

Chapter 2

Review

Forest Users: Past, Present, Future

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Abstract From a frugal use of tropical forests by primitive indigenous communities a few centuries ago, their utility has grown to global significance with a wide array of goods and services sought by the world community. This evolutionary role of tropical forests, however, has come at a cost as these forests are under severe threat owing to persistent overuse. It is widely accepted that with the dawn of colonialism across the tropical belt, extraction of forest products for industrial use and infrastructure became intensive, and energy and livelihood demands of the growing population of forest-dependent communities soared. The resultant deforestation and forest degradation under state ownership was countered by handing over management to local communities. It has clearly emerged that tenure security is the key for getting communities committed to judicious management in the long run. With the increased demand for sustainable yield of goods and services, consultative processes amongst a range of stakeholders became important to minimise conflicts and influence policy and management in practise. Learning experience shows that for sustainable management of tropical forests state and community partnership is unequivocal, social inclusion and governance issues must be resolved, value addition of forest products must add to the local economy and employment, technical management must be simplified and the climate agenda must be addressed. Moreover, since sustainable forest management can no longer be seen in isolation from the politics and practise of other sectors regarding forests, it is inevitable that institutional capacities, learning and knowledge networks, participatory monitoring and advocacy forums are consolidated across vertical and horizontal levels of governance and relevant sectors.

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2.1 Context

2.1.1 *Forest Use in the Tropics from a Historical Perspective*

From a mere frugal use of intact tropical forest ecosystems by insignificant forest dweller populations barely a few centuries ago, these forests in the twenty-first century have evolved to a global natural asset for a broader delivery of goods and services sought by a range of stakeholders (e.g. subsistence farmer, wood industry, conservationists, traders). Since CoP 13 (e.g. the Bali road map in 2007), the status of “free for all” of tropical forests owing to their immense growth and biodiversity potential has found defining attention in the emerging challenge of countering greenhouse gas emissions as the root cause of climate change. Following it up, CoP 15 in Copenhagen (2009) highlighted the role of forests in sequestering greenhouse gases and made cost-effective and efficient forest management a prime agenda. However, this radical shift in the thinking on and use of tropical forests has come at a significant loss. The Global Forest Resources Assessment 2005 (FAO 2006) of the Food and Agriculture Organisation of the United Nations (FAO) mentions the net loss in forest area at the global level during the 1990s was an estimated 94 million hectares – an area larger than Venezuela and equivalent to 2.4% of the world’s total forests. In another estimation for tropical forests, natural dense broad-leaved forest covers 1,260 million hectares, or 9% of Earth’s total land area (Barbier and Burgess 2001). Despite increased awareness of the importance of these forests, deforestation rates have not slowed.¹ Analysis of figures from the FAO shows that tropical deforestation rates increased by 8.5% from 2000 to 2005 when compared with the 1990s, whereas loss of primary forests may have expanded by 25% over the same period. The rate of primary forest loss has doubled in Nigeria and Vietnam since the 1990s, whereas Peru’s rate has tripled.

Although extensive, the world’s forests have shrunk by some 40% since agriculture began 11,000 years ago. Three quarters of this loss occurred in the last two centuries as land was cleared to make way for farms and to meet the demand for wood. As a classic example of forest decimation, Haiti, with a forest cover estimated at 3% of all land area, has experienced severe degradation of its natural resources and a significant change in its land cover. Although deforestation in Haiti is obviously multifaceted, one issue emerges from empirical analysis in explaining deforestation: land tenure. A study was made on the causes of deforestation in Haiti, particularly in the Forêt des Pins Reserve, using the annual average area of cleared forest per household as the dependent variable. Data were collected with the use of a survey instrument administered to 243 farm households in 15 villages inside the

¹The Draft Global Forest Resource Assessment 2010 of the FAO reports that there is slowdown of the deforestation rate. However, South America and Africa are having a higher net annual loss of forests (2000–2010) and Asia, especially owing to afforestation in China, India, Vietnam and Indonesia, is showing a net gain. Between 2000 and 2005, Africa and South America experienced the largest net forest losses (21.87 and 19.01 million hectares, respectively).

reserve. Tobit regression results revealed that household size, education of the head of the household, land tenure regime and farm labour are important factors affecting land clearing.

Given the above account and accelerated changes in tropical forests occurring since the early 1960s, largely attributed to population and economic growth, the mechanisation of extraction techniques, and increasing means for transportation (ITTO 2006), the tropical forest ecosystems are rated as the most threatened forest ecosystems in the world (Millennium Ecosystem Assessment 2005). The grave implications of such devastation can be seen from the fact that these forests shelter nearly half of Earth's biodiversity, capture carbon, protect water, food and soil resources, and provide timber and other forest products for consumption and commercial use (FAO 1995, 2001). Subsequently, this has serious implications for an estimated 350 million indigenous and tribal peoples at least partly dependent on forests, including some 60 million who are substantially dependent on forests for their subsistence and livelihoods. These forests are particularly located in developing tropical countries and therefore are very important to the poor and women, who shoulder much of the burden of hauling wood and collecting and marketing forest products. Many such forest-dependent communities, ethnic minorities or farmers lack both land security and political representation (Wolvekamp 1999).

2.1.2 State Control of Tropical Forests

Transformation of the use and expectation from forests has historically started from very primitive tribal/indigenous communities living within or on the fringe of forest areas fulfilling their livelihood-oriented basic needs. Tropical forests thinly surrounded by humans were the ultimate local saviour socially, economically, culturally and spiritually. On the other hand, there are some areas where civilisation was built in harmony with the forest. Forest civilisation, developed by Indio people, which was destroyed by the European invasion, is a good example of coexistence between humans and nature. However, it has to be acknowledged that the low-population factor certainly helped the cause of balanced use of the forest. Similarly, for more than 400 years two distinct ethnic groups, the Chachi and Afro-Ecuadorians, through their respective cultural practises have managed forests sustainably, providing them with food, clothing, medicine and ritual necessities (Gamboa, in Colchester 2001). This umbilical relationship between tribal people and forests was first disturbed in the colonial era. Heske (1937) described dense forests in India as the ultimate edifice for the spiritual philosophy this country has given to the world. Colonial expansion in the mid-nineteenth century in India was marked by the establishment of railways spurring greater access to forest resources which were fed to industrial revolution back home. Hence colonial government claimed large tracts of forests as forest administration also was established in the 1860s. Since then, the issue of land rights and indigenous peoples, especially in the forestry sector in India, has been highly sensitive because many tribal communities

have been divested of their customary rights for purposes such as large dams, mining, timber contracts or biodiversity conservation.²

The presence of colonial powers in the continents with tropical forests had the effect of causing reorganisation in local land use and power structures in response to colonial markets and government pressures. Even though the colonial powers did not seek massive changes in the ownership structure of land use and power, enough damage was done to break down the traditional structures (Vosburgh 2003). Nevertheless, colonial governments were strongly in favour of absolute proprietary rights of the state over the forest, and state monopoly. Not enough consideration was given to the fact that customary use of norms by local people was regulated by their indigenous institutions and by customary relations within and between villagers. All uncultivated land went to the state while discretion of rule prevailed. However, the exponential population growth since the beginning of the twentieth century is very much coherent with the mounting pressure on tropical forests as both locally growing populations and industrial needs of the developed world targeted these forest ecosystems. Hence, according to the FAO Forest Resources Assessment, Earth's forested area is in decline, mainly due to the conversion of forests to agricultural land (FAO 2005). With sovereignty of several erstwhile colonial states returning around the mid-twentieth century, the ownership of forests was consolidated centrally by the independent states, promoting the culture of control and command.

2.1.3 Emerging Set of Stakeholders and Conflicts

The major processes associated with deforestation are largely anthropogenic, including clearing land for agriculture and livestock production, human settlement, commercial logging, mining, hydroelectricity projects and military activities (Kaimowitz and Angelsen 1998; Allen and Barnes 1985; Bawa and Dayanandan 1997; Rudel and Roper 1997). Nevertheless, higher deforestation and forest degradation rates after the postcolonisation phenomenon indicate that centralised forest governance systems treated forests largely as “revenue cows” as emerging states tried to build on the new development paradigms of agriculture expansion, cattle ranching on clear-felled forests for meat production, industrial growth and massive infrastructure establishment. Development largely occurred in emerging urban centres as growing but alienated rural populations (e.g. in India, Bangladesh, Indonesia, Malaysia, Haiti, Democratic Republic of the Congo, Brazil) based on subsistence added to the anthropogenic pressure on the forest ecosystems. The “control and command” management of forests akin to centralised governance systems went hand in hand with the gradual alienation of authentic forest users

²In 2008 the Indian parliament passed the forest tribal rights bill but its implementation is still inadequate.

from traditional access to forest resources. One of the key features of this top-down system of forest use was the induction of “concessionaries” in good company with states as an agent to log the forests clean. That centralised systems of forest governance cannot be the harbinger for the rescue of tropical forests was very much evident from the “Rio Summit” in 1992. This summit was instrumental through the adopted Agenda 21, to endorse the participatory role of local communities in decision-making favouring sustainable forest management. It is also more than 40 years since discussions were initiated for an international tropical timber agreement, in an early attempt to align the conservation and development of tropical forests. Hence, for about two decades there has been a popular move to devolve forest governance from centralised government to a lower level of government (e.g. civil society, local governance bodies, private sector).

Global interest in sustainable management of tropical forests has emerged. Partly this is evident from the fact that the focus is on identifying principles, criteria and indicators on the basis of which sustainable forest management can be judged. As a result of renewed global attention to safeguard forest cover whilst sustainable use occurs, there are now many people with an interest or stake in forests. Transformation of the stake in a forest from a single user to multiple stakeholders in formal and informal institutions is therefore bound to generate clash of interests. This brings in the accessibility and rights issue of actual forest dependents for whom forests are the primary assets for supporting their livelihoods and local economy. Nepal’s case is a classic example of shifting of ownership and with that the power of exclusive use of its forests from a “free for all status” prior to 1957 to a more people-oriented forest governance (see Fig. 2.1) after a

Distribution of Power in Community Forestry: Historical Overview

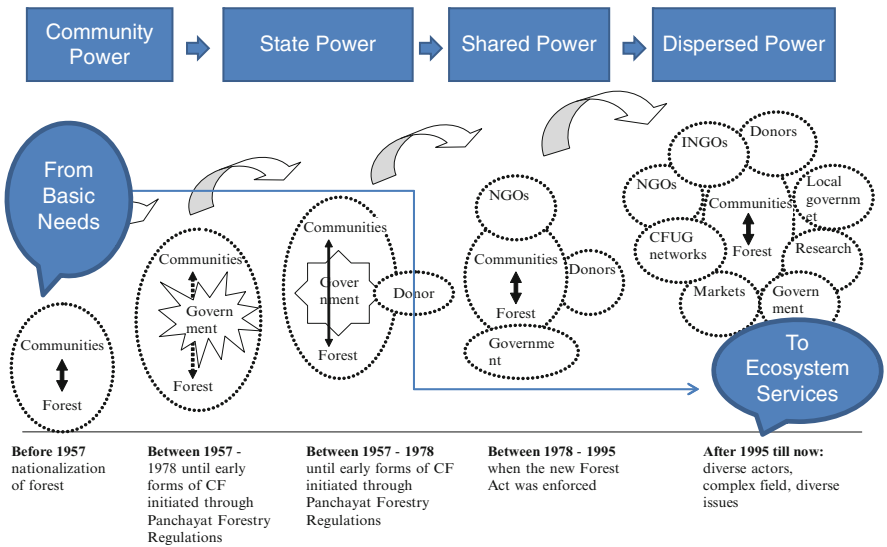


Fig. 2.1 Power distribution in Nepalese forestry, a historical view (after Ojha 2008)

period of strong state control. Figure 2.1 can also be seen in the context of a growing number of stakeholders having a stake in a power game regarding forest governance as well as their interests in sustainable forest management after an era of deforestation and forest degradation. From the sheer basic needs logic to paradigmatic focus on ecosystem services multi-stakeholdership is characteristic in the dispersed power situation. In turn, forests from the cradle of civilisation and culture have become objects of multiple interests and stakeholdership for the economy and conservation. Decision-making cannot be firmly unilateral or monopolistic but must be collective and consensual. The timeline below the picture in Fig. 2.1 also shows a clear increase in the number of interest groups or stakes. All these stakeholders have different rights and interests along a continuum of relevance for day-to-day forest management (Colfer 1995).

With increased population, increased consumption and higher demand for Earth's resources over the past century, forest governance has become a burning issue. This is also because the state's monopoly has simply not worked. Forest governance changes ushered in through decentralisation processes across the globe have resulted in several stakeholders articulating their interest and role to shape governance and with that forest management in a consultative mode. For instance, having two chief stakeholders, i.e. state and local communities, and adopting community forestry has boded well for Nepal because the historically high rate of forest loss of 0.5% annually (i.e. of forest and shrubland combined; DFRS in R-PIN Nepal 1998) since 1978–1979 has been slowed and there is formidable evidence suggesting that community-managed forest regimes lead to reduced deforestation and forest degradation. This was partly assessed for the hills, where community forest management modality is well anchored. Despite the genuine attention given to participatory forest management, addressing the drivers behind deforestation and forest degradation remains elusive. From the angle of poverty as one of the key drivers for such a situation, the complex connection between forests and human livelihoods has led to criticism that forests are poverty traps, as not enough wealth is generated for poor communities to escape poverty (The Forest Dialogue Review 2009). On the other hand, the barrier of an inadequate or weak enabling framework has meant that the value addition of forest products to promote business cases on pro-poor and socially inclusive forestry has not reached the "economies of scale" stage. In an interesting study, forest tenure distribution by tenure categories was analysed for 25 of the 30 most forested countries (Sunderlin et al. 2008), showing that 74% of the forest land is still with the state, and a mere 11% has been given to local communities for management.³

The challenge of reducing deforestation in the tropics as shown above is complicated by the fact that, in most cases, it results from a combination of social, economic, political, biophysical, historical and other factors, indicating that rather than one single mechanism, a mix of policies and approaches is required (Geist and Lambin 2001). Accordingly, policies aimed at curbing deforestation and forest

³As per the FAO's Draft Global Forest Resource Assessment 2010, up to 80% of the world's forests are publicly owned, but ownership and management of forests by local communities, individuals and private companies is rising.

degradation in the tropics range from strict preservation of undisturbed forest areas, to land-use policy reform, promotion of timber plantations, and regulation of forest use, through to market-based incentives for sustainable forest management. However, with the growing dominance of capitalism and democracy as global operating standards, the concept of private property lies at the heart of political and economic assumptions. Through its policy instruments the state is increasingly trying to harmonise its interests with the interests of local communities. On the other hand, local communities struggle to maintain a balance between their societies and forest environments when faced with rising populations, growing demands for basic needs and money, and increasingly strong external physical and psychological pressures (e.g. through outmigration of youth and deficient local labour) through forced state-led development concepts.

2.2 Tenure Security as a “Panacea”

In 1989, the FAO published the *Community forestry rapid appraisal of tree and land tenure*, which referred to tenure as a “bundle of rights” to land and trees. In the publication it was argued that forest initiatives need to develop a “tenure strategy” that constitutes an incentive for tree planting and forest management. Two decades later, tenure across the tropics has emerged as a fundamental issue in efforts to achieve sustainable forest management and to meet the needs of the rural poor, including the right to food (FAO 2006, 2007). Although most of the world’s forests remain under public ownership and state control, especially in developing countries, a diversification of forest tenure arrangements is taking place as stakeholderism in forest sector multiplies, and as a result of that, in various regions of the world revised forest policies and laws are put in place. The nature of these new tenure settings differs considerably, reflecting the past and recent history of the countries, the different approaches selected by governments to improve forest management, and also the growing voices of local stakeholders demanding recognition of their rights and a role in decision-making. Many of the tenure reform processes such as privatisation, titling and restitution or redistribution of land are not adequately implemented because of a weak enabling environment, a lack of involvement of the beneficiaries in decision-making about the new tenure arrangements and poor communication. Inevitably, this creates insecurity, mistrust and conflict, increases the fragility of tenure and reduces interest in proper forest management. The analysis of different forest tenure arrangements, including those that are the result of tenure reform, shows that a number of important elements have to be in place to make them successful. These range from a supporting policy, legal and institutional framework to strengthening the capacities of all stakeholders involved, including the staff of state institutions initiating tenure reforms.

Current tenureship for forest land across the tropics has a colonial heritage and exists along the communal tenure system. As the issue of land awareness comes to

the fore, engendered partly by population pressure, relative price changes and the commoditisation of land, conflicts develop: farmer–grazier, farmer–farmer, indigenous people–state, etc. These inconsistencies in the tenure system reduce the possibility of negotiating lasting solutions in land-related conflicts (Colfer et al. 2008). The social cost of this behaviour is limited not only to mutual distrust but also to opportunity costs of both time and financial resources mobilised by the parties in conflict to follow up legal procedures (Baye 2007). It is evident from the above account that the traditional land-use system is being altered by a global environment which imposes neoliberal reforms such as privatisation and liberalisation. The context is further reinforced as the commercialisation of agriculture, pastoral and forest products is reshaping relations between production and exchange, leading to new demands for access to and control over land and its related assets. Land tenure systems influence and are influenced by conflict situations, which engender insufficient access to primary assets – a situation that is the outcome of economic, social and political processes, and their interactions. These interactions are mediated through a wide range of both formal and informal arrangements, including tenure arrangements. Rapid changes in economies, environmental conditions and social structures demand institutions that can transform themselves to meet new priorities and shifting demands (FAO 2008); hence, there are uncertainties in arriving at the right mode of tenure.

2.3 Characteristics of Forest Users

2.3.1 *From Devolution to Multistakeholdership*

The previous points have elaborated a historical context of forest use in the tropics, which has now culminated in a forest sector that attracts wider interest and commitment from a network of actors ranging from policymakers to resource managers, and from advocacy groups to private companies. However, despite this change in stakeholder scenario, in many countries the state has maintained control over land and forest resources as part of its power base. In practise, however, “many governments continue to prove unable to carry out the responsibilities they give themselves. Policy options inappropriate to local contexts, weak institutional capacity to implement them and corrupt and rent-seeking behaviour all contribute to limit the effectiveness of state control” (Cotula and Mayers 2009). What usually drives governments to engage in tenure reform by granting management rights or ownership of forests or both to different stakeholders (private individuals, companies, communities or other local groups or to a combination of several of these) is the need to devolve management responsibilities to those who are closer to the forest and have a stake in its conservation or who may have better capacity for forest management than state institutions. A second objective may be to promote local economic development by providing opportunities for poor local people to

generate income from the management of forest resources. Devolution of ownership or management rights or both may also be part of a general decentralisation process. In some circumstances, however, tenure reforms are the consequence of the realisation of the state's failure to prevent further degradation, rather than a search for more efficient and socially acceptable management approaches. The international community and also the emerging voices of farmers and communities in the countries themselves are putting national governments under growing pressure.

Increasing devolution of ownership or management rights ultimately results in more diversified forest tenure systems that are officially recognised. It helps legalise *de facto* existing tenure systems by providing more tenure security to those who depend on forests for their livelihoods or who use forest resources to generate income. As a result, more diversified tenure arrangements have the potential to contribute to poverty alleviation and to reducing deforestation and forest degradation. In situations where the capacity of state institutions is weak, especially at the local level, diversification of tenure systems involving local stakeholders may also contribute to more sustainable management of forests and to reducing deforestation and forest degradation. It should be emphasised that security of tenure is a necessary but not sufficient condition for effective forest management and has to be accompanied by an appropriate policy, legal and institutional framework. It also has to take into account the local context: simply introducing models from other countries has generally resulted in failure.

Land tenure and resource availability can play a critical role in the land-use decision-making process, resulting in different types of land-use changes. A study in Thailand investigated the role of land tenure security and farm household characteristics on land-use change in the Prasae Watershed using geographic information system and farm-level data. Conversion of forest to annual crops and subsequently to perennial crops was a typical land-use change from 1982 to 2004. Tenure insecurity was found to be associated with deforestation and forest encroachment. Insecure landholders adopt perennial crops to acquire basic land-use rights and entitlement to subsequent legal registration, whereas more secure land tenure is seen to have economic advantages for production and long-term investment. In case study 2.2 (Kotru 2009), rehabilitation of degraded forest land through the community's involvement in forest management brought a drastic and positive change to the local forest ecosystems. Although land tenure security can act as a crucial factor in land-use decision-making, farmers opt for different land-use options on the basis of characteristics such as farm size and available labour. It emerges from the above discussion that an effective policy should aim to improve both farm productivity and land quality while protecting the remaining forest.

Tenure reforms should be incorporated in a broader context that includes governance and regulatory frameworks; conducted in isolation they are bound to fail or have limited impact. Empowerment will not come from titling alone, and titling does not ensure the capacity to benefit from forest resources or their equitable sharing, but requires a lot of additional cross-cutting support. From the above

historical account it emerges that sociopolitical, socioeconomic and environmental needs and compulsions have largely influenced how tropical forest ecosystems have been used. State-designed policy frameworks, in general, have increasingly adjusted to the emerging needs of inclusive participation of forest-dependent communities (e.g. the case studies in this chapter). The institutional analysis and development framework proposed by Ostrom (1990, 2005) as the core of community-based resource management theory in a way matches the current attempt at democratisation in the forest sector. Along a value chain of forest products and services, it tries to define the physical environment, attribution of communities to the action area, actors and action situations, thus generating patterns of interaction and outcomes. Figure 1 shows that from state dominion in the 1950s to the democratisation process of the mid-1990s, a wide spectrum of direct and indirect forest users are interested in the forest sector. The so-called multistakeholder process in the forest sector is an emerging paradigm articulated, for example, in a piloted District Forest Coordination Committee (DFCC) directive (MoFSC 2005). The aim of establishing DFCCs is to institutionalise the forest sector decentralisation process and to promote good governance in biodiversity conservation and forestry sector management. DFCCs are promoting multistakeholder representation in decision-making processes, raising ownership in forest sector programmes, capitalising social learning, managing their problems and disputes internally and thereby raising a sense of self-reliance through generating and mobilising locally available resources (Rana et al. 2009). Issues affecting the district forest sector are openly discussed and special attention is given to livelihood improvement and forest product distribution for the district population as a whole. The other aspect of multiple users becoming part of the forest sector is related to the recognition that third-generation issues (e.g. more income and employment, pro-poor and inclusive outreach, enterprise-oriented forestry) are yet to be addressed despite progress made in community-oriented approaches (e.g. learning from Nepal, Indonesia and India). Therefore, as the range of goods and services derived from forests has increased, forest users have undergone changes in their profiles, each exercising differential strategies to use and manage forests.

2.3.2 Main Stakeholders and Their Characteristics

Important stakeholders and methods to identify and define these are widely applied (Colfer 1995). The rationale behind this identification of stakeholders originates from the premise that all stakeholders have the common interest of sustainable forest management providing a flow of goods and services on a continual basis. Accordingly, stakeholders may be distinguished on the basis of their proximity to the forest, preexisting rights, dependency, etc. The categorisation adopted in the following sections takes a practical approach of significance emerging from the historical context described earlier, and as being direct stakeholders.

2.3.2.1 Forest Dwellers (e.g. in Brazil, India, Indonesia and Myanmar)

This type of user – often termed as “indigenous groups” – is clearly the most important stakeholder and is still prevalent across the rich cover of tropical forests and follows a livelihood strategy dependent on forests. Although this type of user may have a role as a hunter, gatherer, etc., the use is generally within the sustainability levels. This type of user is closely related to the aspect of “shifting cultivation” and is currently coming under extreme stress owing to reduction in forest cover. The situation is further complicated by increased control of forest cover by the state and alienation of indigenous forest users, state’s often unplanned development initiatives (roads, hydropower dams) in and around forest areas and overall restrictive policies of states to focus on conservation. Increasingly, such a user type is seen as an encroacher on the forest although there are also policy processes in operation where the rights of such tribal/ethnic groups are being secured (e.g. Tribal Forest Rights Directive in India, rights of forest-dependent ethnic groups in the proposed new constitution in Nepal, forest rights for ethnic groups in Brazil). It is interesting to note how fast indigenous peoples’ interests and rights are being recognised and applied by various countries in Asia and by international development agencies. Historically, different legal, economic and political situations have marginalised them from communal management of land in their ancestral domains. And current state policies, laws and development programmes generally do not accept the domains of indigenous peoples and attempt to divest such lands from communal management. However, there are reasons for optimism. Organisations of indigenous peoples and forest-dwelling communities are fast gaining voice and opportunity, and after decades of limited action many countries are beginning to consider far-reaching legal and policy reforms. There is a major opportunity to advance the rights and livelihoods of forest peoples by establishing the institutional foundations for sustained conservation and forest-based economic development.

2.3.2.2 Subsistence Users

These users have quasi-shifted from a purely forest dependent lifestyle to a more agrarian orientation where conversion of forests into agroforestry and homestead systems dominates. Although dependence on farming dominates, these users exist in all tropical countries using forests for subsistence. The International Labour Organisation (ILO⁴) estimates that for every job in the formal sector in forestry there is another one (or two) in the informal sector (ILO 2001). It is because of these users that degradation of such ecosystems can be immense (e.g. grazing, conversion of forest cover into agriculture). It is also here that community-based approaches have been initiated on a large scale. Owing to their better accessibility to the state’s

⁴ILO Convention 169 is a binding international treaty to exclusively deal with the rights of indigenous and tribal people.

delivery systems, this group is very well networked to advocacy institutions, markets, politicians and development programmes in general.

2.3.2.3 The State as a “Revenue Monger”

The state is certainly the main user and owner to date (e.g. 74% of forest land is still with the state). This use was primarily for generating revenues barely two decades ago, but increasingly a balance is being sought between conservation and production. Similarly, the state is increasingly realising that forest degradation cannot be controlled through command and policing but can only be controlled by inclusion and empowerment of forest dwellers and subsistence users (see Sects. 2.3.2.1 and 2.3.2.2). In the power game of authority over forests, states have started to yield management rights to immediate and primary users on the ground. Most of the state institutions have an old structure hardly adapted to the fast-changing forest sector scenario (e.g. climate change agenda, decentralisation process, private sector involvement). Hence, the capacities of such institutions to address the emerging needs of the sector have enormous deficiencies. Apart from this, a genuine aversion for change management brings about a resistance to reform processes, making adaptive structural and service delivery changes tedious and abnormally slow.

Nevertheless, the forest sector in previous decades has partly lost its instrumental role in providing revenues to the state as protection-oriented conservation strategies have unfolded.

2.3.2.4 Private Profit Makers/Concessionaries

Although users of this type may not be the owner of the forest, they wield a lot of influence in designing the management of some of the richest tropical forests around the globe (e.g. in Brazilian rain forests, Indonesian and Malaysian concessionaries, Cameroonian timber merchants). As service providers for generating forest revenues (mostly from timber), users of this type do not necessarily follow a sustainable-use principle. Very often, the role of this user type in association with the key decision makers of the state provided the bulk of corruptive practises that exist in the forest sector. The private sector is fast emerging as an important actor as initiatives for public–private partnerships bridging economic and conservation cooperation between the state and communities show potential for rural income and employment generation. However, issues of forest law enforcement, governance and trade have not yet unlocked the role of the private sector for the benefit of forest users, as an enabling framework to do so remains elusive.

2.3.2.5 Civil Society

In recent years, civil-society organisations as representatives of interest groups and networks from local to global levels of forest governance (e.g. Global Alliance on

Community Forestry, Greenpeace) have increased in significance. At the micro level these are often known as community-based organisations, which have become major players in forest-related issues in most countries, often challenging established positions and poor levels of accountability and transparency. Although differing in perspectives and approach, these groups focus attention on conserving biological diversity, extending protected areas, driving forest certification and improving forest governance to reduce illegal logging and to stress the connection between forests and livelihoods. As a global coalition, international agencies, e.g. the United Nations Environment Programme (UNEP⁵), regional and community organisations engaged in conservation, research and development, and civil societies are very influential as policy-influencing institutions working to encourage greater local, national and global commitment and action on pro-poor tenure, policy and market reforms. As partners, civil societies conduct work in specific areas of their regional and thematic expertise. These engage with a wide group of collaborators who participate in and support, for instance, rights-related activities around the world. Such a strategic coalition goes beyond the traditional set of international development actors to involve a wide spectrum of organisations, each of which provides a critical perspective in the larger chain of actors necessary to advance change. On the basis of their experience, it is found that empowerment and asset-based development are part of a process that is dependent on a set of enabling conditions, including security of tenure for access to and use of natural resources. These core beliefs of several civil societies thus focus on rights and governance, and form the foundation for programmes and activities. The decisions of policymakers and their attitudes towards reform are influenced by a number of actors at different regional, political and social levels. Often the facilitation role provided by civil societies to networks seeks to bring together strategic actors with the influence and knowledge to share and to advance tenure and policy related discussion mobilising reform processes at many levels and with many constituencies. This includes bringing together networks of senior policymakers from large forested countries, networks of policymakers at regional and national levels, and supporting networks of indigenous peoples and forest communities to make their voices heard in regional and international dialogue.

2.4 Current Forest Management Focus and Design

Currently, climate change and decentralisation aspects present a moving target, having the potential to drive change in existing relationships between and among producers and consumers of tropical forest products. The consequent increase in demand for ecosystem services is slated to transform forest conservation and

⁵UNEP is the designated authority of the United Nations for environmental issues at the global and the regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action.

management significantly. To realise services from forests in the context of climate change, the forest stakeholders may need to return to the drawing board to increase the effectiveness of sustainable forest management. Existing institutional mechanisms, however, have thus far limited themselves to sustaining forest cover at levels that meet the demand for food, fibre and fuel. The shift in favour of enhancing environmental services will impact the existing political-economy of forest management. Maintaining such services poses challenges, especially where trade-off between the production of goods and the provision of services is precariously balanced. However, in low-income situations, sustainable forest management faces far more constraints, reflecting limited ability and willingness to pay for the additional costs involved in adhering to the environmental criteria. Consequently, in tropical areas, the proportion of forests that are sustainably managed remains very low (ITTO 2006).

In densely populated Africa, South Asia and Southeast Asia, forests are vulnerable to degradation caused by illegal logging, fuel wood collection, grazing and poaching. Community-based forest management has contributed to forest conservation, but skewed benefit-sharing has not allowed for maximum gains from community participation in forest management. The success of such approaches depends on establishing appropriate trade-offs between conflicting objectives (FAO 2009). This requires a robust institutional framework and good mediation skills to negotiate a lasting compromise. The current management is organised largely as described in the following sections.

2.4.1 State-Managed Forests

State-managed forests have regular operational plans developed from colonial times. These usually have a scientific basis and are prepared on the basis of production and protective uses, for which several silviculture systems are adopted. However, the enigma of state-managed forests in the tropics is the overall demanding pressures these are subjected (see point 1). Normally parallel departments are created or concessionaires are hired to do the technical management part (i.e. harvesting, logging, etc.). It is in this category also that conservation of forest areas with a strong regimen of protection is being practised. However, most of the conservation areas have been developed through alienation of original forest users/dwellers (e.g. in India, Nepal, Myanmar, Laos and Cameroon). Originally pristine or natural forests, these forests are being systematically converted into plantation forests with new tree species (e.g. exotic) mixed regularly. On the other hand, as Uebelhör and Drews (Chap. 4) report, it is increasingly recognised that indigenous peoples and local communities often have a deep understanding of their environment and their forest's ecology. This knowledge forms an important basis for the conservation of global biodiversity and for its sustainable use. The past two decades have seen a resurgence of interest in the many products and services of forests and so current management systems are challenged to address economic, social and

ecological aspects of sustainable development. For a few decades such modalities of management have been emerging as “extractive systems” (e.g. rubber, palm oil), so forest land is often used for horticultural purposes and is used to deliver revenues in the shorter term.

2.4.2 Community-Based Modalities

Although a very limited forest cover along the tropical belt is managed with or by local communities, participatory forest management is fast appearing as a panacea for saving these forests. As Belcher et al. (2008) points out, throughout the tropics rural households are now involved in a wide range of systems for the management of forest resources. An interesting and valuable class of systems falls on the continuum between pure extraction and plantation management. These systems are fundamentally being promoted not only to involve local knowledge of communities in planning, implementation, monitoring and protection but also to make biodiversity–productivity trade-offs. There is often a trade-off between biodiversity (by some measure, often just a species count) and productivity (either the total value of production per hectare or the profit per hectare) in resource management. A case study from India (Chap. 3) is a classic example of production and protection aspects which can be addressed through community-based approaches. Nepal and Mexico through their characteristic “Community Forestry” modality have demonstrated that with community-based-management operational plans and their full implementation by the local communities (e.g. planting, harvesting, marketing of products) the forest cover (in the mid-hills) can be increased. However, issues of inequity, elite capture and exclusion of poor/disadvantaged groups are becoming evident. Nevertheless, one of the key arguments emerging in such a type of management is that community forestry is being promoted at the cost of destruction of state-owned forests.

The overall management decisions in both modalities described above are becoming complex as the number of stakeholders showing proactive interest in production and protection of value-added goods and services of forests is multiplying. The so-called multistakeholder processes are becoming important to include heterogeneous interests of differential actors. Collaborative forest management in Nepal’s “biodiversity hotspots” in the tropical Terai forests is a good example of an evolving model for social inclusion and pro-poor focus. On the other hand, the concession system of Peru (Chap. 5) is expected to lead to sustainable forest management but has yet to show lasting results.

As Grossheim mentions (Chap. 5), the forest concession system was adopted by the Peruvian government at the beginning of the century, and has not yet achieved its purpose since it has not contributed significantly to the Amazon Region’s rural development. However, technically speaking, the concession system is solid ground on which to improve sustainable forest management, and even more so if one considers the unsustainable forest use before 2000. Certainly, it also appears

important to adjust the concession design in almost all its dimensions. However, the community-based approach if not complemented by other programmes such as income-generation activities and agroforestry initiatives ensuring short-term benefits will take time to make a positive difference for sustainable forest management.

Except for plantations owned by private companies, the role of the private sector is linked to several levels of value chains that emerge from use of forest products. Thus, in both of the modalities described above, the private sector may change its role to be a marketing agency, a harvesting company, or for value addition of raw products, etc. However, in most of the tropics, the role of the private sector in public–private partnerships is emerging fast.

It can be summed up from the above account that understanding the current political, economic, ecological, and social situations; the power relations among the various actors involved in forest management; the often unequal distribution of costs and benefits of forest exploitation; the discourses of science, neoclassical economics, sustainable forest management and national development; and the colonial and precolonial roots of current deforestation in these regions is becoming more important than ever. The current climate change discussion adds a very challenging dimension to future forest management as managing carbon is added to the menu of services fast-degrading tropical forests have to deliver. In a nutshell, this would mean that the major challenges revolve around addressing the wider field of forest governance and not just around government agencies, policies and regulations, but will include (adapted after Don Gilmour 2009⁶):

- The whole system of managing and governing (formal and informal).
- The process by which forest management decisions are made and implemented (power relations).
- The implementation of sustainable forest management in the tropics is fundamentally associated with a conflict over access to valuable resources. Managing this conflict constructively is critical to the outcomes.
- Many of the transformations discussed come about through conflict (small and large) and we do not yet understand enough about how change comes about at these critical moments – politics rather than policy.
- Influencing the carbon forestry debate to internalise the basic principles derived from sustainable forest management (e.g. to prevent co-option of participatory forest management by the carbon forestry agenda).

2.5 Emerging Paradigms

The emerging paradigm for tropical forests from the foregoing account is derived from formidable current and future challenges. Foremost is the challenge of how to mainstream multistakeholder processes without causing conflicts as well as seeking

⁶Adapted from a presentation given by Don Gilmour at the International Community Forestry Workshop (2009) in Nepal.

a balance between community and state ownership based on principles of sustainable production and protection. Two extreme situations reflect this: according to UNEP's Global Biodiversity Outlook 1 Report (2001), about 60%, and possibly closer to 90%, of all species are found in tropical moist forests; on the other hand, legislative instruments are being introduced to safeguard indigenous interests at the country level. Nevertheless, climate change and CoP 13 have brought tropical forests "back to business". Factors underlying forest land-use change and conversion in the tropics as demonstrated above are spread across vertical and horizontal levels of forest governance. Thus, factors such as economics, policy and institutions, technology, social and cultural dimensions, demographic aspects and others (natural factors such as soil quality, etc.) will determine sustainable forest management. As Thompson (Rametsteiner and Simula 2003, p. 88) explains, "Instead of seeing the world as frozen in a black box of equilibrium and harmony, we must think about the world as an ever-changing system poised at the edge of chaos". It follows that the sustainable forest management is a complex concept, "specifically designed to embrace and reconcile the different interests in forests" that include productive, ecological, economic, social, cultural and spiritual forest values. Domestic and international policies concerned with sustainable forest management employ instruments ranging from traditional "command-and-control" regulation to economic mechanisms that attempt to harness the power of market-driven incentives (Cashore and McDermott 2004). Yet, as Pearce (1998, p. 28) suggests, "while market mechanisms might be beneficially invoked for a range of forest values, they cannot eliminate altogether the need for regulation for some values such as the aesthetic appeal of landscapes and the cultural value of wilderness, which do not lend themselves well to economic instruments for forest management". Sustainable forest management is now more seen as a management regime that integrates and balances social, economic, ecological, cultural and spiritual needs of present and future generations. Nevertheless, the above definition of sustainable forest management also shows that interventions and milestones of the state and the immediate dweller are now no longer challenged only by firewood extraction and usufruct logic but are now also challenged by greater issues of income and employment generation, climate change vulnerability and, last but not least, by whom and how such a forest should be management-financed [including Reducing Emissions from Deforestation and Forest Degradation (REDD)]. However, approaches in the following sections are suggested to ensure that the challenges of insecure tenure, deforestation and slow forest sector reform are met and sustainable forest management happens.

2.5.1 State and Community Partnerships

State and community partnerships must improve as there is a strong conceptual basis (particularly the sociology of sustainable forest management) for moving ahead, but this is not always applied. The basic sociology (which addresses

inclusion, etc.) is often lost in application of standardised implementation procedures. This also means that regulatory reform is slower than tenure reform (i.e. people can own the land but may be constrained from using it). Lessons pertaining to an enabling framework need to be identified and mainstreamed at the policy and management in practise levels. Various forms of participatory forestry are expanding globally and are now a recognised part of the forest management landscape. Participatory approaches must be universally applied to get maximum and effective cooperation of a wide range of stakeholders and first and foremost the local communities and their institutions.

2.5.2 New Financing Instruments

The financing of sustainable forest management is becoming a huge challenge. Increasingly, the role of payment for environmental services rendered by local resource managers is gaining momentum (e.g. based on carbon, watershed). For instance, payments for environmental services articulated through REDD and Clean Development Mechanism (CDM) approaches make economic sense in many (most?) situations, although it has to be recognised that such payments can only be an additionality to support sustainable forest management. On the other hand, these approaches may prove to be complex transactions and make sense only if the community is engaged and its rights and benefits are respected. However, carbon forestry has the potential to recentralise power if national governments control the management agenda.

2.5.3 Social Inclusion and Governance

Power relations and their clarity must be set at all levels of governance and especially between two main actors, government and civil society. In the case of the Changar example from India (Chap. 3), the increased role of women in forest management shows that power relations can be changed over time for the better, but since stakeholdership is becoming wider, we have to involve elites as well as the poor. Local elites need to take some power from national elites, as this creates space for local communities to occur. It is to be noted that here “trust” is recognised as a critical element of effective partnerships, but what does this mean in terms of building (and breaking) trust? If governments recognise a little bit of rights, they will get a little bit of conservation.

2.5.4 Economic Development

Although participatory forest management regimes were established in degraded areas and take many years to restore productivity, we will only see the real

economic benefits in the coming decades (e.g. economic microenterprises across Asia-Pacific, small sawmills are appearing in Nepal). However, regulatory frameworks (forestry and trade ministries) hinder maximisation of the value chain of forest products. Economic development must be the underlying principle for leveraging cooperation from forest-dependent users/communities. It is clear that forest-based livelihood improvement does not and cannot equate to poverty reduction, as the factors and solutions are diverse and therefore complex. It has been established that forestry alone cannot solve the problems of poverty and exclusion and other public investment programmes will have to complement it (World Forestry Congress 2009).

2.5.5 Technical Management

Management of tropical forests has become a complex phenomenon. Use of indigenous knowledge with scientific logic of management has shown positive results but needs to evolve further. However, striking a balance between fulfilling the international conventions (CBD) and local livelihoods has shown tremendous progress and we can build on this. Technical management concepts in future will have to prove that these are biodiversity- and climate-smart whilst material yields for local communities are not curtailed. Scientific forest management jargon has to be replaced with adaptive management, understandable and practical at local levels.

2.5.6 Cross-Cutting Domain

Since sustainable forest management cannot be seen in isolation anymore from the politics and practise of other sectors regarding forests, it is inevitable that the state and donors will play ongoing critical roles in terms of building institutional capacities (e.g. community, state, private sector), information and knowledge networking, dissemination of knowledge (best practises), supporting advocacy on influencing policy and regulatory frameworks, and practise of management paced with accelerated needs for adjusting forest management.

References

- Allen J, Barnes DF (1985) The causes of deforestation in developing countries. *Ann Assoc Am Geogr* 75(2):163–184
- Barbier E, Burgess J (2001) The economics of tropical deforestation. *Journal of Economic Surveys*, 15(3): 413–433

- Bawa KS, Dayanandan S (1997) Causes of tropical deforestation and institutional constraints to conservation. In: Goldsmith FB (ed) *Tropical rain forest: a wider perspective*. Chapman & Hall, London, p 175
- Baye FM (2007) Changing land-tenure arrangements and access to primary assets under globalisation. Research Paper No. 2007/68. UNU-WIDER, Helsinki
- Belcher B, Michon G, Angelsen A, Ruiz-Perez M, Asbjørnsen H (2008) ETRN Publication Series, Cultivating (IN) Tropical Forests? The Evolution and Sustainability of Systems of Management Between Extractivism and Plantations
- Bruce JW (1989) *Rapid Appraisal of Tree and Land Tenure for the Design of Community Forestry Initiatives*. Draft for FAO revised, Land Tenure Centre, University of Wisconsin, Madison, Wisconsin 53706
- Cashore B, McDermott C (2004) Forest stringency and BC: a constant case comparison. Ministry of Forests and the Environment, British Columbia, Canada
- Colfer CJP (1995) Who counts most in sustainable forest management? CIFOR Working Paper No. 7. CIFOR, Bogor
- Colfer CJP, Dahal GR, Capistrano D (2008) Lessons from forest decentralization. Money, justice and the quest for good governance in Asia-Pacific. Earthscan, London
- Cotula L, Mayers J (2009) *Tenure in REDD – Start-point or afterthought?* Natural Resource Issues No. 15. International Institute for Environment and Development, London, UK
- District Forest Coordination Committee Establishment and Operational Directive 2062 (in Nepali) or 2005. Kathmandu: Ministry of Forests and Soil Conservation (MoFSC)
- Proceedings of the CF International Workshop at Pokhara, Nepal September 15–18, 2009
- FAO (2001) Global forest resources assessment 2000. Food and Agriculture Organization of the United Nations. <http://www.fao.org/forestry/fo/fra/index.jsp>
- FAO (2005) State of the world's forests (2005). Food and Agriculture Organization of the United Nations. <http://www.fao.org/forestry/index.jsp>
- FAO (2006) *Understanding forest tenure in South and Southeast Asia*. Forest Policy and Institutions Working Paper No. 14. Rome
- FAO (2007) *Tenure security for better forestry. Understanding forest tenure in south and Southeast Asia*. Bangkok
- FAO (2009a) State of the world's forests 2009. Rome, Italy (also available at www.fao.org/docrep/011/i0350e/i0350e00.HTM)
- Gamboa A (2001) In: Colchester M (ed) *Alternatives to Rainforest Logging in a Chachi Community in Ecuador*, Rome
- Geist HJ, Lambin EF (2001) What drives deforestation? A meta-analysis and underlying causes of deforestation based on subnational case study evidence. Ciaco Printshop, Louvaine-la Neuve
- Global Biodiversity Outlook with the Handbook of the Convention on Biological Diversity. 2001, Secretariat of the Convention on Biological Diversity. ISBN: 1020-9387
- Heske F (1937) *Im heiligen Land der Gangesquelle*. von Neumann-Neudamm, Berlin
- International Labour Organisation (2001) *Globalisation and sustainability: the forests and wood industries on the move*. International Labour Organisation, Geneva
- ITTO (2006) Status of tropical forest management. ITTO Technical Series No. 24. ITTO, Yokohama
- Kaimowitz D, Angelsen A (1998) Economic models of deforestation: a review. CIFOR, Bogor
- Kotru R (2009) Community forestry governance and conflict in Nepal: mitigating problems and enhancing opportunities in Terai. World Forestry Congress, Buenos Aires
- Millenium Ecosystem Assessment Report (2005) The MA website contains downloadable versions of the Assessment reports, and links to other relevant news and resources www.maweb.org
- Ojha H (2008) Reframing governance: understanding deliberative politics in Nepal's Terai forestry. Adroit, New Delhi
- Ojha H, Netra P, Timsina CK, Banjade MR, Belcher B (2008) Communities, forests and governance policy and institutional innovations from Nepal. Adroit, New Delhi

- Ostrom E (1990) *Governing the commons. The evolution of institutions for collective action*. Cambridge University Press, New York
- Ostrom E (2005) *Understanding institutional diversity*. Princeton University Press, Princeton, NJ
- Pearce DW (1998) Can non-market value save the tropical forests? In: Goldsmith B (ed) *Tropical rainforest: a wider perspective*. Chapman and Hall, London, pp 255–266
- Rana B, Khanal KP, Kotru R, Jamarkattel B (2009) Tackling the Terai forest governance impasse: can district-level multi-stakeholder processes help? *J For Livelihood* 8(2):16–26
- Rametsteiner E, Simula M (2003) Forest certification – an instrument to promote sustainable forest management? *Journal of Environmental Management*, 67:87–98
- Forest Carbon Partnership Facility Readiness Programme Idea Note (R-PIN) for Reducing Emissions from Deforestation and Forest Degradation (REDD) April 2008
- Sunderlin W, Hatcher J, Liddle M (2008) From exclusion to ownership? Challenges and opportunities in advancing forest tenure reform. Rights and Resources Initiative, Washington, DC. http://www.rightsandresources.org/documents/files/doc_736.pdf
- The Forest Dialogue Review (2009) Advancing poverty reduction and rural livelihoods through sustainable forest management, No. 4. TFD, New Haven, CT
- Tom Rudel T, Roper J (1997) Forest Fragmentation in the Humid Tropics: A Cross-National Analysis. *Singapore Journal of Tropical Geography*, Volume 18, Issue 1 P 99–109
- Unasylva (2008) No. 230, vol 59 Page 3–11, P 12–16
- Vosburgh M (2003) Well-rooted? Land tenure and the challenges of globalisation. GHC Working Paper 02/3. Department of History, McMaster University, Hamilton. <http://globalization.mcmaster.ca/wps/Vosburgh023.pdf>
- Wolvekamp P (1999) *Forests for future: local strategies for forest protection, economic welfare and social justice*. Zed Books, London

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