Prerequisite conditions across cases

Glenn Galloway, Wil de Jong, Pia Katila, Pablo Pacheco, Gerardo Mery, and René Alfaro

This chapter presents an analysis across the cases for the prerequisite conditions included in the analytical framework. Sections 3.1–3.7 focus on the prerequisite conditions relating to policies, institutions, and governance; sections 3.8–3.12, on those relating to livelihoods, capacities, and socioeconomic aspects; and section 3.13, on research and monitoring.

3.1 Land tenure and rights to forests and trees

The situation with respect to land tenure and rights to forests and trees varies considerably among the case studies analysed. Most of the world's forests are publicly owned. This is also the case in a majority of the case studies. However, several assessments show that there is a shift towards formally recognising customary rights in some countries and a trend to allocate forest rights to communities, individual landholders, or private companies (White and Martin 2002, Sunderlin et al. 2008, FAO 2010, Blaser et al. 2011). However, a recent report indicates that the pace of this tenure change is slowing despite the fact that tenure issues have received considerable attention in REDD+ discussions (RRI 2014). The following discussion is structured according to the main types of forest-tenure change observed in the case studies.

3.1.1 Shift towards recognising customary rights

In many tropical forest countries, customary tenure systems are not formally recognised, and overlapping, but often incompatible, customary and statutory tenure systems have led to unsustainable practices and conflicts (e.g. Cambodia [11], Thailand [17], Madagascar [20]). However, some countries, such as Argentina [2], Bolivia [5], and Uganda [22], have, to varying degrees, formally recognised customary rights to forests. In India [13], the constitution supports community tenure in upland tribal areas, but implementation of the forest legislation that aims to strengthen the rights of tribal communities has been slow and is frequently resisted by state forest departments, leaving the problem of forest-tenure conflicts among communities, forestry agencies, and the private sector unresolved. In Mozambique [21], customary and statutory rights to land have an equal legal status, but the rights to forest resources, other than for subsistence use, are based on a licensing system (Figure III 3.1).

Despite the statutory changes in some countries, the forest areas of community and indigenous lands acknowledged by statutory tenure laws is still considerably smaller than the forest area managed under customary tenure without legal recognition (Sunderlin et al. 2008).

In some countries such as Indonesia [14,15] and Thailand [17], the discussion on customary tenure rights has been ongoing for decades, but no real changes in clarifying and securing forest tenure have been accomplished. In Indonesia, conflicts related to overlapping claims are common. Private companies are issued concessions in areas claimed by local communities, largely driven by failure to properly register state forestlands, which has left boundaries unclear. However, the important ruling of the Constitutional Court in Jakarta on 16 May 2013 opened the door for clarifying forest tenure in Indonesia and for wider recognition of the rights of indigenous peoples. Before the ruling, all customary forests were treated as state forests within which concessions could be granted. The 16 May ruling stated that customary forests belong to local indigenous people and are not state-owned. This ruling has paved the way for a potential major change in forest tenure: it has been estimated that customary forests in Indonesia amount to about 40 million ha (Jakarta Post 2013).

In Thailand [17], CF and the related legislation have been in the political agenda for decades, but the issue is still open. Since the early 1960s, the forest

policy in Thailand has focused on forest conservation, mainly in response to widespread deforestation. Legislation regarding protected forest areas originates from that time and manifests state control over the country's forest areas. The current constitution (1997) supports local communities' participation in the management and sustainable use of natural resources. In addition, a later cabinet resolution allows local communities living in the area before the establishment of a national park to remain in the area, but it prohibits further expansion. These two provisions enable local communities to stay on the land where they have lived for generations and to participate in forest management, which had been prohibited by the National Park Act (1961). However, the communities still do not have secure tenure or legal rights to the land.

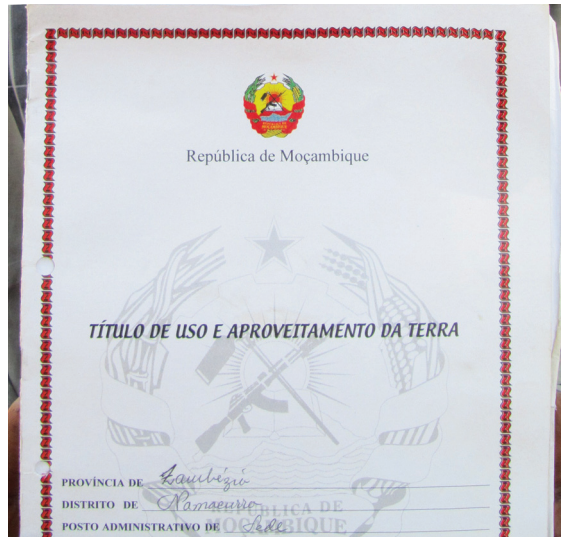

Figure III 3.1 Land use certificate from Zambezia province, Mozambique. ©Almeida Sitoe

3.1.2 Allocation of forest rights from the state to smallholders and communities

Several different schemes have been adopted to allocate forest rights to communities and smallholders. These include extractive reserves and community concessions and different community-based or collaborative (joint) forest management models.

Overall, the extent to which the different components of rights (access, withdrawal, management, exclusion, and alienation) have been devolved to the local level varies considerably across the cases, but in most countries forests remain state owned and their use regulated and controlled by forest authorities. In principle, the devolution of rights could lead to privatisation of forests when extensive rights are devolved to smallholders or legally recognised community entities. However, the devolution of rights has to date mainly focused on the use of NTFPs, allowing only limited access to and commercialisation of timber resources. There is also considerable variation in the duration of the periods for which rights are granted.

In Guatemala [6,8] the state has granted concessions that give communities forest-use rights for 25 years. The majority (64%) of the community concessions have been registered as non-profit concessions; the rest, as for-profit concessions. In Acre, Brazil [1], local people and communities have been granted collective rights to land and forest resources by the establishment of extractive reserves (RESEX), through which rubber tappers were granted formal rights to forests where they had traditionally lived and worked. This new form of land and forest tenure expanded to diverse areas across Amazonia and throughout Brazil as a way to keep large areas under forest cover while supporting local livelihoods, often based on gathering of NTFPs. Other schemes adopted in order to grant local tenure rights have been through agro-extractive settlements or sustainable development settlements in regions still having large continuous forested areas and clear potential for CF [3].

As in the previous example, in many cases community rights to forests are in principle based on the law and operationalised through contracts or forest management plans that define management and harvesting operations (e.g. in Bolivia [5], Nepal [16], The Gambia [19], Madagascar [20]). Of the case studies analysed, in Bolivia and The Gambia, the devolution of forest rights has been more complete than in the other cases. In Bolivia, peasant and indigenous people have legal property rights to land and the exclusive right to use forest resources on those lands, including the right to commercialise forest products according to approved forest management plans. Forest communities control 40% of forestlands in Bolivia. In The Gambia, management agreements are made after a preliminary phase during which the community demonstrates its abilities to manage forests sustainably. Currently, 6% of the country's forest area is under CF. In Nepal, community-forest management plans are oriented towards subsistence use of forest resources; acquiring permits for timber harvesting and sale is quite difficult. In Nepal, more than 1.6 million ha of forests in the hills are under CF, involving about 35% of the population. However, the government has not handed over the valuable forests in the lowlands (Terai area) for community management, which partly reflects the priorities of CF in the country.

Different collaborative forest management models are common in Asia and Africa. In these schemes

forest management is based on the sharing of rights, responsibilities, and benefits among management partners, usually the community and the state forest administration. The state authorities remain the stewards while the community is a management partner. For example, in Uganda [22], communities are engaged in forest management activities such as patrolling the forest and they benefit from access to forest products.

Despite the progress in recognising community rights and formal devolution of forest-related rights, insecure titles and non-enforced use rights often lead to de facto open access to forest resources. In most cases the state retains the rights to cancel allocated rights if communities violate contractual terms or management plans. In some cases (e.g. in Cambodia [11]), the state has granted land concessions to non-local actors for agricultural, forest, or mining purposes, ignoring the rights of communities.

3.1.3 Shift towards restitution of private rights

In some countries, forest tenure change is related to the restitution of private rights to forests in order to correct former policies that had annulled private property rights, for example the socialisation of property rights in BIH [23], or to redress inequalities of past racially discriminatory laws, such as in South-Africa [27].

In BIH [23], the restitution concerns currently state-owned forests. However, the tenure change has been minor and it has been concluded that the share of private forests will not significantly increase as a result of the restitution process.

In South-Africa [27] the land redistribution process has progressed slowly because many current landowners are not willing to sell land that they have bought legally. The forest industry perceives land restitution as a threat because it could strongly compromise the long-term security of raw material supply; therefore it has embarked on a voluntary land redistribution scheme in which land ownership is voluntarily transferred to local communities, with the land leased back to the company for two crop rotations. Companies provide technological support and extension services for new landowners. Pilot-scale land transfers under this scheme have already taken place and it appears to be a more workable solution than forced land redistribution.

3.1.4 Shift from communal tenure towards privatisation

Mexico [7] has a long tradition in communal land tenure (*ejidos*). Communal property regimes were originally established between the 1930s and 1980s. The 1992 Agrarian Counter Reform Law allowed parcellisation and privatisation of non-forested communal ejido lands. However, forested land has also been privatised and sold in some ejidos. In some cases, as in Quintana Roo, most ejidos have not formally entered into this process. However, a range of informal land-tenure regime changes have been observed in different communities since 1992. While some communities have maintained a strict common property regime, some have informally divided and sold land. The changing social and economic conditions seem to affect the future of communal ownership. Forestry-oriented ejidos or communities closer to tourism and urban settings tend to sell land and change strict communal property regimes to a combination of communal and private property landholdings. Mayan ejidos with greater forest dependence tend to retain communal ownership.

3.1.5 No change in tenure

The case study from Spain [25] demonstrates how a communal tenure regime rooted in long traditions has been able to persist in the face of social and economic developments and has remained viable until today, keeping the forests under sustainable management and providing for the livelihoods of local inhabitants. Communal woodlands are registered under the local authority whose town or village benefits from the use of the resource. Local authorities and/or a board consisting of local residents manage the commercialisation and sharing of the profits from forest products. Together with foresters, they are responsible for the protection and sustainable use of the resource. Under the established rules, people who are considered local have use and access rights to the resource.

The case studies from Canada [9] and Finland [24] offer a different viewpoint from countries where, in principle, property rights are secure and clearly defined and where no tenure changes have occurred but increased demands for integrating different land uses on state-owned lands has led to conflicts. The Canada case exemplifies how the conflict was solved by reaching a non-binding voluntary agreement between nine environmental organisations and 21 forest companies. The agreement called for a three-year suspension of logging in an area of 29 million ha and introduced FSC certified forest-management practices in the remaining 43 million ha. However,

First Nations, with historical claims to large parts of these forests, were not included in the agreement and claim that it undermines their rights.

In northern Finland [24] the rights of indigenous Saami conflict with logging in state-owned forests. Reindeer-herding is an essential part of Saami culture, and in the Saami region (four municipalities), subsistence use of forests includes rights to reindeer-herding. But since logging of old-growth forests evidently diminishes ground and arboreal lichens and reindeer access to food resources becomes difficult, the question of the Saamis' right to maintain their own culture is closely related to the management of state forests.

3.1.6 Change in the tenure on agricultural lands

The case studies from Ethiopia [18,27] show how tenure change in agricultural lands can support forest rehabilitation. The establishment of exclosures (areas closed for animal grazing and biomass harvesting) for forest restoration was made possible by land-tenure change in the 1980s, in which large feudal agricultural lands in lower level areas were shared among the local farmers. This decreased pressure to use hill slopes for cultivation, enabling the establishment of exclosures. Most of the forest rehabilitation projects are managed by communities organised into various forms of community-based organisations. However, there is no legal transfer of land management and user rights from the state to the community.

3.1.7 Ecosystem services and new types of property rights

The chapter on water-related ecosystem services illustrates how new initiatives and policies can create the need to establish and clarify new types of rights, such as rights related to ecosystem services. This is illustrated by the initiative in Italy [27] where forest owners are compensated for the costs of maintaining continuous forest cover in the water catchment area, which contributes to water quality and quantity. With REDD+ there will be an increasing need to clarify the rights to forest carbon and establish who holds those rights. The case studies analysed in this volume suggest that this issue has not yet received much attention at the local level.

3.2 Public administration

Since the 1990s, profound changes have taken place in the public administration of many tropical forest countries, and these changes ultimately affected forestry administration. A common trend that started in the late 1980s is that countries embarked on a process usually referred to as decentralisation. In short, this implied the devolution of authority from the central government to lower tiers in the administrative hierarchy, i.e. to states, regions, provinces, districts, or municipalities. The forestry administration eventually also followed suite, although in many countries this started later than the general decentralisation reforms.

Twelve of the cases in Part II suggest that the reforms in public administration have positively influenced SFM in general or that they have positively influenced conditions that allow communities and producers to practice SFM. In the majority of these cases, the positive impacts are attributed to particular regulations or policies. Examples of this are Acre, Brazil [1] and Petén, Guatemala [6], where the entire administrative apparatus was reformed to focus more on forest-based development. The government took measures to actively promote CF and facilitated private sector investments in SFM. For instance, active support has been provided to develop forest-product market chains or to promote payments for environmental services. These specific SFM and CF support measures were accompanied with ecological-economic zoning efforts. Another example of significant public administrative support to SFM relates to the definition of environmental standards, as took place in Argentina [2], which are specified for different zones that differ in environmental values.

SFM is often promoted through financial incentives, commonly applied through tax breaks and less often through subsidies that target specific activities, such as in the case of Italy [27]. Until the early 2000s, many bilateral cooperation programmes between donor countries and tropical-forest developing countries financed CF and forest and biodiversity conservation activities. Other important public administration measures, however, focused more on transferring forest responsibilities to lower tiers of governments or private actors (communities and companies) or on increasing the voice of multiple stakeholders to participate in forest or environmental decision-making. For instance, in BIH [23], pressure from local communities contributed significantly to the transfer of management rights from the state to local communities; similar processes have taken place in Canada [9] and Ethiopia [18].

A close analysis of some cases demonstrates that public administrative reforms have led to important outcomes. In the case of the US PNW [10], for instance, 1970s legislation that was intended to foster

forest protection and endangered species protection has subsequently made it possible for activists to challenge and modify forest policies that were detrimental to specific species. This case demonstrates the challenges of trade-offs and that public administration reforms create winners and losers. Subsequently US legislation was modified to better address contemporary societal forestry needs.

Seven of the cases studies present a more negative view on how public administration reforms have influenced SFM. A common issue in many cases is conflicting policy objectives among different policy sectors, as for instance in Mexico [7], Cambodia [11], Thailand [17], and Madagascar [20]. In some cases, while objectives have at least partly been aligned, policy measures are poorly designed and implemented and still have contradicting effects. This may also be exacerbated when a public administration pursues official national or regional legislation and policies that weaken or endanger customary forestry practices, as is, for instance, the case in the northeast of India [13]. The problems are often worsened by inept, slow, bureaucratic, and often-corrupt public administration.

3.3 Participation and stakeholder co-operation

Increasing participation by different stakeholders is an essential element in the gradual global shift related to decision-making on natural resources, from government-led hierarchic top-down regulation to power-sharing by the state with civil society and regional or local stakeholders. The increasing recognition of different forest values and the related competing demands on forestlands from a growing numbers of stakeholders have contributed to the increasing importance of stakeholder participation in decisions on forest policy and management and as an important condition for sustainable resource management.

Participation aims to ensure that all stakeholders are included in the development, formulation, and implementation of forest-related policies, plans, and activities that affect their interests. It is a continuous process of negotiation and decision-making that occurs from local to global scales (Evans et al. 2006). Changes in participation are closely related to the devolution of rights and associated powers to local actors. These changes have led to different community, joint, and participatory forest management models, which are discussed in section 3.1. Cooperation between forest industries and communities or small-scale farmers is addressed in section 3.9. This section focuses mainly on strategies related to participation and stakeholder cooperation in relation to forest-related land-use planning and policy-making at broader spatial scales.

Based on the analysis of the case studies presented in Part II, participation and stakeholder co-operation on broader spatial scales are rather underdeveloped. There are, however, some examples of more encompassing initiatives, most notably the case study from Acre, Brazil [1] and the Model Forest case studies from Argentina [2] and Spain [25].

Demands for increasing participation in decision-making that affects local actors' living conditions, livelihoods, and culture are also part of the discourses on human rights, human development, and democracy. This is illustrated by the case study from Acre, Brazil [1], where the concept of "forest citizenship" captures the state government's commitment to democracy and human development. In Acre, participatory governance was first put into practice through a state-wide zoning initiative guided by a commission with broad representation from the government, private sector, and civil society. In the PROACRE -programme (Program of Social Inclusion and Sustainable Economic Development) which began in 2007, the state cooperates with six local NGOs to support extension outreach with rural communities on agroforestry and forest management. A participatory approach was used to develop community development plans in remote and vulnerable regions. Participatory processes were later employed during the development of the SISA (State System of Incentives for Environmental Services, 2010) programme.

An important feature of the Model Forest concept as described in the case studies from Argentina [2] and Spain [25] is the involvement of a wide range of stakeholders in decision-making processes related to forest landscape planning and sustainable local development. The Model Forest governance structures involve stakeholders from the public sector, producers, academia, civil society, grassroots organisations, and indigenous peoples.

Cooperation between stakeholders can develop to strengthen the local stakeholders' position against common threats. In the case study from India [13], threats to culturally important forest ecosystems under customary tenure catalysed 62 villages and 10 indigenous governments to establish a federation to coordinate the protection and restoration of their community forests.

Similarly, to strengthen its position, the National Council of Protected Areas of the Mayan Biosphere Reserve (MBR) in Guatemala [6] has developed cooperation among concessionary organisations, Municipal Councils for Development, and other stakeholders from the state and regional forestry sector, local and international NGOs, buyers of forest products, and service providers. These organisations make up a network for sharing information and create awareness about the technical, administrative, and

market standards/regulations and mechanisms to address internal and external threats. Community concessions in MBR are represented by an association that liaisons between the concessions and external cooperation agencies and certification groups. This association also works with government organisations in developing forest management strategies and integrated community development.

In Mexico [7], efforts to empower ejido residents and increase economic returns from forests, led to establishment of intermediate-level forestry organisations (forest civil societies) to empower ejidos, endow them with political credibility, and fight for community rights.

The case studies also present some examples of engaging stakeholders in planning and decision-making related to forest resources. For example, public consultation (Italy [27]) and somewhat more ambitious forms of participation are employed in many developed countries. Finland [24] has introduced public participation in natural resource planning on state-owned forests, but it has been criticised for being merely consultation without resulting in effective participation. In the US PNW [10], community involvement in national forest management has increased, mainly through the rise of collaborative groups that work at the local level to bring diverse groups together to build consensus on national forest management. However, the impacts of these efforts have been uneven since formal decision-making still rests with the state institutions.

The development of the Indonesian Legality Assurance System (TLAS) [14,15] provides a positive example of participatory policy development. It involved representatives from government ministries, the private sector, NGOs, and academia. The process was widely recognised as inclusive, transparent, and robust. In Ethiopia [18], new management approaches employed on exclosures attempt to combine participatory and decentralised approaches, including engagement of NGOs and the private sector.

In some cases the legal framework embraces support for more extensive stakeholder participation, but its proper implementation has been lacking. In Thailand [17], the law enables local government units to facilitate local people's engagement in natural resource management, allowing for assistance in developing management plans, accessing resources, and networking, and the government has undertaken some projects to encourage participation of local communities. In Mozambique [21], by law community consultation should take place before resource rights are allocated to outside interests, but this policy has been poorly implemented.

3.4 Power and representation

Power is quite an intangible concept, especially when it is subjected to analysis based on empirical evidence. Foucault (2003) considers power to be present in every aspect of life and reflected in who dominates public discourse and how. Arts and Leroy (2006) aim to operationalise power analyses by using as a proxy variable the resources that actors have at their disposal to influence policy decisions. The development literature commonly refers to empowerment as a process that institutionalises participation in policy decision-making for stakeholders who are affected by such decisions, hence it is similar to democratisation.

In 14 of the cases reviewed, there is evidence of empowerment of local stakeholders to take control of forest management. There is significant evidence that local stakeholders initiated this empowerment or did so with the help of support groups that helped local forest managers take matters into their own hands. However, governments or their agencies have also played important roles in fostering stakeholder participation in forest management. This process often appears to have been synergistic, involving efforts of local forest managers, their support groups, and other civil society groups.

For instance, in Acre, Brazil [1], local communities organised themselves as cooperatives, and through government efforts, local leaders became integrated into local and state government. Such self-organisation has also been reported in Mexico [7], US PNW [10], India [13], and Ethiopia [18,27].

The important role that civil society actors can play is demonstrated in Guatemala [6,8] where a local NGO initially provided support until ACOFOP (*Asociación de Comunidades Forestales del Peten*) was established and soon became a powerful grassroots organisation in the region.

An important number of examples demonstrate that state authorities have had an important role in empowering communities or implementing policies that contributed to empowerment. In Acre [1], the state pursued an active process of involving communities in decision-making or supported efforts to have communities manage their own affairs. In Argentina [2], the Model Forest created participatory governance structures and also undertook capacity-building to strengthen these structures. In Bolivia [5,8], legislation gave local forest actors wide-reaching decision-making autonomy. In The Gambia [19], capacity-building was complemented by support to local forestry business initiatives, including financial support. In Madagascar [20], the state established and granted authority to community-based associations.

Mexico [7,8] pursued important programmes to support and enhance community forest management,

oftentimes supporting existing communal organisational structures even prior to the 1980s. In Thailand [17], much of the empowerment took place via conflict-mediation efforts. In the US PNW [10], the government has focused on supporting grassroots initiatives during the transition period discussed.

Empowerment of the poorest and of women in local forest management is reported in the case studies, but not always specifically. In Acre [1], the government created a women's secretariat. Other case studies (e.g. Mexico [7,8], Bolivia and Peru [8], India [13], Ethiopia [18], The Gambia [19], Spain [25]) make reference to special attention paid to gender issues but with few specifics on the results of these efforts.

Three case studies report on the deficiencies in empowerment efforts. For instance, in Cambodia [11], local communities have minimal say in decision-making, in stark contrast to the powerful and rich. In Canada [9], while there is an important amount of funding for local groups in forestry related processes, others become marginalised because they were not included in the original agreement that was reached to combine conservation and industrial interests.

3.5 Enforcement of laws and regulations

Enforcement of laws and regulations has been notoriously weak in the forestry sector, especially in tropical-forest countries. This has in many countries led to a large gap between policy statements, legislation, and practice. For example, in Cambodia [11], weak enforcement of social and environmental safeguards when granting large-scale economic land concessions has led to granting concessions in forested areas contrary to the forestry law and regulations. Another example is Mozambique [21], where customary and statutory rules support local communities' participation in forest and land management, but, in practice, inadequate implementation of these regulations jeopardises effective community participation. In countries such as Indonesia [14,15] or Bolivia [5], forest concessions often served as payment for political allegiances until the 1990s. Political reforms have addressed the most blatant cases but forest law enforcement remains high on international political agendas.

Almost all the cases reviewed report on at least some efforts to enforce laws and policies – especially to reduce illegality in the forestry sector, including efforts to reduce illegal forest clearing and illegal logging; two major processes of concern. In Acre, Brazil [1], for instance, since the late 1990s, multiple government agencies began to implement legislation against forest clearing and illegal logging in a more consistent fashion. Elsewhere in the Brazilian Amazon [4], land-use regulation and compliance with forestry regulations began to be imposed to a greater degree. Two approaches that have been used include favouring certified forest companies and making use of forest cadastres. In Argentina [2], legislation and financial support were measures to support increasing legality in the forest sector. Financial support was allocated for institutional strengthening of forest administration, which is expected to improve the monitoring of capacity and effectiveness.

The case studies report on multiple government efforts to combat illegality. They include a Federal Action Plan in BIH [23] and adequate demarcation and central management of information in Canada [9] and Spain [25]. Measures, however, are not only imposed by central governments but may also emerge more locally, as for instance in Mexico [7], Peru [8], and Ethiopia [18,27]. In Uganda [22], illegality is being combatted through improved administration.

Corruption is mentioned as an issue in eight of the case studies, but in none of them does clear evidence emerge on effective measures to address the problem; even a logging ban is neither adhered to nor adequately enforced. In Madagascar [20], this is the case, in part, because the public sector is sorely underfinanced (Figure III 3.2). There is sometimes serious concern (e.g. Nepal [16]) that measures to enhance legality in the sector end up undermining the interest of small and community producers and can even lead small and community producers to turn to illegal activities. In some countries, such as India [13] and in northern countries (US PNW [10], Finland [24]), illegality is not an issue.

About half of the cases, present a sceptical view of efforts to improve legality or reduce corruption. In Cambodia [11] for instance, efforts to increase legality do not stand up against the magnitude of the problem. In Guatemala [6], illegal activities in concessions have declined but illegality remains a major issue in the forestry sector, especially outside concessions.

Voluntary Partnership Agreements (VPAs) under the EU's FLEGT Action Plan and related mechanisms are being developed to restrain illegal activities in a number of countries, but capacity is a constraint for their effective implementation (e.g. Indonesia [14,15]; see also section 4.4.4 for legality verification).

Figure III 3.2 Madagascar is one of the poorest countries in the world, and the public sector is sorely underfinanced and lacks resources to tackle the problems of poverty and resource degradation.
©Grid-Arendal/Peter Prokosch (http://www.grida.no/photolib/detail/madagascar-two-children-in-a-poor-country_2f7d)

3.6. Long-term societal commitment to SFM

There is clear division with respect to long-term societal commitment to SFM among the case studies analysed: it is clearly stronger in the cases in high GDP[3]/capita countries (Canada [9], US PNW [10], Finland [24], Spain [25], Italy [27]) when compared with the cases from low GDP/capita countries. In the former, forest resources have been important for national development and local livelihoods and have promoted industrialisation and economic growth (e.g. Finland, Canada). However, the meaning of SFM has changed over time from sustained-yield harvest to a broader concept of satisfying a number of societal needs that include ecosystem services, leisure, and nature conservation, as exemplified by the US PNW case study. The meaning of SFM is constantly being discussed and re-invented (see chapter 2 in Part IV for the changing meaning of SFM). This holds true also for low GDP/capita countries, for example Bolivia [5], where the integration of new actors in forestry has led to the need for a new understanding of SFM.

Case studies from China [12] and Ethiopia [18,27] show how in the face of severe deforestation and degradation, reforestation, and rehabilitation are raised to the national agenda and governments are actively pursuing programmes to increase forest cover for wood production, prevention of soil erosion, provision of water services, etc. In Nepal [16] and Thailand [17], severe deforestation and degradation have put forests high on the national agenda. In Thailand, the focus has been on top-down forest conservation with minimal human activity in protected areas and with an oblique view of SFM. In Nepal, CF has been an important programme, but it has also emphasised forest protection at the expense of income generation from commercial use of timber. Poor understanding of scientific forest management has undermined the long-term commitment to advance SFM in, for example, Mexico [7] and Nepal. In Indonesia [14,15], forests and forestry are also high on the national agenda. However, progress in advancing SFM has been hampered by conflicting interests, weak law enforcement, and corruption.

In many low GDP/capita countries SFM competes with other development priorities such as economic growth and poverty alleviation, and SFM is not seen as a primary strategy to improve local livelihoods and well-being. This is the case in India [13] and to some degree also in Brazil [1,3]. Other development

[3] Gross domestic product

strategies that provide employment and immediate benefits to communities have been favoured, even including activities that replace indigenous forests (e.g. Acre [1]). However, in The Gambia [19], CF and SFM have been seen as strategies for poverty alleviation and for improving local livelihoods.

In Mexico [7], the emergence of neoliberal policy in the 1990s and an increasing focus on agricultural and conservation policies shifted policy priorities and disrupted the focus on SFM. Initiatives to promote SFM are also often dependent on donor funding or the presence of international NGOs, which while important, can undermine the continuity of programmes and commitment to advance SFM (e.g. Guatemala [6], The Gambia [19]). Long-term commitment to SFM and forest conservation can also be undermined by political changes and unrest, as has happened in Madagascar [20]. Even when progress towards SFM is high on the national agenda, economic development priorities, together with conflicting interests, can constrain its implementation, giving in to high pressure from international investors or markets. In Cambodia [11], large-scale land concessions undermine commitment to SFM; in Mozambique [21], this process is caused by high demand for timber in Chinese markets.

Some international initiatives and processes such as certification and REDD+ have been reported to support commitment to SFM (e.g. Mexico [7], Canada [9], Spain [25]). In relation to certification, however, there are no guarantees for long-term durability. REDD+, on the other hand, still needs to confirm its widely declared potential.

3.7 Reconciliation of different land uses and landscape management

Even though it has been widely recognised that many of the problems facing forests and forest-related livelihoods originate from outside the sector (e.g. Galloway et al. 2010), policies to integrate different land uses and address competing land uses and inter-sectoral conflicts are still lacking in most of the analysed case studies. In developed countries land use planning is usually conducted at different levels, including e.g. national, regional, and municipal level land use planning. However, in developing countries comprehensive land-use policy and planning that would include different land uses are mostly lacking. This is also reflected in the case studies, where most attention has been placed on the reconciliation of different values and needs within the forests. Still, the case studies offer some examples of broader land-use policies and planning.

In the Brazilian Amazon [3], economic and ecologic zoning has been the macro-level mechanism for reconciling land uses at the state level, along with policies targeted to the needs of specific regions and sub-regions. State-level thematic maps and land-use plans have also been produced.

Mozambique [21] has had a National Land Policy since 1995. It provides strong potential for change towards more decentralised natural resources management and seeks to enhance partnerships between local communities and investors, in this way progressing towards an integration of local values and conflicting land-use priorities in rural areas. However, conflicts occur, for example, because of failures in the implementation of land and other sectoral policies. In Uganda, the government has developed a National Land Policy (2011) to address inter-sectoral issues and encourage appropriate and optimal land use. It is has yet to be publicised and implemented.

Landscape approaches, and landscape and ecosystem management are rather recent approaches for integrating different land uses within larger landscapes and managing the trade-offs between, for instance, forestry and agriculture and development and conservation (Figure III 3.3). Landscape or ecosystem management approaches are often connected to the provision of ecosystem services in addition to timber and NTFPs and to efforts to integrate conflicting values and different land uses across larger landscapes. These approaches are also related to developing institutions to facilitate participation and collaboration for planning and management of forest landscapes.

In Italy [27], a landscape approach is employed in a "payment for ecosystem services" scheme to provide hydrological services at the catchment-area level. In South Africa [27], concerns for future water shortages led to limiting afforestation in certain catchment areas, but sound, science-based planning for optimum land-use patterns at the landscape scale has basically been absent to date. However, the government has recently started to fund research on land-use planning at the landscape level.

In Canada [9] and US PNW [10], landscape management approaches resulted from efforts to solve intensive forest-related conflicts that originated from the stakeholders' different values and land-use priorities. A landscape approach provided a means to integrate different land uses within a large area, including species protection (caribou) and timber production, as in the case of the Canadian Boreal Forest Agreement. In the US PNW, there has been a significant emphasis on watershed-based and landscape-scale planning and management.

In some cases landscape management is connected to tenure changes that enable the managers (communities) to manage larger areas as single units (Bolivia [5]). Land-use zoning within ejidos in Mexico [7] has been noted to have enhanced SFM

Figure III 3.3 Traditional land management systems often integrate cultivation, agroforestry and collective forest patches as in Khola watershed in the middle hills of Nepal. ©FAO Photo ref FO-0072

and maintenance of forest cover. The federal government is now requiring land-use zoning as part of the management plans to extract timber. Some ejidos are integrating zoning for hydrological services, biodiversity conservation, ecotourism, and forest management on their forest lands. However, in general, a holistic landscape perspective and properly integrated management of ejido lands is still curtailed on both national and state levels by conflictive and contradictory agricultural, forest, and conservation policies.

Often, landscape management is introduced by donor-funded projects. The case study from India [13] demonstrates how a mapping process that strengthened community institutions and adoption of a landscape-level management approach can prepare local communities to address external pressures they confront.

Certification promotes the adoption of landscape and ecosystem management approaches in, for example, Indonesia [14,15], since the FSC's concept of high-conservation-value forests requires that conservation be carried out at landscape or ecosystem levels. Current forest regulations related to development of forest management units in India [13] also requires that management be carried out at watershed or landscape levels.

Model Forest initiatives pursue a landscape management approach, as demonstrated in the case studies from Argentina [2] and Spain [25]. The Model Forest concept includes the involvement of a wide range of stakeholders in decision-making processes related to land-use planning at the landscape level. It aims at integrating the different land uses in a sustainable manner. An ecosystem management approach is used in community-forest management plans in The Gambia [19].

Some programmes in Acre [1] have encouraged farmers to pursue a landscape approach in planning land use on their properties. The law in the Brazilian Amazon [3] requires that 50%–80% of the landholding is preserved or managed sustainably for timber and NTFPs and the remaining 50%–20% can be used for agricultural production. However, making community-based forest management plans financially viable in the Amazon region remains a challenge.

3.8 Commercial opportunities, linkages to markets, and value chains

The enhancement of economic and livelihood benefits from forests is seen as essential in efforts that seek to further SFM. However, there is marked variability and disparity among the case studies of Part II with regards to efforts made to enhance economic benefits accruing to local actors involved in SFM. At one extreme, no effort has been made to encour-

Figure III 3.4 Transporting cinnamon sticks extracted from the forest in Manompana, Madagascar. ©Aziza Rqibate

age the commercial dimension of SFM, while at the other extreme, rather sophisticated arrangements have been established to favour the functioning and transparency of market transactions. Numerous approaches have been pursued to make SFM more attractive from an economic perspective, including the introduction of different products and services into the market.

3.8.1 Marketing and commercialisation of forest products and services

Local markets for forest products and services

Several case studies emphasise the importance of local markets for forest products and services. Fuelwood is important in meeting energy needs in many countries, ensuring a robust demand for wood and charcoal (e.g. India [13], Ethiopia [18], Madagascar [20], Uganda [22], FBIH [23]). As an example, Mozambique meets 70%–80% of its energy needs with fuelwood, consuming an estimated 14.8 million tons annually. Fuelwood is used by households for cooking and heating and, in some cases, to meet the energy needs for industrial processes; in Madagascar, for example, large amounts of fuelwood are used in distillation and other industrial processes. In some countries (e.g. Uganda), prices for other local products such as poles, wood for construction, and fuelwood have increased markedly in recent years. In some cases, the scale of production targeting local markets is quite small. In Bolivia [5], for example, most producers in the northern Amazon are strongly linked to the market but harvest only a small number of trees from their lands; 60% earn less than USD 250 per year.

Processing of timber and development of products requiring more sophisticated manufacturing know-how, and infrastructure are quite limited in the case studies. Indeed, natural forest management requiring significant capital investments, the development of management plans, and the use of techniques for reduced-impact logging is often beyond the reach of rural communities (e.g. Nepal [16]), or these activities are undertaken with the support of companies (e.g. Brazilian Amazon [1,3]). Nevertheless, the case from Mexico [8] offers an example of where access to credit enabled the ejido of San Diego de Tezains to develop production, from supplying raw materials to independently producing and selling wood products.

In many case studies, communities are exploring alternative commercial opportunities that SFM might offer, for example: beekeeping (Guatemala and Peru [8], The Gambia [19]), branchwood sales and handicrafts (Bolivia [8], The Gambia [19]), copaiba oil and Brazil nuts (Acre, Brazil [1], Bolivia [5]), thatch and fodder collected from exclosures (Ethiopia [18,27]), polewood (Mexico [7]), and cinnamon (Madagascar

[20], Figure III 3.4) among others. The control of invasive *Prosopis juliflora* has created significant commercial opportunities for cooperative producers in Ethiopia, both for charcoal and animal feed, and has also created more than 200 000 man-days per year of employment. In Quintana Roo (Mexico [7]), the diversification of commercially important forest products (e.g. polewood, charcoal, and several sawtimber species) is related to the emergence of a strong regional market. Today, tourism development and major cities in the region absorb a large proportion of forest production. Plantations on private land or agroforestry have been developed in, for example, Guatemala, and Colombia [8]. In Bolivia [8], the community created a micro-enterprise to provide services for commercial inventories and reduced-impact logging techniques, capitalising on the knowledge acquired through technical assistance.

A number of the case studies illustrate efforts to diversify commercial opportunities, responding to evolving societal objectives. For example, several references are made to conserving or enhancing ecosystem services that the forests provide. In the Ethiopia [18] and India [13] case studies, reference is made to efforts to capitalise on carbon markets. Ecosystem services also create commercial opportunities related to tourism, especially ecotourism, and at the same time conserve the cultural heritage and spiritual links to forests (e.g. Argentina [2], Guatemala [8], and Mexico [7,8], India [13], Thailand [17], Mozambique [21], FBIH [23], Spain [25]). The case studies make clear that an array of objectives is being pursued in SFM beyond timber production for commercial purposes. For example, in the Argentina case, the Model Forests aim to conserve water quality and quantity, create opportunities for ecotourism, manage areas for grazing cattle and goats, produce fuelwood and fodder, protect biodiversity, and favour carbon sequestration. The diversification of commercial and livelihood strategies is viewed as a strategy to reduce pressure on forest resources.

Examples of industrial forestry

Although most of the case studies focus on community-based initiatives, reference is also made to efforts to increase industrial forestry operations. In Acre, Brazil [1], for example, considerable emphasis has been placed on industrial forestry, utilising different business development strategies. The state government has sought to attract investment from outside Acre to foster industrial development based on certified timber. In this case, public and private timber companies established links with rubber-tapper communities to secure wood for furniture, flooring, doors, and windows for export markets and furniture for local markets. An Export Production Zone was created to attract Brazilian logging companies. These efforts were complemented by initiatives to increase commercial opportunities for community-based ventures. For example, efforts focused on improving the processing, packaging, storage, and marketing of Brazil nuts, and a condom factory was established to ensure a robust market for rubber. In Acre, the state government pursued a balanced approach to capitalise on industrial investment and know-how and at the same time foster opportunities for community-based operations. Businesses in Acre are also promoted through product fairs.

The China case [12] points out that large industrial companies have the advantage of good access to international markets. In this case, benefits accruing to local community members are primarily limited to the creation of job opportunities, similar to the Indonesian case on industrial forestry concessions [15]. In the South African case [27], private companies support out-grower schemes, providing capacity-building opportunities to small producers for forestry enterprise development.

Approaches to enhance commercial opportunities from SFM

The cases from Acre, Brazil [1,3], Argentina [2], and Guatemala [6,8] mention efforts to strengthen value chains for forest products, including the following approaches:

- formation of cooperatives and associations to represent Brazil nuts, rubber, and copaiba oil producers targeting European markets [1] and to assist communities in drawing up forest management plans and negotiating with timber buyers [3]
- state-sponsored programmes to facilitate improved market access for forest households and communities producing NTFPs and to address the challenges of quantity, variable quality, and connecting producers with promising buyers[1]
- support to local cooperatives linked to Model Forests to promote the commercialisation of handmade products in national and international markets and efforts to strengthen the value chain from raw materials to final products [2]
- creation of a second-tier organisation, Community Enterprise for Forest Services, S.A. (FORESCOM), to provide and channel technical and business services to community forest enterprises [6,8]

Several case studies also refer to encouraging cooperative systems (e.g. Mexico [7,8] and FBIH [23]), including the pursuance of group certification (Acre, Brazil [1], Argentina [2], Bolivia [5], FBIH [23], Indonesia [15], Spain [25]). With regards to certification, the case studies indicate that, overall, this market-based instrument has not led to price premiums

(see Mexico [7] and Indonesia [15]), but it has helped foster a more comprehensive understanding of SFM and has been seen as strategic to ensuring access to important markets. Both industrial and community-based forestry enterprises have at times attracted support from NGOs and international organisations, once they commit to pursuing certification.

The Spain case study [25] describes the development of an innovative information and support system with web-based information to facilitate timber sales involving multiple sellers, including the registration of bidders. Producers have access to up-to-date information on the value of their timber, and linkages to potential buyers are facilitated. This approach has made commercial timber transactions more transparent in the case study area.

3.8.2 Aspects constraining enhancement of commercial opportunities

Limited forestry enterprise development

A common constraint that permeates a number of the case studies relates to the limited capacity for forestry enterprise development. Here, the term "limited capacity" is used in a broad sense, encompassing limited processing capacity (often due to lack of capital for investment), scant business management skills (few, if any, training opportunities for forestry enterprise development), and deficiencies in important technical skills (associated with scant capacity-building opportunities). Lack of technical and managerial knowledge has resulted in community-based operations being vulnerable to unscrupulous buyers of timber and internal problems of corruption.

Bureaucratic bottlenecks

Several case studies describe examples of bureaucratic bottlenecks created by public sector institutions that effectively impede the operational and commercial success of community-based forestry enterprises. A myriad of bureaucratic requirements, procedures, and fees augment the difficulty and costs of doing business. In Nepal [16], where forest policies, laws, and institutions are largely protection-oriented, the imposition of administrative requirements serves to dissuade timber harvesting and trade. In other countries, technical and regulatory requirements are imposed (e.g. forest inventories and management plans), without providing access to training to adequately meet them. When community members and local actors must engage with public sector officials for permits, for example, they subject themselves to unbalanced power arrangements in which they are quite vulnerable to corruption and decision-making that lacks transparency.

Constraints related to timber transport

Once permits are secured for timber harvesting and commercialisation, another constraint relates to transport of timber to the market. Local officials often take advantage of timber being transported through their jurisdictions to charge illegal fees. The transport-related corruption can lead to a decision to restrict timber transport since accessing markets further afield is too costly and stressful (e.g. Nepal [16]).

Lack of land tenure or use rights

Lack of land tenure limits opportunities to take part in timber harvesting and other commercial activities related to forests. This issue is treated in more depth in section 3.1 of Part III.

Problems of illegality

Various examples in the case studies illustrate how illegality constrains commercial benefits derived from SFM. Throughout the world, illegal loggers sell timber and fuelwood at reduced prices, creating unfair competition for legal forestry operations. Timber theft in areas under management undermines conservation and commercial objectives. Unrestrained illegality reflects weak institutional capacity of the government and/or the presence of corruption among government officials. On the other hand, complex legal requirements and bureaucratic bottlenecks create conditions that make timber harvesting outside the law a more attractive alternative (Figure III 3.5).

Institutional and societal objectives do not align with commercial timber production

A number of case studies illustrate that public sector institutions often implement policies that essentially block community involvement in the commercial harvesting of timber. In Cambodia [11] and Thailand [17] case studies, emphasis has been focused on traditional use, with no efforts to further commercial interests. Timber harvesting has been prohibited in exclosures in Ethiopia [18,27], but collecting honey, frankincense, and other NTFPs is permitted in areas undergoing restoration. Harvesting has also been prohibited in highland forest reserves in Uganda [22], limiting commercial opportunities. In the United States [10], timber harvesting has been largely curtailed on public land in order to protect endangered wildlife species, particularly the spotted owl. The resulting drastic reduction in timber rents has led to a downsizing of the forest service and loss of employment. As in the case of Ethiopia,

Figure III 3.5 Timber products produced without management plans and harvesting permits for sale in a local market. Cumbersome regulations and lack of resources and capacities often push local actors into illegal production. ©Marko Katila

some local actors in the US PNW [10] have taken advantage of opportunities to participate in forest restoration activities with governmental support. The development of small-scale enterprises that produce value-added products has also received some federal support.

Market-related constraints

Some case studies (e.g. Amazon [1,3]) emphasise the lack of secure market access, a common problem when communities are situated in remote regions. Communities can also face problems in producing final products having the quality required by buyers, which can prevent communities from obtaining remunerative prices. In other cases, a small number of buyers control prices, putting community-based operations in a disadvantageous situation (e.g. Mexico [7]). Another common constraint relates to the limited availability of commercial species. In Mexico and Guatemala [6], the species mix varies among communities, with some enjoying a greater preponderance of high value species. Finally, markets are subject to considerable fluctuations for both timber and NTFPs, putting forestry enterprises involved in SFM at risk, especially during economic downturns.

3.9 Collaboration between forest industries and communities or small-scale farmers

In the case studies from developing countries where industrial forestry is important, there have also been efforts to develop collaboration between forest companies and local communities or farmers (e.g. Brazil [1,3], Bolivia [5], Guatemala [6], Indonesia [15], Mozambique [21]).

The motivations for companies to engage in partnerships with communities and small-scale farmers can relate to securing raw material or labour or to social responsibility concerns and reputation. Communities, on the other hand, often lack technology, capacities, and finance to embark on large-scale commercial operations. Partnerships can bring employment opportunities, secure access to forest resources, provide capacity development, and also include infrastructure development and social services (Mayers and Vermeulen 2002).

Various kinds of partnerships have developed between forest companies and communities or small-scale farmers. They can be divided into different types: joint ventures, co-management, out-grower schemes, corporate social responsibility projects, support to farm forestry, community or farmer lands

leased by companies, forest concessions allocated by communities to companies or companies contracted for logging, group/community certification with company support, and environmental service agreements (adapted from Mayers and Vermeulen 2002). Of these potential forms of collaboration, only some are presented in the case studies analysed in this volume.

In Brazil [3], some communities contract timber companies for logging and transport. Timber prices are negotiated beforehand. Companies can also be in charge of all production activities and bear logging costs. The company-community partnership can help reduce risks, because companies are in a better position to process timber and have better market access. However, communities often lack negotiating power and companies may pay too little for products originating from community-based operations. Sometimes other complementary benefits are also negotiated (e.g. roads, local employment).

In Mozambique [21], company-community partnerships have been regarded as a way to bring economic benefits to local communities. Community consultation and approval is required prior to allocation of exploitation rights to third parties and 20% of forestry tax revenues are earmarked for allocation to communities. Consultations are meant to provide a platform for the establishment of a partnership between forest operators and local communities. Community committees should be established to represent the community and receive and manage the funds. However, the consultations and the decisions taken, particularly the promises made by the forest operator, are often not taken into account in practical operations, and apparently there is no clear mechanism to enforce compliance.

In South Africa [27], as a response to the land restitution policy that has created uncertainty over land rights, the private forest industry has embarked on a voluntary land-redistribution scheme where land ownership is voluntarily transferred to local communities and then leased back to the industrial forest grower-processor for two crop rotations, along with strong technological support and extension services that is made available to new landowners. Pilot-scale land transfers under this scheme have already taken place, and it appears to be a more workable solution than forced land redistribution. Several out-grower schemes are also in operation in South Africa in which the company usually provides the seedlings, technical support, and even loans and guarantees to buy the timber produced (Howard et al. 2005).

The case study from China [12] concludes that the main forms of community and local stakeholder involvement in the three case companies have been fairly similar, having a philanthropic emphasis and a narrow understanding of the stakeholder concept and community involvement. Corporate social responsibility activities are driven by company needs. Attempts to involve local communities emerge only after conflicts arise. Stakeholder management is more reactive than proactive, aiming to minimise conflict, not to solve the roots of some future conflict.

The case study from Italy [27] demonstrates a partnership between a company providing drinking water and small-scale forest owners. With a slight increase in the water bill, the company is able to compensate forest owners for converting their coppice forest into even-aged stands within the catchment area. Compensation helps forest owners to cover the cost of changes in management practices and land-opportunity costs.

Increasing tourism creates new opportunities for forest communities and forest owners. For example, in Quintana Roo in Mexico [7], there is no industrial forestry in the region in the sense of large for-profit timber corporations. In many cases, local companies and individuals conduct logging operations, operate sawmills, and commercialise forest products; in others, ejidos possess an integrated vertical structure, participating in all the aspects of forest management. However, in recent decades, the demand from the tourism industry for forest-based products has been another type of industrial presence that can affect SFM in the region. The tourism industry demands timber and non-timber resources from the forest and, most importantly, labour from the communities. However, the tourism industry rarely collaborates or engages directly with communities. The impact of tourism on SFM is still not fully known.

The tourism industry also poses demands for attractive forest environments, emphasising the forest's aesthetic features. In northern Finland [24], industrial forestry has historically been important; however, nature-based tourism is now the strongest growing industry that uses natural forests, though it uses them in an untraditional way. This has led to conflicts between the interests of the tourism industry and the state organisation responsible for forest management on state-owned lands.

3.10 Capacity-building and technical assistance

Capacity-building and technical assistance are recognised as vital in efforts seeking to further SFM. The majority of the case studies that address capacity-building and technical assistance indicate that considerable efforts have been made to provide these important services. By its very nature, however, capacity-building is a broad concept and the case studies reflect a high degree of variability in terms of institutional support provided, target groups, topics covered, continuity, and issues of scale.

3.10.1 Organisations involved in the provision of capacity-building and technical assistance

Although governmental organisations have played a key role in capacity-building and technical assistance in a number of the case studies, these activities are commonly driven by international initiatives, often with NGO support. This overall tendency is not surprising, taking into account that SFM has often been promoted and funded by the international cooperation. This implied dependency of capacity-building programmes on support from NGOs and international organisations makes these services vulnerable to fluctuations in funding from the donor community.

In a few cases, explicit reference is made to the fact that capacity-building and technical assistance programmes are lacking, commonly due to human and financial limitations of public sector institutions. The lack of capacity-building is seen to be especially problematic in contexts characterised by conflict and resource degradation (e.g. Cambodia [11]) and land-use change (e.g. Mozambique [21]) and in countries where legal requirements related to SFM are becoming more complex (e.g. Nepal [16]).

The case study in South Africa [27] highlights the role forestry companies have played in the realisation of capacity-building programmes, primarily related to out-grower schemes to encourage new enterprise development.

The case studies that focus on Model Forest initiatives in Argentina [2] and Spain [25] highlight cooperation among diverse stakeholders in capacity-building and technical assistance. This cooperation appears to expand access to capacity-building to a broader constituency of stakeholders and would appear to favour programme continuity over time.

3.10.2 Target groups

When viewed broadly, the case studies make clear that a wide range of stakeholders require capacity-building and technical assistance: from decision-makers to persons directly involved in management activities in the forests and in the harvesting and processing of timber and NTFPs. In between, persons involved in management, education, extension, and other functions also require capacity-building. As objectives evolve, the knowledge and skills to carry out SFM also change, creating special challenges for capacity-building and technical-assistance programmes alluded to later in this synthesis.

Several case studies emphasise that capacity-building and technical assistance are primarily made available to only a portion of the stakeholders. This is often due to limited financial and human resources available to carry out these activities.

3.10.3 Topics

In relation to capacity-building, the case studies refer to a variety of necessary topics, including;

- technical skills related to agroforestry, bioenergy, biodiversity assessments, natural forest management, reduced-impact logging, volume determination, plantation forestry, preparation of management plans, and environmental impact assessment
- leadership and management skills
- commercialisation and financial issues like enterprise development, tourism, value chains, microfinance, ecosystem services, and REDD+
- topics related to policy instruments, norms, regulatory framework, and governance, such as legality verification, lobbying, and advocacy
- social issues such as conflict resolution

This partial list gives a sense of the breadth and complexity of the capacity-building and technical assistance needs identified in the case studies. While many of the studies indicate a primary focus on technical aspects in their capacity-building programmes, others seek to empower civil society groups to participate more effectively in SFM by enhancing their knowledge of policy instruments, norms and regulations, and commercial opportunities.

Communities and companies pursuing forest certification must comply with a broad set of principles and criteria. For that reason, in the case studies in which forest certification is being pursued or sustained, capacity-building programmes tend to be more comprehensive in nature. However, the lack of trained certification auditors has created problems (e.g. Indonesia [15]), since poorly trained and inexperienced auditors make poor recommendations and can undermine the credibility of certification.

3.10.4 Challenges

As indicated previously, capacity-building and technical-assistance needs evolve in a continuous fashion, making it necessary to introduce new topics and information over time. As the Acre, Brazil, case [1] points out, the expansion of training and technical-assistance needs can often outpace the development of local capacity, creating weak links and gaps in capacity-building programmes. Only a few case studies explicitly address this challenge (e.g. Acre, Brazil [1], Argentina [2], The Gambia

[19]), and little reference is made to incorporating lessons learned into capacity-building programmes to increase their quality and effectiveness over time.

Another challenge relates to the importance of ensuring continuity for capacity-building and technical-assistance programmes. Since resource needs for the provision of these services are, in many cases, at least partially met through donor assistance, capacity-building programmes are vulnerable to reduced support, as indicated earlier. Efforts to augment co-operation among stakeholders, for example in the Model Forest initiatives in Spain [25] and Argentina [2], represent one promising strategy for mitigating excessive dependence on donor support.

Many initiatives seeking to promote SFM tend to focus on specific regions within a country. A common challenge, especially taking into account the limitations facing many institutions, is how to scale out capacity-building and technical-assistance programmes to integrate dispersed communities and farmers. The formation of local trainers, fostering of exchanges or "cross visits" among communities, and building on traditional practices are three strategies mentioned in the case studies to address this challenge (e.g. Mexico [7,8], India [13]; see also the cases from Guatemala and Colombia [8]).

A pervasive challenge facing capacity-building programmes in the case studies is that programmes often concentrate on developing tools and technical skills to carry out specific activities such as forest management, nursery management, and plantation establishment, with less attention given to developing capacities related to markets, institutional development, leadership, etc. Others point out, however, that the viability of SFM requires underlying capacities that are harder and often more time-consuming to develop (see Potter and Brough 2004), skills related to staff, structures, systems, and roles that are necessary to consolidate SFM initiatives – the institutional support. As many case studies point out, knowledge and know-how can be essentially orphaned without adequate institutional support. This challenge might be called the challenge of institutionalising SFM.

3.11 Access to capital

This section explores the dynamics associated with formal and informal access to capital in the forestry operations analysed in the different case studies. The forestry operations range from large-scale industrial operations to a variety of local small-scale forestry operations, which in many cases take place outside of the law. The synthesis is organised around three questions: 1) How do local actors access capital? 2) Have efforts been made to create formal mechanisms that provide capital to local actors involved in forest-related activities? 3) How have investments in forest-related activities impacted traditional uses of forests?

3.11.1 Access to credit in the forestry sector

For actors in the forestry sector, the access to finance is quite heterogeneous. Both formal and informal finance systems co-exist in the sector. Some countries or regions tend to capture more credit, due to the pre-eminence of timber industry supply; in others, informal sources of credit are widely available and tend to target large-scale timber management and plantations and some small-scale tree planting – only in a few cases targeting NTFPs. Interestingly, in a few case studies from developed economies, some formal credit is being channelled to activities related to the biomass sector and forest-based recreational activities.

Where there is a more important forestry sector, such as the cases in Canada [9] and Finland [24], capital is available through formal channels, mainly commercial banks. The US PNW [10] is noteworthy to highlight because access to capital has been a significant problem since the financial crisis in the late 1990s for both large sawmills and smaller operations focused on small-diameter material. Many factors contribute to this problem, including a progressive contraction of the industry, decline of independent rural banks, and lack of reliability of timber supply due to constraints on harvesting imposed by environmental legislation. Currently, there are some government loan and grant programmes, especially for biomass development and conversion to small-diameter processing (both in the woods and mills). Government energy funds, however, tend to focus on very large facilities, too large to contribute to sustainable biomass energy development in this region. Micro-loan funds are typically too small to be helpful, even for small operators. Some state and federal loan and grant programmes, such as Fuels for Schools, have helped, for example, to convert a small number of public buildings to wood heating or to purchase harvesting equipment and the like. In general, communities have poor access to capital.

In other cases, where there is an important presence of smallholders depending for their livelihoods on forest-based activities, such as in the Brazilian Amazon [1] and Mexico [7], formal sources of credit have been put in place through commercial banks, often state development banks. For example, in Acre, Brazil [1], several credit lines are operational through the state (e.g. PRONAF Florestal) and through smallholder cooperatives such as COOPERACRE that supports the extraction and marketing of

some NTFPs (e.g. nuts, resins). It is noteworthy that smallholders in Brazil have placed a low demand on formal credit lines in spite of the fact that they must have credit to cover the fixed costs of their forestry operations. Often communities do not meet established criteria to access commercial credit lines (e.g. land title, collateral), suggesting that access to formal credit lines persists as a main issue in small-scale forestry. A similar situation occurs in Mexico, where farmer access to capital comes primarily from state and federal assistance programmes; and communal associations (*Sociedades Civiles*) mostly survive from these funding sources. So, the availability of credit in remote rural areas is an important issue without a satisfactory resolution as yet.

Several informal mechanisms constitute an important source of finance for smallholders undertaking timber management, collection of NTFPs, or tree planting. For example, in Mexico [7], smallholders tend to rely on the *tandas*, rotational credit associations that constitute an alternative to bank loans. In the Bolivian northern Amazon [5], there is an extensive system of *habilito*, which is a form of advance payment provided by industry to intermediaries and from these to smallholders or land estate holders in order to cover the operational costs required to undertake Brazil nut collection in the forests. In Guatemala [6], social forest concessionaries have access to capital through advances from wood buyers, which is also the case across several locations in the Brazilian Amazon [1,3]. In Ethiopia [18], lack of collateral reduces the smallholders' ability to secure capital from banks. Yet, these farmers have some access to capital through an informal finance mechanism known as *iquib* (saving clubs), although forest-related activities are not significant except for the selling of wood from the small woodlots around homesteads.

In Cambodia [11] and Nepal [16], the formal sources for financing forest-related activities are also weak or non-existent. In Madagascar [20], credit for forest activities is generally poor, and while microcredit exists, it is used by few farmers: the main source of capital is the sale of assets, mainly cattle. This also applies to other cases, such as in the Brazilian Amazon [1,4] where cattle constitute the main source of savings and the means to finance other productive activities or the source of capital for responding to external shocks, when required.

3.11.2 Efforts to improve financing for forest management

Some efforts can be observed in several countries to improve finance for forest-based activities, mainly timber management. In Acre, Brazil [1], the state government has invested heavily in programmes (e.g. *Sistema Estadual de Incentivos a Serviços Ambientais*) that include mechanisms for financing the transition to sustainable practices, backed up by technical assistance, and infrastructure investments. In Argentina [2], the government has contributed to enhancing the use of forestland and improving local livelihoods of indigenous communities and small farmers through expanding bank loans targeting SFM. In Uganda [22], similar efforts are being put in place by the government with support of a donor-funded programme that provides funding to private landholders to establish forest plantations. In general, however, large companies have benefitted most, while small farmers face difficulties in meeting the conditions. Also in Uganda, government funds obtained from the African Development Bank (AfDB) have also helped communities and private individuals plant trees, and some microfinance institutions provide loans to farmers. In Ethiopia [18], a severe lack of access to capital has led to implementing actions in land and forestry rehabilitation, mainly building erosion-control structures inside selected areas through Food for Work programmes.

In BIH [23], formal channels to access financial incentives have been developed for all actors by specific instruments prescribed by the Law on Forest 2002. For public forestry companies, some channels to access capital were also provided by various international organisations such as the World Bank, FAO, SIDA, USAID[4], and others. In Indonesia [15], access to capital is a major issue for small- and medium-sized enterprises and community forests that require significant capital in order to comply with the national Timber Legality Assurance System, labelled SVLK. There are efforts in that country to provide some sources of financing to help cover costs, mainly through government subsidies, and some limited resources for smallholder certification are channelled by NGOs. Nonetheless, as mentioned earlier, in most of these cases, one of the main issues facing rural credit, mainly for forest-based activities, is the lack of farmer collateral, thus limiting the penetration of credit to the most accessible areas, where transaction costs are lower.

In a few cases, recent expansion of informal sources of credit has become evident, such as increasing informal financing of forest operations by Chinese timber merchants in Mozambique [21] that provides financial facilities to local operators to cut

[4] Food and Agriculture Organization of the United Nations (FAO), Swedish International Development Cooperation Agency (SIDA), United Sates Agency for International Development (USAID).

down trees and secure the market for logs. This has, however, been identified as a factor driving illegal logging in this country.

3.11.3 Effects of investments in traditional forest-use practices

The effects of investments in forest management, harvesting of NTFPs, tree planting or recreational activities on traditional forests use and management practices are poorly known. Unfortunately, the case studies undertaken do not provide enough information to assess potential implications, but two main situations can be observed. On one hand, in most cases formal finance supports timber extraction, which constitutes a market-oriented activity and has tended to displace some subsistence-oriented traditional forestry practices, mainly those related to the harvesting of NTFPs. Yet, the final outcome on smallholder livelihoods is difficult to decipher. On the other hand, funding provided through informal sources tends to support smallholders' relatively diverse livelihood portfolios. In this latter situation, both market conditions and smallholder preferences define the activities for investment. Yet, those selected are often the ones providing higher income streams, which in the long term tend to affect traditional forests uses. In a few exceptional cases, such as in Bolivia [5] and Brazil [1,3], smallholders have invested in, for example, harvesting of Brazil nuts or rubber-tapping, which contribute to secure traditional-forest-based livelihoods that at the same time tend to protect forest resources.

3.12 Security and conflict

Issues of security and conflict were included in the analytical framework for the case studies, recognising the often antagonistic relationship between these issues and progress towards SFM. Conditions that impede SFM, such as unclear land tenure, illegality, and policy-driven land-use change, often lead to conflicts (Ejigu 2006). This section provides an overview of issues of security and conflict and their effects on SFM demonstrated in the case studies.

In 10 of the case studies, issues of security and conflict are not considered problematic. In all of these cases, outcomes related to contributions of forest resources to local livelihoods are perceived to be positive. In a similar fashion, outcomes related to forest condition and extent are seen to be stable or positive. In contrast, in the 14 case studies where conflicts are still pervasive, outcomes relating to forest condition and local livelihoods are much more mixed: only three cases report positive trends with regards to forest condition and six with regards to contributions to local livelihoods. In the remaining cases, outcomes are seen as negative or unclear since both positive and negative outcomes are sometimes shown in the same case.

3.12.1 Case studies in which issues of security and conflict are not considered problematic

In at least two of the cases in which security and conflict are not considered problematic, the reality was quite distinct in the not-too-distant past. In Acre, Brazil [1], drug cartels and death squads, coupled with widespread government corruption, led to severe problems of governance and public safety. In past two decades, however, remarkable strides have been made to strengthen the regulatory framework, increase the effectiveness of government institutions, and enhance the participation of different stakeholders in SFM. These notable efforts have greatly diminished the conflicts that characterised Acre, while also reducing processes of deforestation and creating opportunities to generate economic benefits from forest-related activities.

In Ethiopia [18,27], the extreme degradation that characterised the case study areas was partly a consequence of conflict and war. The establishment of exclosures has been implemented to rehabilitate degraded land, and although this measure has restricted access to some areas used for traditional grazing (resulting in increased tree cover), the environmental benefits of restoration are perceived to have improved rural livelihoods by increasing the availability of grass for livestock, poles for construction, and employment opportunities for soil and water conservation activities.

3.12.2 Case studies in which issues of security and conflict are considered problematic

More than half of the case studies report problematic security and conflict issues that affect progress towards SFM. The underlying causes of these conflicts vary but generally fit into the following broad categories (these and other types of conflicts arising in natural-resource management are categorised in Warner 2000):

- Disputes over land tenure, resource ownership, and use: Several case studies report problems related to land and resource ownership. Although many cases indicate significant progress with regards to the granting of land tenure or use rights to local communities, there are exceptions. In several case studies, governments retain ownership of forestland and natural resources and establish conservation areas or grant concessions to private companies to stimulate investment and production that will drive economic growth. The economic land concessions in Cambodia [11], the encouragement of foreign direct investment in Mozambique [21], the establishment of plantation forests in China, and forest conservation policies in Thailand [17] are manifestations of policies that marginalise local communities involved in forestry and ignore their customary rights, leading to tension and conflicts.
- Security issues affecting SFM: Issues of security and illegality are problematic in several case studies. Illicit activities such as drug trafficking, hunting of wildlife, and looting of archaeological sites pose a serious threat to the forestry concession process in the Peten, Guatemala [6]. Similar problems are found in neighbouring Quintana Roo, Mexico [7], where some conflicts between ejidos is related to illegal logging, despite the fact that illegal logging in Quintana Roo is moderate compared to elsewhere in Mexico. In Madagascar [20], cattle thieves hide stolen livestock in forests and have been reported to burn forests to cover their tracks. Finally, in South Africa [27], isolated incidents of crime, including arson in plantation forests, robbery, and murder, have had very negative impacts on SFM.

The case studies suggest that progress towards SFM is enhanced when effective mechanisms and conditions are in place to manage and/or avoid serious conflict. For example, as shown in the case study from Thailand [17], conflict mediation helped transform the prolonged conflict between the local community and national park authorities towards long-term cooperation in forest management. The cases also make clear that security issues and illegality commonly represent serious threats to SFM. The complexity of these problems makes clear the challenge in adequately addressing them.

3.13 Research and monitoring

Since the UN Conference on Environment and Development in Rio de Janeiro in 1992, numerous international initiatives have worked to define SFM and to establish monitoring and reporting protocols and standards for tracking its progress. These efforts have resulted in both global and regional criteria and indicator (C&I) sets for evaluating and tracking the implementation of SFM.

All the countries in which the case studies are located are involved in some of these global or regional C&I processes. Many countries have also translated the general C&I sets into C&I specific at the country or subnational level. This process also includes the development of applied research programmes to generate baseline data of local conditions and to track change.

The case of the Argentina Model Forests [2] is the only one of the analysed case studies in which explicit reference is made to the establishment of local indicators to develop a local monitoring system based on solid scientific information. Nine other case studies report on different types of monitoring activities, mainly focused on monitoring forest extent and condition – in some cases monitoring socio-economic indicators, biomass, or endangered species (Acre, Brazil [1], Bolivia [5], Canada [9], US PNW [10], India [13], Finland [24], Uganda [22]). Systematic monitoring is required by certification systems (Indonesia [15]).

In Guatemala [6], the system for monitoring community concessions is in place, but the generated information is not effectively used to orient management practices or to improve management plans. Often, forest management activities are monitored and controlled by a community organisation, as for example, in the case of Cururú in Bolivia [8], which includes supervision and technical and administrative control of activities and surveillance to detect and control unauthorised entries. In many case studies, monitoring systems are under development but have not yet been put into practice (Mexico [7], Cambodia [11], Indonesia [14], Ethiopia [18], Mozambique [21], Spain [25], South Africa [27]).

The gap between C&I systems and current practices for forest management is so wide that progress in SFM can best be made through an adaptive management approach that provides a framework for incorporating new knowledge generated by learning and research into the development and implementation of appropriate, locally adapted practices.

The case study on forest monitoring in Europe [26] shows how forest monitoring can provide information relevant to clean air policies, political processes related to SFM, and regional forest policy-making. The International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) of the Convention on Long-range Transboundary Air Pollution (CLRTAP) reveals effects of air pollution on forests, conducts risk assessments, and assesses the effectiveness of air-pollution abatement measures. Its results contribute to the scientific basis for clean air policies

under CLRTAP. Under this convention, monitoring and research have been closely connected to policy-making, which has contributed substantially to its success.

The increasing complexity of forestry problems is reflected in forestry-related research needs. Numerous topics, such as climate change, food security, and water availability, are significant to forest policy-makers and are of high interest to different stakeholders. Also, as indicated by the case studies, SFM is carried out in a myriad of different social and cultural conditions that must be understood in order to develop measures to address forest-related challenges. This emphasises the need for interdisciplinary research.

One-third of the case studies report on SFM-related research. Yet, there is great variation among the case studies, ranging from locations that have been the focus of considerable research efforts to locations with very little research. Research has focused on diverse topics, for example on topics related to forest policy and governance, certification, biodiversity conservation, livelihoods, and cultural issues (e.g. Acre [1], Argentina [2], Mexico [7], US PNW [10], Madagascar [20], Mozambique [21], Uganda [22], Finland [24]). However, in a significant number of these studies, research activities have focused mainly on specific technical issues such as plantation management, agroforestry, forest management practises, adaptive management, and greenhouse gas emissions (e.g. Brazil [3], Bolivia [5], Guatemala [6], Mexico [7], Canada [9], China [12], Ethiopia [18,27], Indonesia [15], BIH [23], Madagascar [20], Mozambique [21], Uganda [22], Italy [27], South Africa [27]). Technological innovation and research to add value to forest products and services are reported to have supported SFM in the case studies from Guatemala and Mexico [8].

Even though the reported research indicates that some progress has been made, considerable efforts are needed to provide research-based information to advance SFM at different scales. However, in many parts of the world, there has been a paradoxical reduction in research capacity, precisely when the complexity of forestry is increasing and the need for information is greater than ever. Therefore, the allocation of more financial and technical support and cooperation is urgently needed to strengthen SFM research capacity (Galloway et al. 2010), especially in developing countries.