dev
Promote and support new sources of funding – e.g. PES – to broaden the income base of forest management	Gov, fin
Support communities and small-scale producers practising MFM to certify their forest operations	Dev, fin, gov
Allocate funds to support MFM through research, education and training	Gov, dev
Social and technical	
Promote stakeholder inclusion in forest management (planning, implementation, monitoring and evaluation)	Gov, dev
Support capacity development at the organizational and individual levels (e.g. government staff, community user groups, forest technicians/rangers and private managers)	Gov, dev, fin
Train administrators/managers of credit in the needs of the forest sector and MFM in particular	Fin
Provide long-term technical assistance and extension services suited to the breadth and needs of forest managers practising MFM	Gov, dev
Disseminate experiences in other locations and countries and create opportunities for discussion between actors (e.g. government, large and small producers and civil society as a whole)	Dev, gov
Make relevant technical information accessible to forest managers, government officials, NGOs and other actors	Dev, gov
Provide information services on prices and market opportunities for forest producers	Dev, gov
Invest in research on key issues that contribute to the sustainability and successful	Dev, gov, fin
implementation of MFM	

Note: Gov = government; dev = development actors, including NGOs; fin = financial institutions.

#### BOX 1

# Company-community partnerships

Company–community partnerships in forestry are active agreements for the production of forest goods and services in which the parties share benefits, costs and risks with the expectation of mutually beneficial outcomes (World Bank, 2009). This form of institutional innovation can provide a way of overcoming common challenges, such as those related to access to capital and technology, as well as commercial opportunities for the favourable integration of small and medium-sized forest enterprises into supply and value chains to generate income (Katila et al., 2010). While there are success stories in company–community partnerships in tropical forests and in the Amazon region in particular, there are also experiences that show that such arrangements are subject to a range of problems, disappointments and risks.

Partnerships between companies and communities make sense because they can capitalize on complementary strengths by fostering strategic relationships between actors. Companies have capital and logistics, extensive knowledge of market behaviour, and negotiation skills, but they are finding it increasingly difficult to source products sustainably; communities have resources, and knowledge about their use and extraction (particularly in relation to NTFPs), but no capital, and they lack experience with the market and access to market opportunities.

Nevertheless, partnerships between companies and communities in other sectors have rarely inspired confidence and are often criticized from various angles. The relationship is often asymmetric because companies manage the market information and have better access to it, and companies are often at a significant advantage in negotiations with communities. Company–community agreements therefore have many risks. One risk is to the sustainability of forest-product extraction when a product becomes commercial, because the pressures for overexploitation are great. Also, communities may not receive the value they deserve for their products, and if they are dissatisfied with an activity it is likely they will resist other initiatives that might be more successful in the future. Such commercial agreements may not sufficiently take into account or correspond with the social needs of communities, where money is just one aspect of their motivation and the main concern is to ensure social welfare and security over their territories and resources (e.g. Gasché, 2010). In contrast, the interest of companies is basically to ensure the supply of raw materials and there is no real concern for local issues.

Some of the conditions for fair and effective partnerships between companies and communities that could promote MFM are:

- a company with proven social and environmental responsibility, willing to develop local capacities and to favour the marketing of products under management;
- a sufficiently skilled community knowing what the community has, what it wants, and how much of the resource should be subject to the agreement so the community can negotiate fair agreements;
- · clearly specified rights and duties for each party;
- transparency during the whole process, from negotiation to implementation and the monitoring of agreements:
- a policy favouring effective agreements (e.g. a minimum pricing policy for products to be extracted from the forest);
- good legal assistance/support;
- regulatory arrangements made through a third party, supervised by some sort of community oversight mechanism;
- supervision by third parties to prevent abuses by either party the preference is for the state to participate as an intermediary and to oversee negotiations.

#### INFORMATION NEEDS AND RESEARCH GAPS

Information needs identified during this study (particularly in the regional assessments) relate to:

- the potential of the forest for multiple-use management, including inventories of timber stocks, NTFPs, wildlife and ecosystem services;
- the estimation of sustainable supply, harvesting times, frequency and production quantities of major NTFPs;
- the traditional management of species of interest in MFM systems;
- the economic viability of harvesting species with market potential;
- technical indicators of species production under varying local conditions and harvesting modes, including the effects of selective logging on NTFP yields;
- commercial prices for timber and NTFPs (with continuous updating);
- the description and quantification of forest resource chains of custody, including the distribution of added value;
- integrated FMPs;
- business plans for forest products of high economic potential;
- the technologies and practices in use by communities involved in MFM and the systematization of experiences;
- demonstration programmes for training and extension on MFM;
- programmes and incentives policies for MFM;
- funding sources (national and international) for MFM and how to access them;
- the socio-economic viability of MFM initiatives.

The regional assessments identified the following research gaps:

- inventories of NTFPs and traditional uses, ;
- the ecology and silviculture of non-timber forest species;
- interactions in the harvesting of various timber and non-timber forest species;
- determination of the cutting cycles for species used in MFM systems;
- optimization of management techniques for timber and non-timber forest species for increased scale (volume), diversification of products (use of new species with appropriate characteristics) and reduction of production costs;
- innovative techniques for processing products and co-products of timber and NTFPs;
- the economic feasibility of integrating the management of timber and non-timber species;
- production chains for species of greatest potential;
- the systematization of technical information generated in productive activities and relevant MFM initiatives.

#### RECOMMENDATIONS

Forest managers should be targeted with support to realize the potential of adopting additional management objectives. Ideally this would be done at the FMU level but could also be done through national meetings of forest managers. Greater effort is needed to eliminate unfair competition from operators whose sole objective is to extract timber, with little or no concern for multiple uses such as NTFP production, social welfare or the provision of ecosystem services. Such unfair competition could be tackled through legal means that, for example, require evidence of forest legality and the mandated implementation of criteria and indicators for SFM, harvesting codes of practice and forest certification. In most countries, the demarcation of a PFE and development of national landuse plans would increase investment in long-term forest management and lend support to MFM. Improving the value of logged-over forest through silvicultural treatments such as enrichment planting would improve the chance of these forests being managed for multiple uses. Training and awareness-raising to address the entrenched mindsets of some existing forestry stakeholders would also help.

**Recommendations** to promote the implementation of MFM systems are:

- Develop and implement a policy based on a coherent and well coordinated set of government proposals to benefit rural producers working in sustainable MFM; for example, consider establishing a policy of minimum prices for a set of products coming from community and smallholder MFM areas.
- Develop and implement consistent laws for MFM that facilitate its adoption and sustainable development.
- Strengthen the organization and managerial capacities of communities and smallholders.
- Design and implement strategies and incentives to add value to forest products produced under MFM.
- Promote and support multiple-use forest inventories in preparing FMPs.
- Consolidate multidisciplinary technical teams in support of MFM implementation.
- Facilitate access to adequate credit lines for the development of MFM activities.
- Promote recognition of the value of forest-based traditional practices through exchanges of experiences.
- Increase research on the ecology of timber and non-timber forest species in the context of MFM.
- Reduce taxes on products, especially NTFPs, produced in community and smallholder MFM areas.
- Strengthen company–community partnerships for MFM.
- Strengthen efforts for the wider and more effective dissemination of relevant (technical, economic and legal) information and results of experiences and research to assist the implementation of MFM.

- Promote the replication of successful MFM experiences.
- Establish and maintain communities of practice on MFM as a way to gain and disseminate appropriate knowledge, information and experiences on MFM implementation. To this end, a database of cases of MFM in varying contexts in the tropics could be assembled, disseminated and used through networks of people interested in expanding the database and promoting information exchanges, field visits, and the systematization of experiences and lessons.