

FORESTS AND THE POVERTY-ENVIRONMENT NEXUS

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SUMMARY

Linkages between the rural poor and the forest resources they draw upon are complex. In using and managing forests to maintain flows of material and environmental inputs into their livelihood systems, people often transform the resource. While pressures of poverty can mean that this leads to deforestation, it is incorrect to assume that this will necessarily happen. The existence of multiple categories of user, with different and often competing interests, can mean that developing equitable and effective systems of participatory control and management of forests can be difficult. In particular, the needs of the poor to have continued access to forests

to sustain subsistence and coping livelihood strategies, are likely to conflict with the interests of the wealthier and industry in privatising forest product flows in order to exploit market opportunities.

Four main areas of recommendation are discussed in the paper. One argues for a livelihoods approach to identifying constraints faced by the poor and priorities for action. A second stresses the need to strengthen governance systems, to enable the poor who draw on forests to do so equitably within systems characterised by multiple uses and multiple stakeholders. A third focuses on bringing about necessary policy reforms to underpin more equitable and sustainable forest use and management, and on strengthening mechanisms to implement and enforce such reforms. The fourth emphasises the importance of promoting partnerships among those with interests in sustainable forest management, at both the policy and local governance levels, in order to advance such changes.

INTRODUCTION

This paper sets out to review the main issues related to forests, poverty and the environment. In doing so it addresses two main aspects of this set of relationships. One is the impact on forests of uses by those who are poor, and the long held view that poverty forces people to deplete and destroy forests in order to meet their needs for fuel and other forest products, and for land on which to produce food. The other is the role that forests and forest products play in the livelihoods of the poor.

The basic characteristics of these two forms of interaction between people and forests are outlined in the initial section of the paper. The following section provides an expanded framework within which to examine these interactions, in order to be able to take account of how these differ from situation to situation, and over time. This identifies differences in patterns of use and reliance on forests in the survival strategies of the very poor and those emerging from poverty. It also reviews shifts in patterns of linkage with forests as people move from forested environments, through mixed forest and agricultural situations, to positions where planted agroforest resources become important. In a final section recommendations are put forward for addressing the main issues of limited knowledge, poor governance, policy failures and institutional weakness identified earlier in the paper.

POVERTY AND FORESTS

As a starting point, it is important to clarify what is meant by poverty – and thus who are the poor. Poverty has commonly been assessed in terms of income or consumption with reference to a determined poverty line. However, income-based definitions are now widely agreed to be too narrow and there have been various attempts, for instance through the Human Development Index, to consider a wider set of variables and in some cases to draw in qualitative indicators such as dignity and autonomy (Baulch 1996). Some of the wider dimensions of poverty are particularly important in forest contexts.

It is imperative to consider a broader array of assets and rights in order to understand who among those who draw on forests are poor, as well as how forest resources contribute to livelihoods. In this context assets are taken to be more than just resources to use, they give people the capability to act (Bebbington 1999). This capabilities perspective is captured in the latest conceptualisations of livelihoods, wherein a livelihood is defined as comprising of the capabilities, assets (both material and social) and activities required for a means of living

(DFID 1999). Assets are vehicles for making a living, making living meaningful, and they provide the capabilities to challenge and change the world. The capability of poor people to effect change is given considerable weight in this paper as issues of access and empowerment are seen to be an intrinsic element of the discussion on poverty and forests.

A livelihoods approach acknowledges that most households depend on a complex web of support and is of particular importance in a forest context as dependence of the poor on forests is rarely, if ever, total. It is essential to be aware of the other components of poor peoples livelihoods – such as agriculture, livestock production, wage labour, remittances etc. – in order to understand what policies and programmes may reduce poverty and reduce forest degradation. It is equally important to use the livelihood lens in such a manner that livelihood trajectories are observed. The issue of changing patterns in the role of forests in poor people's livelihoods is examined later in the paper. First, it is worthwhile to summarise the debate on the relationships between poverty, deforestation and forest degradation.

Poverty, deforestation and forest degradation: what are the links?

The belief in a negative downward spiral of poverty and environmental degradation, a belief that is now widely challenged (see Forsyth, Leach and Scoones 1998), has been taken as gospel in the forest sector as in many others. Yet there is now sufficient evidence to demonstrate that this reductionist generalisation does not hold true (see Brown and Pearce 1994). Although cumulative human action affects national and international rates of deforestation, these actions take place in a diverse range of settings and macro-level studies have failed to show a common pattern in the relationship between poverty and forests.

In order to understand the complex links between poverty and forests it is necessary to distinguish between direct and indirect causes of deforestation, as well as the prevailing conditions that make it more likely for deforestation to occur. The direct causes are easily recognisable in the field, behind them there may be a whole sequence of indirect causes each more remote from the forest itself. For instance the conversion of forest for subsistence agriculture (a direct cause) may be a result of population increase (natural increase, migration, resettlement etc.), international economic policies (e.g. macroeconomic adjustment), policy failures within and beyond the forest sector, market failures and/or civil unrest, to mention a few. The picture is doubly complicated as many underlying causes are linked and reinforce each other.

Poverty is manifest in many different ways and has a number of different dimensions. Citing poverty as a blanket underlying cause of deforestation is inaccurate, particularly since reduction in forest cover and quality is not the prerogative of developing countries alone. Micro-level studies have illustrated that poverty may result in a shortage of options forcing people to clear forest cover in order to gain access to land for cultivation or to use natural resources in an unsustainable manner, but they also demonstrate that poor people can and do invest considerable time and resources in forest management. Furthermore, the relationship between forests and livelihood development is a matter of perspective. What might be defined as deforestation or forest degradation by an ecologist can be improvement – through transformation of the resource into a more usable form – for local people, resulting in a resource form that is no less sustainable or stable than the original forest.

One factor that is clear is that people's willingness and ability to involve themselves in forest management and production activities is linked to the nature and strength of their needs for

forest products, and to their access to tree resources. It is also clear that levels and patterns of forest dependence vary considerably. A central tenet of this paper is that the linkages between poverty and forests are complex and require locally-specific analysis to be adequately understood - there is no simple causal link. To understand what role forestry might play in a particular situation and what form it might take, it is important to examine how forests and forest outputs contribute to livelihoods, how supply and use patterns are changing, and the reasons for these changes.

FORESTS AND LIVELIHOODS

Trees and forests provide a range of benefits in the form of goods and services that arise from direct and indirect use. These may be tradable goods, such as timber, fuelwood, non-timber forest products (NTFPs), and those that cannot be traded, the latter mainly being services such as a regular supply of clean water or the conservation of soil fertility. The main features of forest output/livelihood relationships, and the ways in which they are impacted by change, are outlined in Table 1. The following discussion outlines the diverse relationships between rural communities and forests, the links between forests and urban communities, and finally, the role of forests in the provision of ecological and environmental services to local and international beneficiaries.

Table 1: Forest Outputs and Rural Livelihoods

Livelihood inputs	Characteristics	Impacts of change
Subsistence goods	Supplement/complement inputs of fuel, food, medicinal plant products, etc., from the farm system; often important in filling seasonal and other food gaps; forest foods enhance palatability of staple diets, and provided vitamins and proteins	<p>Can become more important where farm output and/or non-farm income declines</p> <p>Likely to decline in importance as incomes rise and supplies come increasingly from purchased inputs; or as increasing labour shortages/costs militate against gathering activities, or divert subsistence supplies to income generating outlets</p>
Farm inputs	<p>On-farm trees provide shade, windbreaks and contour vegetation; trees/forests also provide low cost soil nutrient recycling and mulch</p> <p>Arboreal fodder and forage, fibre baskets for storing agricultural products, wooden ploughs and other farm implements, etc.</p>	<p>Trees can become increasingly important as a low capital means of combatting declining site productivity, and a low labour means of keeping land in productive use (e.g. home gardens)</p> <p>Increased capital availability, and access to purchased products, likely to lead to substitution by other materials (e.g. by pasture crops, fertilizer and plastic packaging)</p>
Income	<p>Many products characterised by easy access to the resource, and low capital and skill entry thresholds; mainly low return activities, producing for local markets, engaged in part-time by rural households, often to fill particular income gaps or needs (though they can be major sources of employment and income for forest dwelling populations); overwhelmingly very small, usually household based, enterprises (with heavy involvement of women, as entrepreneurs as well as employees);</p> <p>Some forest products provide the basis for more full time and higher return activities; usually associated with higher skill and capital entry thresholds, and urban as well as rural markets</p>	<p>With increasing commercialization of rural use patterns some low-input low-return activities can grow; however, others are inferior goods and decline, some are displaced by factory made alternatives, and others become unprofitable and are abandoned as labour costs rise</p> <p>Higher return activities serving growing demand are more likely to prosper, particularly those serving urban as well as rural markets; as this happens an increasing proportion of the processing and trading activity is likely to become centred in small rural centres and urban locations</p> <p>Gathered industrial raw materials tend to be displaced by domesticated supplies or synthetic substitutes</p>

Some low input gathering activities involve raw materials for industrial processes and external markets

Reduced vulnerability

Can be important in diversifying the farm household economy - e.g. providing counter-seasonal sources of food, fodder and income.

Also important in providing a reserve that can be used for subsistence and income generation in times of hardship (crop failure, drought, shortage of wage employment, etc); or to meet special needs (school fees, weddings, etc.)

The "buffer" role of forests and trees can continue to be important well into the growth process

Likely to decline in importance as government relief programmes become more effective, or new agricultural crops, or access to remittance incomes, make it less necessary to fall back on forest resources

Forest products and rural livelihoods

People living in forest environments, and practising hunting, gathering and shifting cultivation, are likely to draw heavily on that forest and its outputs. The forest, as well as providing a wealth of material outputs of subsistence or commercial value, and the basis for rotational agriculture systems that depend on the ability of bush fallow to revive the productivity of the land, constitutes an integral part of the social and cultural framework of those living within it.

Elsewhere, the importance of forest products is more likely to be in the way they complement other sources of subsistence inputs and income, than in their absolute magnitude or share of overall household inputs. Probably the majority of rural households in developing countries meet some part of their construction, storage, agricultural, energy, nutritional, medicinal and income needs from forests. These inputs are often particularly important in bridging seasonal gaps, and in helping households tide themselves over longer periods of shortage.

Ease of access, and proximity to widely dispersed rural markets, enable very large numbers of people to generate some income from forest products. Income from forest products seldom appears to account for a large share of a household's total income, but is often important in filling seasonal or other cash flow gaps, and in helping it to cope with particular expenses or to respond to unusual opportunities. Income from forest products activities may, for example, finance the purchase of seeds for the new crop season, or the hiring of labour for cultivation, or generate working capital for trading activities (Leach and Fairhead 1994). Forest product activities can also provide an important supplemental source of income that people can fall back on. Numerous case studies document how the numbers involved in the selling of forest products rise in hard times.

These activities can therefore be very important to the poor in situations in which they are unable to obtain income, or sufficient income, from agriculture or wage employment, and few other options exist. Though it is often the wealthier in a community, with more

resources to devote to forest product gathering and production, who are the heaviest users, the poor usually derive a greater share of their overall needs from forest products and activities (Ogle 1996). Easy access to the resource and low entry thresholds enable many women to generate income from forest products activities, and they can be more dependent on such income than men.

Forest products and urban livelihoods

While the strongest role for forestry lies in the rural context and poverty is predominantly a rural phenomenon, a substantial proportion of urban households continue to draw on the plant and animal products of forests to meet some part of their basic needs, such as construction, energy, nutrition and medicine. While the contribution of forest products will decrease as the income levels of urban households increase, many low-income families continue to depend at a minimum on wood for fuel. And for the growing numbers living in slum and marginalised communities in urban areas, gathering woodfuel may continue to be one of the few options open to them to generate income. The importance of forests to the urban poor is demonstrated by evidence that an increase in urban poverty temporarily increases demand for low cost forest products which normally would have been displaced in urban markets.

The other link between urban communities and forests that deserves consideration is the influence of urban markets on traded forest goods. Expanding and growing forest product activities are more likely to be found where per capita incomes are rising, and there is growing demand from markets. The importance of market access is revisited later in the paper.

Forest services and livelihoods

Forest services are generally non-tradable uses of the forest. They may be services benefiting local communities, such as nutrient cycling, maintenance of micro-climates, shade for livestock, windbreaks and contour barriers against erosion. But forests also provide ecological and environmental services of regional, national and global importance. These include watershed protection, acting as a sink filter for air pollution emissions, watershed protection, carbon sequestration and the conservation of biodiversity.

These non-traded forest outputs are not free, to provide them and to protect them costs someone – and all too often global or regional costs are borne by those least able - the rural poor. For instance, poor rural communities have been relocated from forests that have a high global conservation value, and have suffered increased impoverishment as a result. The question of who pays, and how they pay for non-tradable forest outputs, is an issue that must be addressed.

Understanding livelihood trajectories: changes in the role of forest outputs

The activities engaged in by the very poor are likely to be simple, labour-intensive, household-based processes such as collecting and mat making. Much of it is subsistence use and few of those engaged in income-generating uses are able to expand beyond a single-person (or at best family-based) operation, operating from the homestead. Such activities typically generate low returns, providing little if any surplus to

invest in livelihood improvement, and are often tedious and arduous. They are therefore likely to be abandoned once more rewarding and congenial alternatives become available, or rising incomes lead to displacement of the product in the market by purchased alternatives, or as increasing pressures on household labour resources make such low value labour intensive activities no longer competitive. Others are likely to be attractive only temporarily, such as wood fuel production and sales engaged in by immigrants or young men in West Africa while clearing land in order to create their own farms (Townson 1995b, Falconer 1990).

Expanding and growing forest product activities are more likely to be found where per capita incomes are rising, and there is growing demand from rural and urban markets. Where this is happening, production and selling of forest products increasingly shift from being part-time activities by very large numbers of people to more specialised year-round operations by a smaller share of the population. As the production and vending activities characteristic of such situations frequently do require skill and capital to enter, they are often not available to the poorer of those previously engaged in simpler forest product activities. They are more likely to be captured by the wealthier and better educated within rural communities, responding to market opportunities rather than pressures to find some source of income.

When tracking the changing contribution of forests to poor people's livelihoods, or attempting to predict forest-related livelihood trajectories, we must remain wary of broad generalisations. A reduction in subsistence use may reflect constraints on use rather than a shift to other more sustainable livelihood strategies. For instance, a recent village study in Vietnam found that forest vegetables, bamboo shoots, and mushrooms that were earlier consumed by the collecting household now had to be sold in poorer households in order to be able to buy rice (Nguyen Thi Yen *et al.* 1994).

Over time, however, we can expect the role of forest products in poor people's livelihoods to change, as they have in developed countries. Preliminary findings from studies examining livelihood trajectories show that the poor and the better-off restructure their livelihood strategies in different ways, poorer households turn to low paid agricultural wage labour, while the more advantaged take up better rewarded work through migration, or investments in agriculture (Blaikie and Seddon 1998). These differences result from the wealthier holding more assets than the poor. To develop policies and programmes that alleviate poverty and sustain the environment, we must attempt to understand and track that change.

A FRAMEWORK FOR POVERTY-FOREST INTERACTIONS

Drawing on the above, and given that the strongest relationship between poverty and forests exists for the rural poor, a broad typology of the linkages between forests and rural users can be derived. It is important to note, however, that there are not clear cut boundaries either between or within these component parts of the whole. There can be a range of different levels and patterns of people-forest relationship even within a single situation. Nevertheless, such a framework does help define differences in the role of forest products in different livelihood situations.

Forests managed by their users as common property

One type of relationship that can be identified is where populations living in a forested habitat, who are dependent on forest outputs, have established indigenous systems of users managing the forests as common property. A great deal of research has been undertaken on the conditions under which common property resource (CPR) management is viable (work by Ostrom is particularly notable). For forests, some key characteristics seem to include: that they are indivisible; the area is large and the number of users low; users form a cohesive group or a particular incentive (e.g. watershed protection) creates cohesion across diverse groups; benefits outweigh the transaction costs; and, they are relatively isolated from disruptive external pressures (such as upland regions).

Historically, governments have tended to try to increase their control in such areas, in pursuit of revenue and environmental objectives, and consequently have usually progressively limited local rights rather than supported them. However, in the last two or three decades this has begun to change. Probably the principal factor has been recognition that centralised management of forests in situations where local people also draw upon the forests has failed to conserve essential productive and protective aspects of the forest estate. A larger role for local management of forests has also been consistent with recent strategies to devolve and decentralise, and to bring about greater participation by rural populations in decisions and actions affecting them – empowering them to effect change. It appears likely that these shifts have been facilitated in some countries by declining economic importance of the forest sector at the national level, and a related increase in interest in its environmental and socioeconomic contributions.

One region in which there has been good progress towards strengthening and empowering local users to manage forests has been in the hill areas in Nepal (the experiences there are described in Box 1 below). However, elsewhere the conditions under which user groups can effectively control and manage forests unaided have proved to be limited. Even within Nepal it has not proved possible to develop comparable working systems in the lowland areas of the *terai*, characterised by more demographically diverse populations and market oriented livelihood systems. The more usual situation reflects multiple stakeholders, with different interests in local forest resources, and the conflicts that this tends to engender.

Box 1: Hill Community Forestry in Nepal

In 1978, the government passed legislation enabling substantial amounts of public forest land in the middle hills to be handed over to local communities to manage, in recognition of the practical difficulties of managing the country's dispersed forest resources through the forest department. Local management was to be achieved through the *panchayats*, which would enter into agreements with the government to manage local areas under agreed forest management plans.

However, *panchayats* usually proved to be unsuitable bodies to undertake local forest management as the areas they administered seldom coincided with user group boundaries. Though forest management committees were formed, they seldom functioned as representative discussion and decision-making bodies. Management plans designed by the forest department to increase productivity tended to be neither technically acceptable nor intelligible to villagers; and cumbersome bureaucratic procedures discouraged local involvement. The system was therefore progressively revised to incorporate features of the indigenous control and management systems that many communities within the middle hill areas were practising spontaneously. These systems were typically based on user groups, rather than whole communities, which established management rules that were enforced by use of forest watchers and other social sanctions.

Following passage of a Decentralisation Act in 1982, the focus on the user group was formalised, with more authority and responsibility progressively devolving to these groups, and was given legal authority in the 1993 Forest Act. Ownership of the land remains with the State, but trees legally belong to user groups, though the State reserves the right to take back possession of the community forest if the terms and conditions of handover are not met. Management control rests solely with the users of the resource, who now develop their own operational plans, set the prices at which the produce is sold and determine how surplus income is spent. By June 1997, there were 6,000 user groups, managing 450,000 ha, with a further 6,000 waiting for formal registration.

Issues still arise, both within user groups, between them, and with the forest department. Concerns have been expressed about domination by local elites, politicisation of the user group system, and pressures from the forest department for user groups to focus on tree planting rather than harvesting. Nevertheless, the Nepal experience has been encouraging; advancing effective management of forests by local users further than is to be found in most situations and giving it a sound legal basis. And recent studies have shown that, where user group management is active, the condition of the managed forests has often improved.

Sources: Shrestha and Britt 1997, Malla 1997, Hopley 1996, Shrestha 1996, Gilmour and Fisher 1991.

Managing forests with multiple stakeholders and objectives

This covers a wide range of possible situations. Where the forest resources are still substantial, the stakeholders can include loggers and other industrial users. In protected areas there will also be conservation objectives, and the State remains a major stakeholder, as well as having a regulatory role. It also covers the wide range of situations where internally differentiated agricultural populations still draw on forest/woodland for inputs that cannot be produced on-farm, or that can be more efficiently supplied from off-farm resources. Within such populations different groups are likely to place different demands upon the forest resources, and in some cases this results in overlapping and competing claims on forest resources. To highlight some of the interactions between poverty and forest management, it is useful to look at a number of key approaches to managing forests with multiple objectives and actors.

Co-management of forests

One response to the recognition of the multiplicity of stakeholders and demands on forests has been co-management approaches. These initiatives have evolved through various iterations and the way they are implemented on the ground varies. Some common characteristics include: they take place on land that is intended to be kept under forest cover, the forest is intended for productive management, local people have specific rights over forest management decisions and harvesting of products, and working partnerships are based on agreements between local forest users and the forest authority (Carter 1999).

It is argued that by the state retaining a role it is able to act as an adjudicator in disputes between stakeholders, and can provide technical, financial and institution building support to the local body. This approach is favoured by governments as it enables them to continue to exercise a regulatory role (important where there are environmental externalities associated with the use of forests or forest lands), and to retain control over components of the resource of direct value to the State (e.g. timber and forest land). Box 2 below describes the substantive body of experience with co-management in India.

A common weakness in co-management approaches has been that the capabilities to control and manage at the community level have become eroded or broken down, or represent only some of the stakeholders with claims on the resource. There is then a danger that devolution of full responsibilities and powers to a local body will not result in a viable or equitable solution, because effective control of the forest resource is captured by local elites or outsiders.

Box 2: Joint Forest Management in India

The principal features of India's Joint Forest Management (JFM) programme, which seeks to enhance environmental stability and the benefits to local people, are: setting up village protection committees (VPC), establishing and monitoring of management plans by the forest department, confining local use to grass and non-timber forest products and potentially a share of the income from the timber sold by the forest department.

Not surprisingly, in such a large and diverse country, the results of applying the JFM approach have varied considerably. In the original area, in southwest Bengal, where it was first applied in the 1970s, there have been tangible results. An area which previously suffered from overexploitation which was depleting subsistence and income flows, and adversely affecting agricultural productivity experienced increased fuelwood availability, significant improvement in the local environment (reduced erosion, improved water supplies, etc.) and a reduction in seasonal out-migration, suggesting that incomes from employment and from sale of non-timber products have increased. Moreover, this appears to have been of greater proportional benefit to the poor because they are able to invest more labour in forest exploitation.

Similar to the principles that make independent management of CPRs successful, co-management has been most successful in villages bordering extensive tracts of degraded forest land, where the forest-to-household ratio is relatively high, there are ethnically homogeneous communities possessing local forestry knowledge, and benefits accrue from minor forest products at a relatively early stage. Joint management has also been successful in the mangrove forest areas in the south of the same State, because of the protection against flooding and erosion that improved management brought about.

However, some of the more frequently encountered problems relate to difficulties in pursuing the dual objectives of achieving both sustainable forest management and enhanced local benefits. Conservation usually means restricting or prohibiting existing gathering or harvesting activities of importance to sections of the poor, at least temporarily. The subsequent changes in the composition of protected forests can have differential impacts on different categories of user. Even in the generally successful they are seen as the problem rather than part of the solution. Protected area management that meets dual objectives of conservation and development will be a difficult model to implement unless means are found to channel the returns from protected area management to those who carry the costs. There is a clear need for ICDP management agencies to accept that primacy must be given to meeting the interests of forest users.

Collaborative Approaches to Protected Area Management

Increasing numbers of initiatives link protected area management with local social and economic development, usually by providing incentives for park neighbours to support conservation and sustainable use. Often termed Integrated Conservation and Development Projects (ICDPs), these initiatives include multiple-use areas, biosphere reserves, buffer zone management and community-based conservation. There are however very few cases where poor peoples' needs have been reconciled with protected area management, indeed some argue that ICDPs run the risk of achieving neither conservation nor development objectives. Research demonstrates that the poorer sections of the community, particularly those who rely on the forest for subsistence use, are often the ones who lose. The management of protected areas, frequently for global benefits, has all too often resulted in increased impoverishment.

A pervasive problem is that the needs of different groups of local populations have not been considered in many ICDPs. This is exacerbated by limited belief on the part of protected area managers that local people have the capability to fulfil an effective role – they are seen as the problem rather than part of the solution. Protected area management that meets dual objectives of conservation and development will be a difficult model to implement unless means are found to channel the returns from protected area management to those who carry the costs. There is a clear need for ICDP management agencies to accept that primacy must be given to meeting the interests of forest users.

Broadening the partnerships

The recognition of multiple stakeholders and multiple objectives has led practitioners and policy makers alike to look for partnership approaches with wider participation than the state-community interaction typical of co-management. Indeed, within co-management approaches other stakeholders – particularly from the non-governmental sector – play an increasingly important role, for instance in mediation and capacity building.

Policy dialogue at both the national and international levels is now based on the assumption that partnership mechanisms are needed to integrate all relevant actors into decision-making processes and forest management implementation in order to harmonise mandates, roles, capacities and interests. The Intergovernmental Panel on

Forests and its successor the Intergovernmental Forum on Forests (of the Commission on Sustainable Development), support the development of national forest programmes (nfps) as policy frameworks to foster the participation of all stakeholders within a holistic national planning approach. The call for partnership mechanisms and partnership agreements is echoed in other international agreements such as the Desertification Convention and the Convention on Biological Diversity.

At a field level, a particular challenge lies in the development of partnerships with the private sector. The private sector can contribute to poverty alleviation and sustainable forest management in three main ways: the provision of infrastructure, taxation (e.g. social responsibility agreements by concessionaires), and the creation of local economies that open up new opportunities for the poor. However, there is a clear need to work with the private sector to ensure that the principles of equity, equality and sustainability are adhered to and there is a role for the public sector to influence and monitor the participation of the private sector.

The development of broad partnership approaches requires an explicit examination of roles and responsibilities. Experience in co-management for example demonstrates that there is a danger that forest departments are sometimes delegating tasks to NGOs in order to avoid making necessary internal changes. Also, it is becoming apparent that not all NGOs are well equipped to carry out such tasks, and that some are pursuing agendas for forest management (e.g. related to environmental issues) that are not necessarily congruent with the interests of the people in the communities they work with.

Developing pluralistic approaches and managing trade-offs

In parallel with support to broader partnership approaches, considerable attention is also given to developing more flexible pluralistic approaches to decision making. The concept of pluralism recognises the existence of differing and often conflicting positions. These approaches can accommodate different interests and the increased likelihood of conflict that this is likely to bring, and do not require consensus before being able to move matters forward. Pluralism has encouraged the development of innovative tools such as resource management contracts and codes of conduct. Such concepts raise issues such as how to achieve needed checks and balances, and accountability, in the absence of absolute standards or single clear-cut solutions. They require more research and testing to translate them into viable operational procedures.

A further element of the re-thinking that is going on in connection with multiple users of the forest, is to address the issue that forest management practices in pursuit of the objectives of one user group can have negative impacts on other groups. For example, achievement of conservation objectives in co-management approaches has often meant restriction or prohibition of existing gathering or harvesting activities of importance to sections of the poor, at least temporarily. It is clear that the poor may be harmed when management demands less use in the short-term in return for a better resource later, unless alternatives are provided. Some argue that JFM in India, for example, has consistently disadvantaged categories of the poor such as headloaders, graziers and women.

Equally, decisions in one sector can have a negative influence on another sector (the extra-sectoral influences on forests and forest-dependent people are discussed in the following section). These 'knock-on' effects are frequently evident where both development and conservation objectives are

being followed. The livelihoods approach helps to make the trade-offs between economic growth, human development, social integration and environmental integrity explicit. Support to livelihood approaches and other adaptive management tools is required to develop management practices that meet the dual objectives of sustainable forest management and poverty alleviation, and that are acceptable to all, or most, of those with a stake.

Supplying forest products from agroforestry sources

Another discernible type of interaction is found when supplies from forest sources have declined to the point at which users rely mainly on farm tree resources, or in which other demand and production factors encourage those with access to land to make such a shift, so that forest products are increasingly supplied from agroforest sources. Most farmers grow some trees, usually primarily to meet household subsistence needs for fruit, fuel, fodder, building materials, etc.; to provide an on-farm reserve that can be drawn upon when needed; and for the protective functions of trees (shade, windbreaks, contour barriers against soil erosion, recycling of soil nutrients, etc.). As markets for tree products emerge nearby, farmers increasingly exploit opportunities to generate additional income by selling what is surplus to their needs, or by increasing production to provide a saleable margin, but few grow trees primarily as commercial crops (Arnold and Dewees 1997).

Potential for the poor to generate forest product supplies and income from land they farm, rather than from forests, are usually affected more by individual than communal rights and constraints. Because of the relatively long production period of tree products, if there is not sufficient security of tenure to ensure that planters will be able to reap the harvest from the trees they establish, tree growing is likely to be inhibited. The extent of planting by farmers in land systems subject to communal control, such as are still present in much of Africa, show that this does not mean, as has been argued in the past, that tree growing requires private property rights - it thrives as long as those concerned have confidence in the tenurial system that obtains.

In some situations, though, tenurial conditions may need to be clarified or modified before tree management can succeed. Tenurial rights that enable, or appear to enable, the State to expropriate land that has trees on it may inhibit tree growing. More widely, insecurity of tenure generated by the threat or possibility of tenurial change, such as land titling, can inhibit investment in tree growing. Sharecropping and some other forms of short term tenancy can also prevent or discourage tree growing (Warner 1993).

Policy and project interventions in support of tree growing by farmers have in the past often been poorly matched to the role of trees and tree products. Although most farmers give priority to trees that help meet subsistence and protection needs, most support for farm forestry has had the effect of encouraging planting to produce wood products for sale. This often reflected a strong promotion and extension presence by forest departments, a focus on a few known industrial forestry species, subsidies for planting in many programmes, and information about prices that appeared to make tree crops more attractive than agricultural crop alternatives on some sites.

In northern India, for instance, the farm forestry support initiative under the Social Forestry programme in the 1980s initially led to a large increase in tree planting, mainly with eucalypts. Many of the participating farmers subsequently abandoned such tree crops due to higher than anticipated costs, lower crop yields in the vicinity of the planted trees, falling output prices as the additional supplies created an imbalance with demand, and uncertainties over yields and markets. In general, growing of trees as cash crops proved to be appropriate primarily for those with land that can be devoted to this without displacing food or other cash crops, or those who have adequate income from off-farm sources (Saxena 1992).

Such experiences suggest that support to farm forestry by small and poor farmers is usually better focused on strengthening the multi-species multiple product strategies found in many existing farm systems. Few projects have provided the kind of menu of flexible options appropriate to the incremental approach to tree growing adopted by most poor farmers. It also suggests that, where production for the market does seem appropriate, the earlier focus on intervening primarily to stimulate an increase in supply of tree products is insufficient, and may be wrongly focused. There is seldom evidence that cost is a constraint to tree planting, and subsidies can lead to undesirable distortions in land use, such as displacement of sharecroppers and grazing, and reduction in small farmer subsistence production of food crops to the point where household food self-sufficiency levels could be adversely affected. It is likely that more attention should be paid to matching production with demand.

In general, more attention should often be paid to identifying those problems that can be addressed through tree growing and those that cannot. Too many of the interventions to date have sought to encourage tree growing where trees are not an appropriate component of the farm household economy, or have attempted to induce growing of inappropriate trees. It is also important to recognize that, as the conditions that have favoured more farm tree growing are often linked to declining availability of labour on farms, more efficient factor markets in rural areas could lead to a shift back to more intensive uses of land, and a reduction in tree cover.

Forest products as a source of income and employment

Production and trading of forest products are important sources of income, for the landless as well as those with access to the land (and for women as well as men). Indeed, small enterprise surveys investigating non-farm components of rural income have shown that forest product activities generally rank among the three largest sources of employment in rural manufacturing and trading (Fisseha 1987). The potential for such activities rests in part on there being an overall regulatory environment that does not discriminate against the informal sector. There may also be need to ensure equal opportunity with formal sector industrial enterprise activities in particular forest product sub-sectors. For instance, measures taken in Indonesia some years ago to curtail export of rattan, in order to encourage the development of industrial scale manufacture of rattan products domestically, severely curtailed a trade that had provided outlets for large numbers of smallholder producers of rattan.

The very large numbers of people who succeed in setting up new small-scale commercial forest product activities suggest that in general there is little need for measures to attract new entrants. However, the high rate of attrition, particularly amongst new enterprises, indicates the need that can exist for intervention to encourage entrants to concentrate on the more viable and sustainable kinds and levels of activity. The concentration of the poorer of those engaged in generating income from materials from forests in low-return product activities that can offer no more than marginal, unsustainable livelihoods, presents particular issues. Support to such activities once higher return or less arduous alternatives emerge could impede the emergence of better livelihood systems for the participants. That being the case, it may be more fruitful to help people move into other more rewarding fields of endeavour rather than seeking to raise their productivity in their current line of work. The alternatives may be other forest product activities, but could equally well be activities not associated with forests or trees. In either case, care needs to be taken to ensure that future growth prospects are indeed better in the alternative product lines to which people are being encouraged to move (Arnold *et al.* 1994).

In recent years a number of initiatives have been launched to encourage trade in particular forest products for industrial or niche export markets. However, such product trades have often proved

to be susceptible to change in market requirements, to domination by intermediaries, and to shifts to domesticated or synthetic sources of supply, and have consequently not been sustainable. They can therefore expose rural households to high levels of risk, particularly where the trade has encouraged people to move away from more diversified and less risky agriculture-based livelihoods; as has happened with some of the extractive product trades from the Amazon region (Browder 1992). Similarly, interventions have sometimes led to product expansion on a scale that has resulted in depletion of the raw material resource - as happened, for example, with a programme that successfully expanded export demand for decorative baskets made by households in Botswana (Terry 1984).

Trades that serve domestic rural and urban demands for forest products can often provide less volatile market opportunities. However, governments frequently intervene in these trades, in ways that can impede participation by smallholders. Forest departments may impose charges, in order to capture a share of the value. Producers may be obliged to sell to government marketing bodies, or to traders to whom concessions have been granted. In many countries the government also intervenes in the market directly, as a producer from State forests. Some products are made available at deliberately subsidised prices, because of their importance to the poor. Others are effectively sold at below-cost prices because the process of setting and collecting royalties fails to capture an appropriate share of the economic rent. The result is to confront the private producer with competition from subsidised sources.

One of the more fundamental policy issues that many governments need to address, therefore, is this conflict within their overall strategy to provide forest products. While providing support to production by smallholders through one part of its forestry programme, they compete with them through the industrial forestry component. A logical long-term solution could be to phase out State production in those markets where smallholder production has a comparative advantage. In the short term the scope for improving the position of the latter probably lies mainly in removing or relaxing regulatory constraints that reinforce the structural and scale advantages that the State, through its forest department, possesses as a producer of many forest products.

RECOMMENDATIONS

It is clear from this brief examination of forests' contribution to the livelihoods of the poor and the options and challenges faced when seeking to enhance the role of forests in poor people's livelihoods, that many of the policy constraints lie beyond the realm of the forest sector. This section offers recommendations on policy processes and approaches to address some of the more generic issues hindering the development of forest management.

Adopting a livelihoods approach

A livelihoods approach is a way of putting people at the centre of development, thereby increasing the effectiveness of support aimed at alleviating poverty and sustaining the environment. Access to assets is a critical factor in strengthening poor peoples livelihoods. Tackling inequitable and insecure access to forest goods and services, and those assets that will encourage sustainable management, is the most important action needed to reduce poverty and improve forest condition. Table 2 describes the key capital assets and their importance, and offers suggestions on ways to address poor people's limited access to assets.

Table 2: Improving Access to Capital Assets

Asset	Importance	Ways Forward
<p>Human capital: the skills, knowledge, ability to labour and good health that enable people to pursue different livelihood strategies.</p>	<p>Provides people with the capability to effect change – to debate, negotiate and influence the way forests are managed.</p> <p>Allows poor people to access other forms of assets – including the natural capital represented by forest resources.</p>	<p>Avoid confining the poor to marginal, low-return forest-related activities with low entry thresholds by focusing support on skills and knowledge development to allow them to access the more rewarding production and vending forest activities.</p>
<p>Social capital: the relationships of trust and reciprocity that support cooperative action, the membership of informal and formal groups, and the networks that increase people's ability to work together and access institutions and organisations.</p>	<p>Networks and relationships tend to be the mechanisms through which benefits are distributed and by which decisions on control and use of resources are made.</p>	<p>Increase access to groups and networks to improve the ability of poor people to access other assets, to negotiate better transaction costs, and to influence decision-making processes.</p> <p>Invest in social capital to increase poor people's access to intermediary agents (traders, organisers of networks) and enable them to gain a niche in forest product markets.</p>
<p>Natural capital: natural resources stocks from which resource flows and services useful for livelihoods are derived.</p>	<p>Forest resource based activities such as those described above, as well as the environmental services forests provide.</p> <p>Natural capital also includes farming, fishing, mineral extraction, clean air etc. all of which provide food and services vital to livelihoods.</p>	<p>Focus rights systems to allow the poor to defend their access to forests, to protect existing forest uses, and increase their access to those assets which allow them to further capitalise on forest resources.</p> <p>Reform of organisations that supply services to those involved in forests and changes in institutions which govern access to forest resources.</p> <p>Support to market development to increase the value of forest produce.</p>
<p>Physical capital: the basic infrastructure and producer goods needed to support livelihoods e.g. affordable transport, water supply and sanitation, shelter.</p>	<p>Inadequate access to physical capital can have profound deleterious effects on human health, education, income generation opportunities and productivity. For example, if excessive time is spent gathering wood for fuel, potential productivity is substantially reduced.</p>	<p>Increase access of poor people to profitable markets through provision of infrastructure and market networks.</p> <p>Reform of policies and practices that constrain farmers' access to markets and depress forest product prices.</p>
<p>Financial capital: the financial resources</p>	<p>Allows poor people to convert other types of assets to directly achieve a livelihood</p>	<p>Tailor local financial services to the particular needs of the poor.</p>

available to the poor, including available stocks (savings, credit provision) and regular inflows of money (e.g. remittances).

outcome (e.g. for purchasing food) and for political influence.

Considering livelihood strategies under a holistic framework offers the opportunity to identify which constraints on livelihood success are priorities for action. It must be noted that a livelihoods framework (see for example DFID 1999) is always a simplification, the full diversity of poor people's livelihood strategies can only be understood through local level, participatory analysis. However, by placing people at the centre of development a livelihoods approach stresses the importance of influencing policies and institutional arrangements so they promote the agenda of the poor. It places participatory analysis at the centre of policy processes. Comprehensive but flexible participatory land-use planning to provide a framework for systems that combine subsistence and income-generating activities will be of particular importance.

The need for local level analysis that considers the broader context has been highlighted repeatedly in the discussion above. For instance, there is a need to distinguish between the role of forest products activities in coping strategies of the very poor facing stagnant economic conditions, and the contribution they can make to increasing the incomes of households in a more dynamic economic environment. This can be complicated by the fact that, as there can be both poor and less poor in communities, stagnant and growing types of forest product activity can coexist in a single area. Furthermore, initiatives to increase poor people's access to forest-related assets are dependent on an adequate understanding of the economic, social and institutional characteristics of the local context. Collective management of forest resources have been shown to fail – or to be highly inequitable – where rights and responsibilities were handed over without an adequate understanding of the complex local context.

A livelihoods approach and the core principles which support it will enhance our ability to meet the dual objectives of environmental sustainability and poverty alleviation. However, it must be noted that there continues to be a discrepancy between our ability to develop frameworks for understanding poverty, and our ability to implement the findings of that analysis to actually have an impact on poverty (Bebbington 1999).

Strengthening governance systems

The key characteristics of good governance are accountability, transparency and representation. If these principles are adhered to, it is probable that more effective and efficient forest management can be achieved. Accountability requires transparent, explicable systems, effectively enforced. This involves the consistent application of two core concepts: regularity, whereby formal rules and regulations are enforced, and performance accountability, whereby standards to monitor performance are developed.

Regularity is required if forests are to be successfully managed as common property resources. Priority at the policy level is to put in place policies that recognise local rights, and provide legal and regulatory support in protecting these rights (e.g. against forest industry, and encroachment by other population groups). This may require both directly targeted policies, and also action to modify policies in other sectors with negative impacts on common property management. For

instance, indigenous systems of forest management in lowland areas in South America have been severely weakened by policies of land settlement that encourage settlers to clear forest cover in order to establish claims to the land (Southgate and Runge 1990).

Policy processes also need to focus on helping existing governance systems to adapt to contemporary demands and pressures. For instance, many forest product activities rely on there being an overall regulatory environment that does not discriminate against the informal sector. There may also be a need to ensure equal opportunity with formal sector industrial enterprise activities in particular forest product sub-sectors. Forests, and those who depend on forests for part of their livelihood strategies have often suffered as a result of the irresponsible activities of transnational companies who seek out the weakest rules and regulations in developing countries keen to attract foreign investment. These problems have been exacerbated by countries offering investment incentives such as tax holidays and freedom from environmental or employment standards to attract investors.

Performance accountability is a complex issue. Accountability systems are needed at a national and international level – to assess impacts on the poor and on the forest. Pluralistic approaches have encouraged the development of innovative tools such as resource management contracts and codes of conduct. Problems include how to achieve accountability in the absence of absolute standards or single clear-cut solutions. While progress has been made through the certification scheme of the Forest Stewardship Council, more work is needed to develop international norms and standards which can be applied to all forests, whether state, community or private.

Mayers (1997) argues that changes in forest condition and poverty are as much to do with power as they are to do with policy failures. They depend on how different interests are negotiated and expressed. Counteracting the influence of power strongholds can only be achieved through enhanced accountability, transparency and representation. Policy and institutional fora must be open and all-inclusive processes and support should be channelled to local institutions that are accountable to and effectively represent the needs and aspirations of marginalised groups. For example, a strongly decentralised administration is required to ensure democratic participation in the administration of forest-related taxes and on deciding the priorities for use of revenues. In order for decentralisation to truly reflect the needs of the poor however, it will be necessary to invest support in local level capacity, otherwise decentralisation may just place power in the hands of the local elite.

Making the connections: the impact of macroeconomic and non-forest sector policies

There is not sufficient space in this paper to examine the many direct and indirect extra-sectoral influences on deforestation and forest degradation, or their impact on the ability of forests to serve the needs of the poor. Nevertheless, Kaimowitz and Angelsen (1999) succinctly demonstrate the importance of macroeconomic, agriculture, transport, infrastructure, and energy and mining policies on forests. Some of the lessons this study generates include: the need to accept that there are not always win-win situations, the need to build the capacity of policy makers in order to incorporate social and environmental impact in the design of macroeconomic policies, the need to build broad coalitions of support to bring about the necessary reforms, and the political nature of land-use planning and land tenure conflicts which supports demands for enhanced accountability, transparency and representation in decision-making processes.

There is also a clear need to make the links between macro and micro levels, yet development activity tends to focus at either one or the other. Policy makers need to focus on instruments that can bridge this gap. A livelihoods approach is one such tool as it emphasises the influence of

macro level policies and institutional processes on the poor.

Other policy instruments that have potential for increasing accountability, transparency and representation – principles that will serve to link the micro and macro levels – are policy processes such as national forest programmes. These provide an inclusive policy fora and institutional mechanism which allows interaction between local, regional and national interest groups, and between the sectors which influence forests and the forest-dependent poor. Their successful implementation will depend in part on building local capacity to analyse and make decisions regarding extra-sectoral influences on forests and the trade-offs involved. But the success of all policy and institutional reform will ultimately depend on there being sufficient will among those in power to follow through on reforms, or sufficient force through the expression of the rights of weaker groups, to make the powerful more accountable.

Promoting Partnerships

The poor clearly need to be able to draw on networks and links with state, market or civil society actors that will help them to access, defend and capitalise their assets (Bebbington 1999). Networks and partnerships will be a key component of sustainable livelihood strategies.

However, the development of partnership approaches requires an explicit examination of roles and responsibilities through participatory reform processes. They also require the capacity for effective coordination, and this applies to the provision of external support as well as to local initiatives. Forest partnership agreements (fpas) are one mechanism proposed through international policy fora to promote partnerships between national and international participants in national forest programmes. The fpa structures the relations, roles and contributions of different actors, though its form and content will vary depending on the local context. Fpas could operate at two levels – nationally to support consensus building in the nfp process, to promote dialogue and intragovernmental coordination; international fpas will integrate external contributions into the national planning process.

Innovative partnerships approaches need to be developed at all levels, policy makers should particularly focus on drawing on the skills and resources of the private sector to contribute to poverty alleviation and sustainable forest management.

CONCLUSIONS

If poverty were the main cause of deforestation, and assuming some trickle-down of wealth takes place during economic growth, then we would expect to see a reduction in rates of deforestation during rapid economic expansion. Yet the opposite is true, we have seen some of the most extreme deforestation take place during economic boom periods, often at the expense of the rural poor who lose access to land, or a reduction in wage-earning opportunities as labour saving machinery is utilised. This does not mean to say that economic growth is the problem, it is the way in which development takes place that is important, and how key terms such as poverty and sustainability are defined.

Poor people's livelihood strategies are attempts to manage and modify the substitutions, trade-offs and draw downs of different capital assets. If development implies an increase in capital stock, the relative sustainability of that development depends on the substitution that occurs among the type

of capital. The issue of substitution and the definition of sustainability is particularly important when considering the poverty-environment nexus. The International Development Target on environmental sustainability and regeneration argues that different types of capital cannot be substituted for each other. Natural resources are deemed to be too important to a range of livelihoods and that preservation and regeneration should be the aim. Others argue that sustainability should be considered in terms of the maintenance and accumulation of overall stocks of capital.

It is clear that any assessment of whether a change in either quantity or quality of forests is beneficial or harmful is largely a political judgement related to local circumstances. Nevertheless, there is consensus that some changes are always harmful, this includes a shift from sustainable management to unsustainable utilisation, but also includes erosion of many of the services provided by forests such as preventing soil erosion and a loss of soil fertility, and moderating pollution. Moreover some of the goods and services provided by forests are not replaceable, for instance providing the living space and livelihood for indigenous people or the biological diversity the forest contains – these features may be termed ‘critical natural capital’. So, there are strong cases for sustaining many forests, but the social costs of deforestation do not always outweigh the benefits. The terms deforestation and forest degradation are value-loaded, by implication they suggest that replacement of forest by other uses is necessarily harmful and all reforestation is necessarily beneficial. They divert attention from a more focused approach which would concentrate on addressing those policies and market failures that encourage inappropriate forest clearance.

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Box 1: Hill Community Forestry in Nepal

In 1978, the government passed legislation enabling substantial amounts of public forest land in the middle hills to be handed over to local communities to manage, in recognition of the practical difficulties of managing the country's dispersed forest resources through the forest department.

Local management was to be achieved through the panchayats, which would enter into agreements with the government to manage local areas under agreed forest management plans.

However, panchayats usually proved to be unsuitable bodies to undertake local forest management as the areas they administered seldom coincided with user group boundaries. Though forest management committees were formed, they seldom functioned as representative discussion and decision-making bodies. Management plans designed by the forest department to increase productivity tended to be neither technically acceptable nor intelligible to villagers; and cumbersome bureaucratic procedures discouraged local involvement. The system was therefore progressively revised to incorporate features of the indigenous control and management systems that many communities within the middle hill areas were practising spontaneously. These systems were typically based on user groups, rather than whole communities, which established management rules that were enforced by use of forest watchers and other social sanctions.

Following passage of a Decentralisation Act in 1982, the focus on the user group was formalised, with more authority and responsibility progressively devolving to these groups, and was given legal authority in the 1993 Forest Act. Ownership of the land remains with the State, but trees legally belong to user groups, though the State reserves the right to take back possession of the community forest if the terms and conditions of handover are not met. Management control rests solely with the users of the resource, who now develop their own operational plans, set the prices at which the produce is sold and determine how surplus income is spent. By June 1997, there were 6,000 user groups, managing 450,000 ha, with a further 6,000 waiting for formal registration.

Issues still arise, both within user groups, between them, and with the forest department. Concerns have been expressed about domination by local elites, politicisation of the user group system, and pressures from the forest department for user groups to focus on tree planting rather than harvesting. Nevertheless, the Nepal experience has been encouraging; advancing effective management of forests by local users further than is to be found in most situations and giving it a sound legal basis. And recent studies have shown that, where user group management is active, the condition of the managed forests has often improved.

Sources: Shrestha and Britt 1997, Malla 1997, Hobley 1996, Shrestha 1996, Gilmour and Fisher 1991.

Box 2: Joint Forest Management in India

The principal features of India's Joint Forest Management (JFM) programme, which seeks to enhance environmental stability and the benefits to local people, include: setting up village protection committees (VPC), management plans to be established and monitored by the forest department, and local use of grass and non-timber forest products and potentially a share of the income from the timber sold by the forest department.

Not surprisingly, in such a large and diverse country, the results of applying the JFM approach have varied considerably. In the original area, in southwest Bengal, where it was first applied in the 1970s, there have been tangible results. Protection and controlled use by villagers, in an area which previously suffered from overexploitation which was depleting subsistence and income flows and adversely affecting agricultural productivity, resulted in increased fuelwood availability, significant improvement in the local environment (reduced erosion, improved water supplies, etc.) and a reduction in seasonal out-migration, suggesting that incomes from employment and from sale of non-timber products have increased. Moreover, this appears to have

been of greater proportional benefit to the poor because they are able to invest more labour in forest exploitation (though fuelwood headloaders, among the poorest in most communities, did not share in the increase in benefits). The approach has been most successful in villages bordering extensive tracts of degraded forest land, where the forest-to-household ratio is relatively high, there are ethnically homogeneous communities possessing local forestry knowledge, and benefits accrue from minor forest products at a relatively early stage.

In areas where there has been less progress with JFM some of the more frequently encountered problems relate to difficulties in pursuing the dual objectives of achieving both sustainable forest management and enhanced local benefits. Conservation usually means restricting or prohibiting existing gathering or harvesting activities of importance to sections of the poor, at least temporarily. The subsequent changes in the composition of protected forests can have differential impacts on different categories of user, and may not be able to produce benefits commensurate with the costs people incur in pursuing JFM. Problems can also arise between different stakeholder groups, and over relationships between VPCs and the forest department.

Sources: Sarin 1998, Thin et al. 1998, Hill and Shields 1998, World Bank 1998, Pattnaik and Dutta 1997, Saxena 1997, Poffenberger and McGean 1996, Kurup 1996, Hobley 1996, Femconsult 1995.