

CHAPTER 15

Sustainable Forests and Livelihoods: Romantic Illusion or Environmental and Social Necessity?

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As elsewhere in the tropics and sub-tropics, and as before in the temperate climate zones, Africa's forests and savannah woodlands are rapidly disappearing. As we have seen in Chapter 1, annual forest losses amount to -0.78 per cent for Africa as a whole, but rates are much higher in West and Central Africa in particular. In absolute terms, Sudan, Zambia, the Democratic Republic of the Congo, Nigeria and Zimbabwe have lost the largest forest areas between 1990 and 2000, namely a total of 30.6 million hectares or 61.2 per cent of Africa's total deforestation in the last decade of the 20th century (Table 1.1; FAO 2001). These forest losses – mainly caused by clearing for farmland and plantations, extensive logging, fuelwood collection, overgrazing and increasing urbanisation – affect millions of people who totally or partly depend on the forest for their livelihood as it provides them with food, fodder, fuelwood, construction materials, medicines and goods

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and services that can serve as a source of income. In some places, the importance of forests in people's livelihoods is actually increasing as part of their livelihood diversification strategies. This occurs either due to a lack of alternative means of sustenance (the forests as a safety net) or as a proactive poverty-alleviating strategy in which people benefit from new market opportunities (*c.f.* Chapter 3). Even with urban-based activities growing in importance in the various livelihood paths, forests and forest-based resources – either domesticated or in their natural environments – continue to play a significant role as a source of products that can be marketed in urbanised environments.

In view of the important role of forests and woodlands for people's livelihoods, the debate on how forest conservation and sustainable forest use can be reconciled has been given a renewed impulse. New prospects are arising in this respect, since globalisation and shifts in forest governance are leading to new types of actors in forest management that find each other in new partnerships. In particular, Chapter 2 on cross-national initiatives in the Congo Basin and Chapter 10 on neo-African governance have shown that new modes of governance, with global-local linkages, public-private partnerships and cross-border regimes are gaining ground. In this chapter, we come back to the question raised in Chapter 1, *i.e.* under what conditions will the new alliances and partnerships be able to link global conservation objectives with local livelihood needs and overcome existing power imbalances and inequalities in access to natural resources. Will they be able to put into effect sustainable forest management – understood as deliberate efforts to maintain the forests' ecological values, production services and their role as a source of livelihood for the rural poor? If so, what role can scientists play in this process? With a view to finding an answer, we synthesise the main findings of this book below, paying attention respectively to the complex relationship between forests, deforestation and livelihood paths; the delicate balance between conservation and forest-related livelihoods; the potentialities of new multi-scale and multi-stakeholder partnerships; the emergence of new, neo-

African governance forms that reconcile customary and formal law as well as traditional and modern forms of representation; and the role of science in reconciling conservation goals and livelihood needs.

15.1 Deforestation and livelihood paths in Africa: a complex relationship

This book has shown that forests and forest-based resources continue to play an important role in people's livelihood strategies in sub-Saharan Africa. We have seen that this role is coming under pressure for a variety of reasons. Firstly, forests are rapidly disappearing, as witnessed by the rather alarming trends presented in Chapter 1. Secondly, as particularly Chapter 2 made clear, globalisation boosts international trade and business partnerships that expose the forests to excessive degradation. Thirdly, forest-related livelihoods may come under pressure when forests are set aside for conservation. This is most obvious in the case of strict conservation programmes that follow a 'fence and fines' approach, as exemplified by the case of the Budongo Forest Reserve in NW Uganda (Chapter 5). However, it also occurs when previously open access forests become state-owned (the Bonga State forest in NW Ethiopia, see Chapter 4) or are gazetted as conservation areas with new restricted access regimes (the various cases from Kenya, presented in the Chapters 7, 10 and 11). Fourth, the sedentarisation of previously nomadic groups may complicate the relationship between forests and livelihoods, as Chapter 7 on a montane forest in northern Kenya has shown. In such cases, forest resources are becoming more important for settling nomads, while simultaneously suffering from increasing pressure as a result of the same settlement process.

Thus, in sub-Sahara Africa the livelihood pathways of many people are connected with the deforestation process, albeit in various ways. The way the relationship between forests, livelihoods and deforestation is shaped depends on the livelihood paths followed, the various components that form these paths and the degree to which these livelihood components are related to forest resources.

In this respect we distinguish between:

1. Forest-expanding livelihood components, such as agroforestry, sylvo-pastoralism or forest enrichment with useful species;
2. Forest-stabilising livelihood components, such as controlled collection of forest produce for subsistence and/or (semi-) commercial purposes, often combined with other livelihood elements³;
3. Forest-transforming livelihood components, that modify existing forests to monoculture commercial tree plantations (for timber, rubber, palm oil, cocoa, etc.);
4. Forest-degrading livelihood components, such as cutting trees for firewood, making charcoal or consuming either of these products;
5. Forest-threatening livelihood components, such as unsustainable livelihood practices (overexploitation of non-timber forest products or overgrazing in forest areas), uncontrolled fires or unsustainable forms of nature-based tourism.
6. Forest-destroying livelihood components, that open up (virgin) forests for crop cultivation, mixed farming practices, mineral exploitation (*e.g.* gold panning) or human settlements and that finally lead to the destruction of the forest.

Although some livelihood pathways are more compatible with forest conservation than others, it depends on the specific local economic, institutional and cultural contexts and the degree of integration into external commercial networks (*c.f.* Chapter 3) as to whether forest-tolerant activities (Anderson, 1990) or destructive livelihood components prevail. Pygmy groups which mainly subsist from hunting and gathering forest produce have a more sustainable relationship with the forest than farmers who clear forest for farmland, while subsistence farming is often less destructive than the establishment of large-scale plantations. However, even livelihood paths in which forest-stabilising components tend to prevail may

³ Forest-expanding and forest-stabilising livelihood components can also be considered as being part of indigenous management systems for which Wiersum (1997a,b) provided a more detailed categorisation.

become destructive if integration into commercial networks and increased livelihood diversification leads to additional economic activities such as work for logging companies, or if increasing population pressure leads to overgrazing, reduced fallow periods and overharvesting of fuelwood and other forest products. Similarly, recurrent droughts, prolonged dry seasons and frequent crop failures may lead to increased market-oriented harvesting of forest products, to an extent that raises exploitation beyond sustainable levels.

15.2 Livelihood needs and conservation: conflict or reconciliation?

Africa's state agencies, often supported by international agencies (inter-governmental as well as non-governmental), have succeeded in expanding the areas where nature and natural resources received a 'protected' status. In sub-Saharan Africa all nationally designated protected areas – encompassing nature reserves, wilderness areas, national parks and other protected area management categories defined by the World Conservation Union (IUCN) in 1994⁴ – expanded from 177 million hectares in 1974 (3.0 per cent of all land area) to 238 million hectares in 2004 (4.7 per cent) (World Database of Protected Areas).⁵ Of these areas, 65 per cent are supposed to be 'totally protected' (World Bank, 1992: 204). Strict environmental rule enforcement often means that all former, indigenous and immigrant, human activities are forbidden and that fines, imprisonment or even death is imposed on all those regarded as 'intruders', 'poachers' or 'criminal offenders of the law'. However, some form of 'negotiation' often takes place, in which people acquire access (or continue to have access), through patronage or bribes, to areas that are legally forbidden.

From the 1980s onwards, new strategies have been proposed to bridge the gap between conservation and livelihood needs (see overview in Chapter 1). Several

⁴ The IUCN protected area management categories include (Ia) nature reserves, (Ib) wilderness areas, (II) national parks, (III) national monuments, (IV) habitat and species management areas, (V) protected land and seascapes, and (VI) managed resource protected areas.

⁵ URL: <http://sea.unep-wcmc.org/wdbpa>.

cases presented in this book testify to these attempts, such as participatory natural resource management (the case of the Forest Coffee Conservation and Business Development Project in Southwest Ethiopia described in Chapter 4), Integrated Development and Conservation Projects (the case of Ranomafana National Park in Madagascar in Chapter 6) and adaptive or negotiated management (the approach developed under the Tropenbos-Cameroon programme described in the Chapters 9 and 12). This volume shows that the variety of approaches is enormous and that successes cannot be taken for granted. Several caveats and lessons learned came to the fore:

1. Before establishing conservation areas it should be known and recognised how local populations use the natural resources in and around them and what role these resources play in their livelihood paths;
2. Sustainable resource use requires secure tenure arrangements and recognition of customary forest-use rights, in which not only claims from local inhabitants but sometimes also those of distant relatives or friends should be taken into account (*c.f.* Chapter 9);
3. Pro-poor conservation is not only about rights, but also about obligations (*c.f.* Chapters 4 and 12) and this requires negotiation between the various stakeholders involved (conservation agencies, forest and wildlife departments, local populations, private sector actors, etc.) about land-use planning and controlled forest use;
4. A fair distribution of benefits and obligations related to conservation and sustainable natural resource use requires a careful stakeholder analysis (*c.f.* Chapters 6 and 11) and awareness that local communities are not homogenous entities that lose or benefit equally from outside interventions;
5. Integrating conservation and development requires effective cooperation between national conservation programmes and pro-poor policy actions at local level (*c.f.* Chapter 7);
6. Giving local population a say in conservation and pro-poor forest management

requires effective integration of local knowledge, skills and institutions (see also Section 15.4 on neo-African governance).

The latter touches on an essential point. ‘Participation’ has become a buzz word, but few examples exist in which bottom-up approaches work effectively. Even where experiments have gained a lot of credibility and have been acclaimed as ‘best practices’, such as the CAMPFIRE approach in Zimbabwe⁶, periods of social, political or economic turmoil can threaten the results of decades of hard work. Moreover, the work of the Kenyan Nobel Peace laureate in 2004, the biologist Prof. Wangari Muta Maathai – the first woman in East and Central Africa to gain a doctorate degree – abundantly shows that true participatory approaches are capable of counterbalancing mainstream environmental negligence. In her country, where former President Daniel arap Moi continuously wanted to show the world how environmentally conscious he was, large tracts of prime forest land have been given away to his political allies to buy political allegiance, sometimes with disastrous effects on both nature and people’s livelihoods. It was while Maathai served the National Council of Women between 1976 and 1987 (being the Chairperson from 1981 to 1987) that she introduced the idea of planting trees with the people. She developed this idea into a broad-based grassroots organisation, the Greenbelt Movement, the main focus of which is the planting of trees with women groups in order to conserve the environment and improve their quality of life. Through the Green Belt Movement, Maathai has assisted women in planting more than 20 million trees on their farms, on schools and in church compounds (URL: <http://www.greenbeltmovement.org>). The movement showed a remarkable ability to challenge behaviour that destroys nature and people’s livelihoods and to re-invest in nature. While making women’s agency a

⁶ CAMPFIRE-Zimbabwe stands for the Communal Areas Management Programme for Indigenous Resources and became renowned for its participatory and community-based approach to natural resources and wildlife management. The programme combines cultural values, communal ownership and economic incentives such as controlled wildlife tourism, trophy hunting and game ranching to encourage responsible and pro-poor management of forests, fisheries, grazing and grasslands (see <http://www.campfire-zimbabwe.org>).

priority, it also advocated an approach to the benefit of people's livelihood and self esteem.

15.3 Emerging multi-scale and multi-stakeholder partnerships

Because of the alarming deforestation trends and the complex relationship between forest conservation and people's livelihood needs, a variety of international and local organisations have started to intervene for very different, and partly contradicting, reasons. Some financial organisations, such as the World Bank and the Global Environment Facility (GEF), operate various climate change projects because they fear the impact of rapid deforestation on African and even global climate systems. They put a lot of emphasis on the role of Africa's forests as carbon sinks and advocate the use of alternative energy as a means to mitigate climate change. The project to introduce energy-saving stoves, described in Chapter 7, is a case in point. Moreover, the USAID activities in the Congo Basin and the Central African Regional Program for the Environment (CARPE), described in Chapter 2, are partly motivated by concerns about the role of forests in global climate change.

Another motivation to invest in forest conservation is the fear for the loss of biodiversity of flora and fauna, of (potentially or intrinsically) valuable gene pools, and of ecosystems and landscapes that are considered treasures of earth's variety. Although no longer exclusively focused on biodiversity concerns, the work of large international environmental organisations such as the World Wildlife Fund (WWF), IUCN and Conservation International is strongly guided by these concerns. In addition, the GEF and USAID have biodiversity conservation high on their agendas.

It was especially UNESCO's International Hydrological Programme (IHP) that played a pioneering role in drawing attention to forest-water link issues. This link is relatively neglected compared to the role of forests in climate change, biodiversity conservation or poverty alleviation. A possible explanation is that, as

Calder (2002) suggests, a lot of conventional wisdom about forest-water relationships has been demystified as being incorrect or as being subject to competing processes with contrasting outcomes (Calder, 2002; see also Bruijnzeel, 1990; Calder, 1998).⁷ Another reason is that the hydrological function (like other environmental services that forests provide) is hardly quantifiable in monetary terms (Adano and Witsenburg, 2004: 639). A lot of recent insights into the forest-water link were acquired during the workshop on hydrological research for integrated land and water management in Kuala Lumpur in August 2000⁸, where participants emphasised the need to scale up to landscape level and to clarify to society the links between water and forests and the effects (Malmer, 2001: 4).

As a result of the various forest-related concerns, several new international environmental conventions have been adopted in the past decade, such as the ones on biological diversity (CBD) and climate change (UNFCCC), both adopted in 1992, and the United Nations Convention to Combat Desertification (UNCCD) adopted in 1994. Together with the formation of the Forest Stewardship Council in 1993, the renewed International Timber Trade Agreement of 1994⁹, the creation of the United Nations Forum on Forests in 2000 and various ongoing international processes aimed at sustainable forestry and certified timber production, this is leading to global interventions in local African land use and land-management arrangements. Besides UN agencies and multilateral and bilateral donor agencies, a host of trans-national non-governmental organisations have become prominent players in many parts of Africa, ranging from the World Rainforest Movement, Global Forest Watch and WWF, to Greenpeace. These global actors are linking up with local actors to form new global-local, public-

⁷ Among the misconceptions and processes with diverging outcomes are: forests increase runoff; forests regulate dry-season flows; and forests reduce erosion (Calder, 2002).

⁸ This workshop was organised by UNESCO-IHP and the International Union for Forestry Research (IUFRO).

⁹ The original International Tropical Timber Agreement was adopted in 1983.

private and cross-border partnerships for conservation and sustainable use. However, partnerships are also emerging in the private sector, as a result of which new trans-national companies have entered the African forests, particularly from the Middle East and Asia (Chapter 2). The new international forces often threaten the livelihoods of local populations, for whom the forests and woodlands are important sources of livelihood. This, in turn, has led to a large number of international and local agencies trying to defend the rights of indigenous forest users and advocating ‘company-community forestry partnerships’ (Mayers and Vermeulen, 2002) or ‘social responsibility agreements’ (Chapter 4) and ‘neo-African forms of resource governance’ (Chapter 10). An important condition for such partnerships to become effective and successful, particularly in the African context, is their ability to amalgamate traditional and modern forms of representation and arrangements that regulate access to forest land and natural resources.

15.4 Towards neo-African governance in natural resource management

Worldwide, there has been a shift from centralised to localised forest management. Whereas the state was the major owner of forest land in the past, local and indigenous communities now own and control 22 per cent of the world’s forested area as a result of devolution of land in the past 5-10 years (White and Martin, 2002: 5).¹⁰ In Africa, this is not reflected in official figures on forest tenure, but here too the trend towards decentralised and collaborative forest management is omnipresent. Chapter 8 on Rural Wood markets in Mali is a case in point and it does not stand alone, demonstrated by various recent publications on decentralised forest management throughout Africa.¹¹

¹⁰ This proportion reflects official data of 30 countries with significant forest cover and excludes land actively claimed by local communities.

¹¹ The shift in forest governance has been documented for the wider Sahel region by Ribot (1999), for Senegal by Post and Snel (2003), for Guinea by Fairhead and Leach (2003; see also Chapter 14), for Ghana by DeGrassi (2003) and Sasu (2004), for Cameroon by Bigombe Logo

It has been argued (Carney, 1995; Ribot, 2002) that decentralised systems of forest management can lead to more efficient, sustainable and equitable natural resource management since decision-makers are located closer to, and are more directly involved in, the resource to which their policies and interventions refer. As local institutions are supposed to be more accessible and accountable to local people, decentralisation is also supposed to increase a feeling of local ownership and local participation in resource allocation decisions. Furthermore, decentralised forest management is thought to be more flexible and better adapted to local specificities, to provide better opportunities for local-level partnerships and to be geared more towards local development needs. However, decentralisation and the devolution of land rights are not a panacea for unsustainable and inequitable practices. They bring new actors into the arena, with potentially conflicting interests, objectives, mandates and values – which contrast, for example, with those of central government agencies previously responsible for forest and natural resource management. Decentralised power also encourages local authorities to raise revenues, thereby creating an incentive to exploit the forest beyond sustainable levels. Opponents to decentralisation also argue that there is a lack of capacity at local level as regards managing natural resources sustainably and that the local level is not the appropriate management scale for all natural resources. Finally, there is the risk that local power constellations and elite domination may prevent local benefits from being used for the needs of the poorest, or that the poorest groups and local minorities are excluded even more from using natural resources for subsistence needs and income generation than before. Therefore, several preconditions must be met in order for decentralised natural resource management to be able to stimulate more democratic and sustainable forest management. These include an adequate

(2002) and Oyono (2004), for southern Africa by Shackleton and Campbell (2001), for Zimbabwe by Mandondo and Madpedza (2003), for Zambia and Uganda by Lind and Cappon (2000), for Uganda by Bazaara (2003), Muhereza (2003) and Amooti Nsita (2004) and for Kenya by Ongugo and Njuguna (2004).

transfer of powers *and* financial resources, representative institutions, accountability of local authorities to both central government and local people, rights for local people to organise themselves and demand reforms, civic education to raise awareness among local institutions and people of their rights and powers, local mediation mechanisms and secure access to resources and a strong central government capable of designing and enforcing measures that prevent the exclusion of marginalised groups (Carney, 1995; Ribot, 2002; see also Chapter 9).

As Ribot (2002: 12) has noted, decentralisation tends to revive customary leadership, whereas traditional authorities might not be the most democratic or most accountable to, for instance, women or ethnic minorities. The formation of partnerships with modern governance structures and outside actors like NGOs might therefore not only form an *opportunity*, but also a *necessity*, as several cases in this book showed. In Mali, the new wood management authorities initially merge with traditional powers, but eventually these powers have to compete with elected leaders and technicians (foresters) with specific knowledge and skills (Chapter 8). Chapter 9 illustrates similar complexities in African forest governance on the basis of the situation in Southwest Cameroon. Since no single institution at village level appeared to be able to represent the interests of *all* population groups (*in casu* the Bantu villagers and Bagyeli pygmies), there was a need to create new platforms in which rights and duties in forest management could be negotiated, information exchange could take place, and conflicts over forest use and access to resources could be mediated and settled. Without such platforms it is difficult for those with the least economic and political power to have a greater say in forest management. Ideally, the new platforms amalgamate traditional and modern forms of representation and leadership, referred to in Chapter 10 as ‘neo-African governance’. The Loita case in Kenya presented in Chapter 10 revealed that such locally controlled multiform institutions are capable of protecting and managing forest resources sustainably, while preventing the

forest from being taken away from the community. The concept of neo-African governance is an interesting one as it is positioned as part of the 'African Renaissance' launched in the late 1990s and claims a new, self-confident, African way of solving the many problems of the continent (*e.g.* see Falaiye, 1999).¹²

For the new governance structures to become effective means that in order to voice the interests of *all* groups involved, a careful analysis of stakeholders and their entitlement rights is needed (Chapter 11). This is particularly important because of the diversity of local institutions. With respect to the entitlement rights (rights to own, rights to use and rights to intervene in resource situations), stakeholder analysis will disaggregate the diverse local institutions for (i) managing environmental conditions and risks; (ii) influencing who has access to and control over resources; and (iii) arbitrating contested resource conflicts. Chapter 11, and Chapter 6 as well, have shown that stakeholder identification has been a peripheral issue in forest biodiversity management approaches which assume that stakeholders are 'obvious', or has defined them too broadly and too generically to be of practical use. In Chapter 11 it was noted that a multi-stakeholder approach combined with the entitlement approach provides a methodology for a better understanding of environmental and development problems, as well as of interactions, through a comparative analysis of the different perspectives and sets of stakeholder interest at various levels. In the course of economic development and conservation, the government agencies in charge and the various NGOs involved have tended to 'own' the respective projects through failure to involve the local people or communities based on their entitlements. Even though some projects may be regarded as being owned by the local communities irrespective of their limited capacities, we note that institutionally they often lack the power and legitimacy and are merely *demanding stakeholders*.

¹² Recently the word 'neo-African' can also be found as neo-African musical traditions, neo-African spiritual worldviews, neo-African literature, neo-African religion, and the like, all stemming from the same optimism and regained confidence of (a part of) Africa's cultural elites.

Furthermore, when putting the results of stakeholder and entitlement analysis in practice, great caution is required in situations where there are stakeholders with multiple and diverging interests and no platforms aimed at accommodating the immediate needs and aspirations of the most forest-dependent people. Reflection is needed on how diverging viewpoints and interests with respect to nature conservation and sustainable forest use can be accommodated, in particular where the long-term interests of the wider society contrast the immediate needs of local population groups.

15.5 The role of science: dealing with complexities

The global and African scientific community knows only very little about Africa's current political environmental geography. In this volume, evidence has been presented from Mali (Chapter 8) and Guinea (Chapter 14), via Cameroon (Chapters 9 and 12) and the Congo Basin (Chapters 2 and 13), to Uganda (Chapter 5), Southwest Ethiopia (Chapter 4), northern, southwestern and south-eastern Kenya (Chapters 6, 10 and 11), Madagascar (Chapter 7) and Zimbabwe and South Africa (Chapter 3). This is an unusually broad regional spectrum, bridging the 'English' and 'French' divide, and covering a variety of eco-zones. Through this regional diversity, this book shows that we now seem to have better conceptual and methodological tools to study more cases and to compare the findings of these cases in a more coherent framework of understanding.

It is also obvious that an increasing number of African scientists are now joining the effort to understand the tensions between nature and livelihoods and between environmental codes and institutions versus environmental behaviour. As the previous chapters (12-14) illustrated, they and their non-African colleagues can have fruitful partnerships with the many environmental NGOs, private think tanks and (semi-) government agencies which have come to play important roles and sometimes succeed in creating 'win-win' solutions to the problem of reconciling nature conservation and poor people's livelihoods.

Many researchers have become wary of easy slogans and fast solutions and are often overwhelmed by the empirical complexity and enormous variety of Africa's forests and woodlands, governance regimes and forest-related livelihoods. Such complexities are now beginning to be seen as crucial for research designs that aim to achieve a better understanding of what is actually happening on the ground and that constitute the challenges for a bolder research agenda for the coming decades:

1. The large variety of African landscapes, ecological zones (and niches) and divergent trends in actual forest and woodland cover change, with some areas rapidly deteriorating and other areas improving, while some of these trends are clearly being caused by direct human interference, although this is less evident in other cases.
2. The large differences in social-geographical situations: for instance in population densities and population pressure, in proximity to urban centres and export harbours and in physical and cultural accessibility of resources.
3. The large variety of goods and services that are part of forest-related livelihoods, the considerable differences in importance of forest-related resource use in people's livelihoods – with differences according to gender – and often the considerable fluidity of such resource use.
4. The considerable differences in cultural valuation of nature, specific resources and forest-based functions.
5. The large variety (and fluidity) of combinations of subsistence and commercial chains of resource use, of the economic value of forest-based goods and services and of forest labour (as self-employed, servant, tenant or labourer).
6. The differences between and gradual transformation from purely 'wild' forest species, that are collected 'freely', and the (semi-) domesticated species (or species in 'domiculture', as it was called in Chapter 3).
7. The large variety of, and sometimes rapid changes in, land and forest resource governance regimes, legal and behavioural codes of access, use, ownership

and ‘rights of interference’ (Dietz, 1996) and often the difficulties faced when trying to understand legal, normative and behavioural pluralism (*c.f.* Chapter 9). The complexity of institutions and ‘rules of the game’ can be mind-boggling diffuse and things are often not what they seem. Mergers of very different governance styles can suddenly become influential and power imbalances and unequal social relationships that have existed for a long time can suddenly be overturned (see, for instance, Chapter 10).

8. The complexity of combinations of stakeholders and the large differences in ‘stakeholder density’, with some parts of Africa being overwhelmed by different private, state and non-governmental agencies, dominated by cooperation and competition and other parts of Africa being left apart as quiet backwaters or warlord domains.
9. The complexity of ‘framing’ management options such as production forests, forest, nature or wildlife reserves, parks, transition or buffer zones or ‘corridors’, and other forms of spatial separation (*e.g.* Chapter 12).
10. The wide variety of community-based, participatory and negotiation strategies aimed at reconciling conservation and development (see Chapter 1).

For science to be able to deal with such complexities, multi-cultural research partnerships need to be formed, multi and interdisciplinary approaches adopted and an open mind kept as regards such concepts as ‘nature’, ‘forests’, ‘forest-people relationships’ and ‘forest management’ (*c.f.* Chapter 14). The previous chapters (12-14) presented various examples of such multi-cultural and multi-disciplinary research partnerships, involving donor agencies, research institutions from the North and the South, NGOs and conservation organisations. These partnerships exemplify the trend towards globalisation in research or what Leach and Fairhead call ‘globalised science’ (Chapter 14). Increased dialogue between social and natural sciences allows for more integrated views on the complex interplay between environmental services, livelihoods and conservation and natural resource management options. Chapter 5 on the consequences of restricted use of

fire illustrates this by making clear that the exclusion of forest users from conservation areas not only prejudices peoples' livelihoods, but also the region's biological diversity, which is partly determined by human interference in the ecosystem. Such insights are seldom generated by social science research on its own.

The three chapters on research share the notion that 'participation' of poor forest users is a prerequisite for an effective science-based contribution to bridging the conservation-livelihoods gap. The approaches differ, however, as regards their interpretation of participation. Chapter 12 on the Tropenbos-Cameroon Programme emphasises *negotiation*, interpreted as the need to discuss and negotiate with the stakeholders involved the various land and forest-use options, as well as the rights and obligations of various forest users in each scenario. The outcome of the negotiation process then has to be incorporated into the research results (*in casu* draft land-use planning and forest management plans). Chapter 13 departs from an action-oriented approach based on coalitions ('strategic partnerships') between researchers, representatives from the public sector, local and international NGOs and progressive elements in the private sector (both financial institutions and producers of commodities). These strategic partnerships are intended to identify opportunities for desired changes (*c.f.* Table 13.1) and possible solution strategies. Hence, in this case, the emphasis is on *action and positive change*. Research designs are co-formulated by strategic partners from academic as well as non-academic backgrounds, with an implicit or even explicit policy-oriented agenda from the onset. The research process is often regarded as equally important since the output and strategic 'dissemination' is a planned activity from the start. Leach and Fairhead's deliberation about 'true' participation in Chapter 14 goes back to the very source of knowledge and the issue of 'framing' objectives, research questions, concepts and approaches. They advocate an approach that gives way to the knowledge, experiences, perspectives and interests of poorer forest users, so that they can help shape increasingly globalising forestry and conservation agendas. Here, the quest is for an *adaptive*

and much more *learning-based* approach.

Which approach is the most appropriate depends on the context in which research is carried out and to what end it is carried out. However, there seems to be consensus on the four preconditions that have to be met for research to be able to contribute solutions for the conservation-livelihood gap:

1. Dialogue between natural and social scientists and, where possible, multi-disciplinary research;
2. Multi-cultural research teams;
3. A participatory approach which allows for local ownership of the research agenda and incorporation of local or indigenous knowledge, notions and interests;
4. An orientation towards positive change (either through negotiation, action research or an adaptive approach).

15.6 Priorities for the near future

The multidisciplinary input to this book, as well as its broad regional coverage, generated various proposals for policy actions, institutional development and research. The following is a summary of the ideas that may help reconcile conservation and local development aspirations.

Policy options

1. Participatory land-use planning and negotiation on the rights and obligations of all forest users should precede conservation efforts. The negotiations should be based on a multi-stakeholder approach, combined with the entitlement approach as a methodology for a better understanding of environmental and development problems and interactions, through comparative analysis of the different perspectives and sets of stakeholder interest at various levels.
2. Global-level watchdogs do have a role to play in monitoring and, if necessary, criticising and challenging the abuse of power by central and local

government's forest management institutions, but they should also do the same for global-level players, including environmental NGOs. However, the final decision on how best to manage, conserve and use forest-related resources on a sustainable basis should in general reside with the central government.

3. Where possible, responsibility for forest management and governance should be transferred to the local level so that local development aspirations and poverty alleviation goals can be better served. Central governments should create an enabling environment for responsible forest and natural resource use through the adequate transfer of power and financial resources, support for local institution building and the creation of incentives and financial mechanisms for the conservation of environmental values. In general, the central government should also remain responsible for the implementation of a regulatory framework (*i.e* the enforcement of laws and policies aimed at preventing deforestation and overexploitation of natural resources) and the implementation of policies that should prevent the exclusion of poor and marginalised people from natural resource use.
4. Policy makers should recognise customary rights, land tenure and resource-use arrangements and seek ways in which these can be reconciled with formal laws. Of particular importance in this respect is the recognition of local-level (wealth) heterogeneity and secured access of poor people to land and natural resources.
5. Forest and natural resource management strategies need to be developed in consultation with, and where possible with the participation of, marginalised groups and need to build on their knowledge, skills, interests and institutions. How such institutions and their resource-allocation mechanisms operate across different strata within the community and in particular with regard to the poorest, is a critical challenge for future policy.
6. Proper compensation mechanisms need to be created in the event that conservation leads to lost livelihood opportunities, and should particularly

compensate the poor and marginalised, or marginalising segments of society.

Institutional development

1. Increasing complexity of conservation, natural resource management and forest governance, involving multi-sector actors operating at multiple levels of scale, requires better coordination between the various institutions dealing with forest conservation and sustainable natural resource use.
2. Local platforms for negotiating land-use options, use rights and obligations, and solving conflicts over natural resource use should be promoted, incorporating traditional and modern forms of representation and leadership ('neo-African governance').
3. Decentralised and multi-actor management requires more input for capacity building, empowerment and awareness raising of powers, rights and obligations with regard to natural resource use and management among local institutions and communities.

Research

1. Research into the social, cultural, economic and environmental impacts of various conservation and natural resource management strategies should precede interventions aimed at reconciling conservation and livelihood needs. In this regard, the focus should be on clarifying the complex relationship between conservation, natural resource use, poverty reduction and livelihood diversification as well as on possible trade-offs on the other.
2. Clarification and more refined analysis are needed of stakeholders and entitlement rights (*i.e.* rights to own and use natural resources and the rights to intervene in natural resource situations). Such an analysis has to take account of actors operating at multiple scales, but also of distant 'right holders' and inter-community differences in power and interests.
3. In making clear what natural resources from different landscapes mean to local population groups, more attention is to be given to indigenous natural resource

management strategies and their diverging (positive and negative, direct and indirect) impacts on biodiversity and other environmental services.

4. There is no single method that can effectively deal with the complex challenges facing forests. For example, participatory resource mapping and prioritisation can be highly useful in shedding some light on the distribution of costs and benefits of conservation programmes. It facilitates a better understanding of the importance of specific forest-based resources in the consumption of the groups involved and a determination of the level of resource use by different users, either for private use or commercial exploitation. Even so, a combination of methods and data might prove to be more informative and might generate additional insights, in particular when applied from a multi-disciplinary perspective.
5. Further analysis is needed into ways of involving poor forest users in conservation and natural resource management, with particular attention being paid to issues of representation of marginalised groups, ethnic minorities and women.
6. Further insights are needed into the nature of partnerships; the actors involved in these partnerships, their motivations, goals and knowledge frames (for instance scientific versus indigenous knowledge), processes of inclusion and exclusion, the interaction, negotiation and decision-making processes within these partnerships and the ways and extent to which these processes lead to democratic and pro-poor governance of forests and natural resources.
7. New institutional arrangements involving multiple actors and scales result in new laws, byelaws, rules and regulations. This calls for a study of 'codes' and their enforcement regimes and, even more importantly, a study of people's environmental behaviour *vis-à-vis* these codes.
8. There is an urgent need to document 'best practices' of reconciling conservation and livelihood goals and of creating new governance regimes, as well as a need to document the local impact of global-level arrangements to

mitigate climate change, maintain biodiversity and preserve landscapes.

As the previous discussion of complexities indicated, there is no simple and straightforward panacea for bridging the conservation-livelihood gap. What scientists can contribute is an evaluation of possible strategies within their specific geographical, ecological and socioeconomic context, based on a participatory, multi-cultural and multidisciplinary research agenda.

15.7 Conclusions

Africa's forests fulfil a large variety of roles. They are important stores of CO₂ and perform functions as climate regulators at various levels of scale, as rainfall buffers and as hydrological regulators. They are important stores of genes of a very large number of vegetative and animal species which are of utmost importance for the world's biodiversity. They also perform a large variety of roles as resources for people's livelihoods. Further population growth, growing urban demand for charcoal and timber, growing global demand for some forest products and a growing global demand for the preservation of environmental values will result in further massive changes in African landscapes and people's livelihoods. Climate change will add to the major shifts that will occur in Africa's landscapes in this century, and it can be expected that the commercialisation of carbon credits will result in a considerable investment – driven by global players – in massive (re-)afforestation programmes. There is reason to fear that the distribution of the economic benefits and costs will continue to be grossly biased in favour of those close to the political centre, at the expense of millions of poor forest-dependent people. However, Africa's local institutions often show a surprising resilience and capacity to cope with all kinds of challenges. It is not always self-evident that emerging benefits related to carbon credits, gene pool preservation rents and tourism, whether or not combined with existing benefits from the timber and NTFP industries, bypass the poor and marginal segments of African society.

This book has provided examples of new institutional arrangements that try to

combine the goals of conserving or even expanding and strengthening forests and woodlands, and goals of improving people's livelihoods and diminishing their vulnerability. A large variety of new organisational forms have developed which often combine private with public agencies and often combine agents from global, national and local levels of scale. This requires improved coordination, but also improved insights into the nature of partnerships, the motivation and cultural values of the actors participating in them and the power imbalances between them. Political environmental geography, in combination with environmental sociology, environmental economics and environmental law and management, can add such insights by studying the way people's environmental behaviour is based in people's diverse and often conflicting endowment and entitlement systems, in people's varied valuation of environmental costs and benefits, and in people's varied capabilities to deal with adversities and opportunities.

Many of the contributors to this book advocate participatory, collaborative, or 'action-oriented' approaches to research. These research styles are gaining prominence and are having an impact on forests and livelihoods. However, we might learn more if we also apply meta-level research methods to what actually happens in these research and training endeavours and what their ex-post impact is on behaviour of both large and small forest managers. This book has made it clear that we need to be aware of cultural differences in meanings of such notions as 'management', 'stakeholders' and 'benefits'. In cases where joint knowledge development has resulted in improved awareness, it can also expose major contrasts in opinions, interests and power positions. External researchers are not always aware of what this exposure means to their counterparts after they have gone. So-called multi-scale and multi-sector research and management partnerships do not necessarily create conditions for more democratic and pro-poor forest management. Acquiring more sustainable forests and livelihoods can be regarded as one of the most challenging social and environmental necessities in Africa and elsewhere. Nevertheless, claims that a lot has already been achieved

should be regarded as being based on a romantic illusion.

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