Social dimensions of forestry's contribution to sustainable development

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1. INTRODUCTION

This subject has ramifications wherever forests, forestry and forest goods and services affect people. However, the nature of relationships between people and forests varies greatly.

In richer industrialized countries, social concerns mainly relate to how forests contribute to broader aspects of the quality of life - a clean and protected environment, pleasant landscape, equitable access to recreation, etc. The main features of such concerns have been outlined in a number of special (Koch 1997, Oosterveld 1997) and voluntary papers.

This paper primarily deals with forestry's contributions to the livelihood systems of huge numbers of people in poorer countries - and of poorer people in richer countries (Smith & Quaile 1997). For these people, forests and forest products perform a much more direct and basic function, as a source of food, other material and cultural inputs, income, and household security. The paper focuses on information that enables us to define the importance of forests and forest outputs, and on identifying people who depend most on forest products. It also explores the changes in the relationship between people and forests, and whobenefits and loses from such changes.

Secondly, the authors focus on the institutional context and the implications for policies, and forthe design and implementation of both macro and local institutions and regulations. Issues include equity, participation and conflict management, and the roles played by the state and non-governmental institutions. The paper also underlines the importance of having the right information available to improve our understanding of what is happening, and why it is happening.

2. FORESTS, TREES AND LIVELIHOOD SYSTEMS

Household livelihood objectives are likely to include adequate provision of food and other essential subsistence goods, cash for purchase of outside goods and services, savings andsocial security. Other components could include concern about reducing critical risk factors, and local social, cultural and spiritual considerations.

Forests and forest products are linked to household livelihood systems in a variety of different ways. As the main characteristics of these links are well known, they are only briefly reviewed here. This section mainly focuses on how patterns of use and dependency are changing, and on the implications of such changes.

2.1 The main contributions

Forest products often provide food and other basic needs, and represent a source of income and inputs into the agricultural system. Furthermore, they help households check exposure to risks of

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various kinds, and are an integral component of the habitat and the social and cultural structure of those living within that environment (Beer & McDermott 1989, Falconer & Arnold 1989, Chambers & Leach 1987). As populations have grown and agriculture has spread into forest areas, more and more forest foods and other forest products have come from the tree stocks and tree-dominated habitats that coexist with agriculture, as well as from closed forests. Important sources of many forest products include forest fallow, farm bush, trees that farmers maintain or establish on their land, as well as tree and shrub resources on other non-forest land.

2.1.1Food, food security and health

Forest foods seldom provide the bulk, staple items of people's diet. For most rural people, forest foods add variety to diets, improve palatability, and provide essential vitamins, minerals, protein and calories. Forest foods are also extensively used to help supplement household food supplies during particular seasons in the year. Many agricultural communities suffer from seasonal food shortages when stored food supplies have dwindled and new crops are only just beginning; consumption of forest and tree foods increase during this period. When times are difficult, forests also provide a "buffer" which people can fall back on for supplies of food, and of income to buy food (FAO 1995, Falconer 1989).

Medicinal uses of forest products tend to overlap with that of forest foods; indeed particular items added to foods serve both to improve palatability and act as a health tonic or prophylactic. Medicinal use and cultural values are also often strongly associated; for example, where illnesses are thought to be due to the spirits, or plants have acquired symbolic importance as treatments. Such values often underlie the division between the use of traditional and modern medicines widely observed at the present time (e.g. Falconer 1994).

2.1.2 Cultural and social values

The role and use of the forest and particular forest products can be subject to cultural and mystic values, reflecting a people's history, religion, art and other aspects of its social functioning. For example, particular areas are often maintained as sacred groves or forests,in which harvesting of produce is banned or closely controlled. Individual fauna and flora species can have spiritual or other cultural significance in many societies, and either cannot be used or are reserved for particular uses. Particular trees may have ceremonial roles, or may be used to make artifacts for ceremonial use. The use of other trees is controlled because they provide products of special value locally. Certain foods are reserved for the celebration of harvests and weddings. Religious prohibitions or ethnic values may result in a number of systematic food avoidances (taboos), which discourage the eating of particular animals and plants.

There can also be broader social and spiritual dimensions of people's relationship with the forest as a whole; for example, related to the forest as the source of power that accrues from its clearance and cultivation. Such considerations help explain the common divergences between local and outsider perspectives of the value of forests (e.g. Davies & Richards 1991).

2.1.3 Income and savings

Very large numbers of third world rural households generate some of their income from selling forest products. As pressures on the agricultural land base increase, leading to progressive fragmentation of farm holdings and overuse of arable land, farm households are less able to achieve food self-sufficiency from their land. Rural people rely more and more on income to meet food and other needs, and on non-farm sources for that income. Forest products increasingly provide one of the main sources of non-farm income to rural households (Liedholm & Mead 1993, Fisseha 1987).

Income from forest products seldom accounts 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 households cope with particular expenses or respond to unusual opportunities. Seasonality may reflect availability of the raw material, needs for additional cash at particular points in the annual cycle, seasonal fluctuations in demand, or the seasonal availability of labour for gathering and processing (Townson 1995a).

Therefore the importance of forest incomes usually lies more in its timing than in its size as a share of total household inputs. For instance, a study in the forest-savanna zone of Guinea showed that farmers link their wild plant collection and trading incomes to seasonally- timed needs - e.g. to purchase seeds, hire labour for cultivation, and buy food at harvest to be processed and sold during the dry season. In addition, many women traders generated their working capital from cropping, gathering and processing, within sequences in which one activity's output becomes another's input (Leach & Fairhead 1994).

2.2 Variations in the intensity of utilization and dependency

It is difficult to generalize about the role of forest outputs in livelihood systems because these relationships vary greatly. Forest product use and dependency will probably vary not just from location to location but within a community between households, and between genders and age classes within a household.

Where people have had relatively unrestricted access to forests, income from forest foods and forest products is often particularly important for poorer groups within the community. Although the heaviest users are often the wealthier members of a community with more resources to devote to forest gathering and production, the poor usually derive a proportionally greater share of their overall needs from forest products and activities (Cavendish 1996, Ogle 1996, Jodha 1990).

Easy access to the resource and low entry thresholds enable many women to generate income from forest product activities. Such activities are often an important source of the income necessary for women to feed and clothe the family, and they might depend on such income more than men. In western Niger, for example, income from products represented 27% of women's local non-farm income compared to 10% for men (Hopkins *et al*. 1994).

However, it is unclear to what degree these proportionally heavier users depend on these forest inputs - in the sense that they lack viable alternatives, and so would suffer hardship if deprived of access to forests and the ability to use them. Given the extensive changes in forest use and access patterns, such information will be essential if we are to understand which components of forest outputs need to be sustained in the future.

3. THE NATURE AND IMPLICATIONS OF CHANGE

3.1 Changes in subsistence use

In some situations, subsistence use of forest products appears to be dwindling, as people rely more on food purchasing, or as famine relief programmes become more effective, or as improved supplies of food crops have diminished the need to depend on forest foods. In Vanuatu, for instance, the introduction of the sweet potato, which could be planted at any time and produce an edible crop within three months, and manioc, which can be left unharvested for up to two years, has made the traditional emergency foods of wild taro, arrowroot, wild yams and sago virtually obsolete (Olsson 1991).

Other changes that have reduced the contribution of forest food to household nutrition may reflect penetration of rural markets by new food products, changing tastes, or decreased availability. However, the latter may reflect changes in the availability or allocation of a household's supply of labour rather than physical shortage of the product. As the pressure on women's time increases, they

may no longer have as much time for gathering forest foods. As the value of labour rises with increasing wealth, the opportunity cost of continuing to spend time gathering foods, rather than purchasing them, becomes increasingly unattractive.

A decline in use of forest food can also reflect diminishing knowledge about its use. As children spend more time in school than in the fields and the bush, there is less opportunity to learn about which plants can be consumed, and which cannot. Sedentarization can also distance people from old familiar food sources, restricting their use of these foods even when they are still available and important for dietary balance (Melnyk 1993).

However, shortages represent a more frequent cause of reduced subsistence use: physical shortages due to overuse; shortages due to greater restrictions on access to supplies; or economic shortages due to rising costs or/and growing competition for supplies. Poorer people's income requirements from forest product activities can result in supplies being diverted from domestic consumption to the market. A recent village study in Vietnam, for instance, found that forest vegetables, bamboo shoots and mushrooms that were collected and eaten by wealthier households, had to be sold in poorer households in order to be able to buy rice (Nguyen Thi Yen *et al*. 1994).

Some changes in subsistence use therefore reflect choice as part of an evolution towards a different livelihood level in which forest inputs play a lesser role; other changes are responses to pressures that make it less possible for the household to maintain the same level of use. However, it is clear that subsistence use generally continues to be significant, even where people are more integrated in the market economy. Also, the buffer role of the forest - as a food and fodder resource that enables people to survive periods of agricultural shortfalls - continues to be very important.

3.2 Changes in income generating activities

3.2.1 Patterns and causes of change

In some situations, households are becoming more dependent on income from tree products; in others, they are moving away from involvement in forest product activities. At the same time, some kinds of forest product activities are expanding while others are stagnating or declining. For effective interventions to foster development of forest product activities that contribute to household income, it is important to identify and understand these changing patterns.

Some general patterns can be identified. In situations where population is growing faster than *per caput* incomes, forest product activities emerge largely to absorb people unable to obtain income, or sufficient income, from agriculture or wage employment. This situation is probably characterized by labour-intensive, low-return, typically household based activities such as collecting and mat-making. In situations where *per caput* incomes are rising, low-return labour-intensive activities will tend to give way to more productive and remunerative activities such as vending, trading and activities to meet growing and diversifying rural demands. At that stage, production and selling of forest products increasingly shifts from a part-time activity by very large numbers of people to more specialized year-round operations by a smaller share of the population (Liedholm & Mead 1993, Haggblade & Liedholm 1991). An indication of the typical evolution of forest product activities may be gained by looking at how they match these alternative scenarios.

Characteristics of product and market: The output of some activities changes because of the nature of the product and the markets on which it is sold. Though some products have large, diversified and stable markets, others face highly volatile markets, or demand that is seasonal and subject to sharp price fluctuations. Production of some "extractive" products for industrial markets, for instance, is susceptible to major changes in market requirements and to shifts to domesticated or synthetic sources of supply. Although the typical boom-and-bust sequence that characterizes them may provide

significant employment and income initially, in the longer term it can be very disruptive for rural producers, particularly where they have been encouraged to move away from more diversified and less risky agriculture-based livelihoods (Homma 1996; Browder 1992).

Domestic markets for forest products may provide more stable avenues for development. The large component of forest products activities in the rural sector reflects the size of rural markets for these products, and the dispersal of these markets across large areas with a relatively poor transport infrastructure, ensuring more effective local supplies (FAO 1987). In many countries, these product trades are much larger, employing far more people and likely to evolve in a less disruptive way than trade in products serving external markets.

However, some forest products used domestically are "inferior goods" that fall out of consumption patterns as incomes rise: for example, more convenient purchased foods being substituted for some forest foods. Others, such as mats, are vulnerable to competition from factory-made alternatives as improved transport infrastructure opens up rural areas to outside supplies. But demand for other ("normal" or "luxury") goods rises with prosperity. Market prospects for products will also differ according to which phase of the market cycle they are located, i.e., emerging, expanding, mature or declining markets.

Characteristics of the production or distribution process: The evolution of some activities is conditioned by production and distribution features, enabling or preventing the enterprises from increasing in size, or adding extra value by diversifying into additional stages of the process, or organizing the process more efficiently. For example, such factors seem to account for the markedly different patterns of change in woodworking and mat and basket making activities described in Box 1.

As improvement in rural infrastructure exposes rural producers to competition from urban producers, the types of activity that are likely to remain viable will be those which favour local production: those based on dispersed raw materials and small markets; those with high transport; or those where the economics of production favour small-scale activity, such as most handicraft production (FAO 1987).

Features of the individual enterprise: Other reasons for growth or decline are to be found within the individual enterprise. The opportunities to generate income from forest product activities may require managerial or particular technical skills, or access to capital or credit, and will therefore be available only to some. Success or lack of success can also be strongly influenced by location - e.g. proximity to market. Another powerful factor is the availability, and relative attractiveness, of alternative ways of earning income.

3.2.2 Consequences for the poor

The information outlined above strongly suggests that, while some activities can thus provide a strong basis for livelihood systems, others provide at best short-term opportunities, or generate only marginal returns to those engaged in their harvest, and many involve high levels of risk. Many will not survive as costs rise and competition intensifies. While they provide some support they do not provide a basis for improving livelihood standards. They are thus activities that those involved in them are likely to abandon if more attractive options become available.

The concentration of the very poor in such low return activities with poor prospects, presents a quandary for support programmes and policies. It may be more fruitful to help people to move out of such activities into occupations with better income earning prospects than to encourage them to invest in attempts to improve productivity or expand sales in a stagnant or declining area of business. On the other hand, as long as there is no better alternative, they need to try and extract as much return as possible from these marginal income-generating activities. Different forms of provision might be required to support people for whom forest activities provide a safety net, and those people who could improve their livelihoods from forest activities (Falconer 1994).

BOX 1: PATTERNS OF GROWTH IN SMALL FOREST PRODUCT ENTERPRISE ACTIVITIES IN AFRICA

In six countries surveyed recently in southern and eastern Africa - Botswana, Kenya, Lesotho, Malawi, Swaziland and Zimbabwe - an estimated 763 000 people were employed in 408 000 small enterprise units engaged in the following activities based on the transformation or commercialization of forest products:

activity	persons	units
grass, cane & bamboo products	321 600	203 300
woodworking	202 500	68 200
other forest product manufacturing	88 400	51 400
forest products trade	150 100	84 300

In the period covered by the surveys, the net number of new forest products enterprises increased. Enterprise creation rates were very high, but so were closure rates, particularly in the early years of an enterprise. Employment in the small forest products enterprises that had survived grew at 11.5% per year, with a much faster rate of growth for woodworking (30.6%) than in grass, cane and bamboo (3.1%), and in trade (18.5%). At the time of the surveys, about 80% of jobs existing in grass, cane and bamboo, and 78% in forest products trade, came from new start-ups. In woodworking, in contrast, 55% came from expansion of existing enterprises.

Only a minority of enterprises grew at all. Of those that did grow by adding to the workforce, most grew only by small amounts. Only in woodworking did a substantial share (30%) of the growth in employment come from enterprises that graduated from being very small to intermediate sized enterprises.

Above average growth rates were more likely to be found in enterprises that were young and which started out small. Enterprises located in commercial districts were more likely to have higher growth rates than their counterparts operating out of the home. Female-headed forest products enterprises were likely to grow less rapidly than those operated by males.

Source: Arnold *et al*. 1994

A second area of concern relates to constraints that the poor often face in being able to exploit the opportunities offered by forest-based activities. The poor may not have access to the skills, technology or capital necessary to be able to benefit from market opportunities; or they may depend on traders or other intermediaries for access to those markets. Thus benefits, and sometimes control, accrue to the wealthier and more powerful individuals within communities, or to outsiders. Again different forms of assistance are probably required to those with different needs and potentials (Arnold *et al.* 1994).

3.3 Changes in patterns of access to forests and forest outputs

3.3.1 Pressures on common pool forest resources

Nearly everywhere users of forest products face a decline in the size or quality of the resources they use to obtain supplies. Much of the decline in forests used as common pool resources has come about because of economic, demographic and social change: growing population pressure, market

opportunities and pressures, the option of purchasing rather than producing certain goods, agricultural technologies such as adoption of tractors which enable the cultivation of larger areas, greater capacity to obtain benefits through privatization, and changes in rural labour availability and allocation. This is illustrated for the plain areas of India in Box 2.

State policies, legislation and initiatives represent an equally important set of factors that can have negative impacts on people's access to forests. Perhaps the most pervasive form of state intervention has been expropriation of forest and woodland as forest reserves or some other form of state property. At the very least, this involves replacing users' rights to the forest by a more limited set of privileges to use specified forest products, usually governed by restrictive regulations and subject to the whims of government officials (Lynch & Talbott 1995, Davis & Wali 1993, Shepherd 1992).

BOX 2: COMMON PROPERTY MANAGEMENT AND USE IN DRY AREAS OF INDIA

In the dry rainfed plain areas of India, the main role of common pool resources traditionally was to complement the highly variable level of private agricultural production. Traditionally the sustainability of these common pool resources was protected by an array of controls, mainly designed and enforced at local level. A major study (Jodha) has shown that over 30 years there have been huge changes in CPR availability, management and use. This has been caused by several factors: land reforms (which led to abolition of a number of levies and taxes on CPR users), the replacement of traditional village leadership with elected village councils (which resulted in decreased regulation of common land-use), expanded private land ownership, expanded credit and subsidies for animals, and more marketing links for common property related products (mainly milk, meat, wool, fuel, and various other bush and tree products). Of the communities that in 1950 exercised controls such as rotational grazing, seasonal restrictions and watchmen, only 10% retained such controls in 1980, while use of fines, taxes and fees had ceased altogether.

The large-scale redistribution of land to individuals that has occurred under land reform programmes, together with encroachment, has greatly reduced the size of communal lands. The remaining area is typically heavily degraded and under open access usage, and the range, quality and quantity of products collected have often been sharply reduced. Nevertheless, the rural poor still depend heavily on common pool resources. In his village study, Jodha found that from 84% to 100% of poor households depended on them for fuel, fodder and food items (compared with no more than 20% of richer households). Poor households also obtained from 14% to 23% of their income from products harvested from common pool resources. This growing differentiation within villages has led to greater conflicts about how to use the common pool resources.

However, some local management systems have survived, at least in part. From his analysis of 176 specific common pool resources which exhibited at least one instance of local concern to protect them, Jodha suggests that small size, isolation, and maintenance of traditional social sanctions, are village level factors associated with preservation of common property management. More specifically, greater distance from market centres, smaller and more visible common pool resources, less occupational change, less factionalism, less socio-economic differentiation, and less dependence on state patronage were found to be important in this respect.

Source: Based on Jodha 1990

Greater state control over local activities also affects access to, and local control of, forests . This trend has increased in recent times as those coming to power after independence seek to build nations from usually diverse, fragmented and dispersed populations. The inevitable conflicts with existing power structures and allegiances encourage measures to undermine and remove previously functioning local governance and management systems, replacing them with political and bureaucratic structures and regulations. This situation is not confined to forestry, but has had a particular impact in this sector as the state has usually been unable to provide effective control over such large areas. Although undermined or suppressed, existing structures have not been replaced by an effective alternative (Thomson 1992, Shepherd 1992).

In many situations, therefore, circumstances favouring local collective control and management no longer exist, or are much weaker. One widespread result of ineffective communal control of local forest resources is an environment in which household decision-making and market forces fail to generate sustainable use of local forest resources. The insecurity of tenure offered by such changes, or threats of change, tend to favour short- term activities, such as destructive harvesting and shifting cultivation, which guarantee more certain though lower returns than might be obtained from forest conservation and management (Neumann 1996).

3.3.2 Managed fallow, enriched forest, etc.

In many situations, production is increasingly concentrated on, or close to, farms because of rising costs, growing pressures on labour and more difficult access to off-farm supplies.

A study in a forested area in Sierra Leone, for instance, found that only 14% of all hunted or collected foodstuffs, and 32% of the medicinal plants, came from the forest; the rest came from fallow and farm bush areas (Davies & Richards 1991). Similarly, in southern Ghana, nearly a half of those surveyed in 1995 reported the farm bush as their most important product source, and more than a quarter cited farms. Only a minor part of the forest product activity in the area was thus based on resources gathered from the forest (Townson 1995b).

In many situations, fallow land, farm bush and even the forest itself is actively managed by local users to conserve or encourage species of value. The babau palm in northeast Brazil has long been integrated into local farmers' shifting cultivation system (May *et al.* 1985), and farmers in the flood plain forests of the Amazon area manage them to favour the economically more valuable species they contain (Anderson & Ioris 1992). In west Kalimantan, forest areas near communities with improved access to markets have been managed in favour of 'orchards" of the wild fruit tree durian (Padoch & Padoch 1996).

3.3.3 Planted trees on farms

Planted fruit trees appear everywhere at an early stage in agricultural settlement. As natural tree stocks diminish, the amount and range of tree planting by farmers generally increase (Arnold & Dewees 1995). However, tree management decisions by farmers reflect much more than diminishing stocks of naturally occurring tree stocks. Tree planting may be explained as one or more of four categories of farmers' response to change (Scherr 1995, Arnold & Dewees 1995), which are designed:

- to maintain supplies of tree products as production from off-farm tree stocks declines due to deforestation or loss of access;
- to meet growing demands for tree products as populations grow, as new uses for tree outputs emerge, or as external markets develop;
- to help maintain agricultural productivity in the face of declining soil quality or increasing damage from exposure to sun, wind or water run off;
- to contribute to risk reduction and risk management in the face of needs to secure rights of land tenure and use, to even out peaks and troughs in seasonal flows of produce and income, and in

seasonal demands on labour, or to provide a reserve of biomass products and capital available for use as a buffer in times of stress or emergency.

Tree resources on farms thus serve well-defined purposes: production of fruit or fodder, shelter from the wind, restoration of soil nutrients, boundary demarcation, etc. The patterns of tree stocks and tree cover that emerge on farm lands are therefore quite different from those found in natural forests. Thus, while tree growing by farmers may be in part a response to the depletion of tree stocks from deforestation, and can create additional supplies of wood and other forest products, it does not recreate forests. Trees in farming systems are therefore more usefully considered not as part of the forest resource, but in the context of farm household livelihood needs and strategies.

Two important factors are likely to affect farmer decisions about tree management: the influence of subsistence and market opportunities and constraints; and the relationship between tree crops and the farm household's availability of land, labour and capital. Most farm level tree management is primarily to meet household needs. Trading in tree products usually develops as local markets for them emerge, as shortages appear, as increasing demands on the time of household members leave less time for gathering household needs, and rising cash incomes give some people the option of purchasing rather than gathering or growing. This is achieved initially by increasing the quantities of products being produced for the household. Adoption of tree crops to supply urban and industrial markets is more likely to be practised by farmers in areas where agrarian change has evolved further towards greater involvement in commodity markets and an entrepreneurial approach to agriculture based on cash crops. In these markets, however, farmers can encounter forms of competition and policy constraint that can make it difficult for them to compete (Dewees & Scherr 1996).

Historically, the role of trees on farms was primarily shaped by growing pressures on limited amounts of arable land. However, as farm households need to depend more on income earned from employment off-farm, labour rather than land is widely becoming the main resource limitation determining farmer options. Because tree growing requires lower labour inputs to establish and maintain than most other crops, such shifts in the ratio of labour to land can encourage greater reliance on tree crops in a number of different circumstances (see Box 3). However, where trees lock up significant amounts of land, tree crops may only be an option for people who do not rely on that land for household self-sufficiency, such as larger farmers or those with sufficient off-farm income (Dewees & Saxena 1995).

BOX 3: TREES AND LAND AND LABOUR ALLOCATION

As tree planting and husbandry requires less inputs of labour than most other crops, it may be considered a feasible land-use option when the opportunity costs of labour are high because there are good wage opportunities in other labour markets.

Problems with supervising and hiring-in labour can act as incentives for households to plant or to maintain trees instead of other more labour-intensive crops.

Older households, having a smaller resident active labour force on which to draw, may adopt less labour-intensive forms of land-use such as tree growing.

Trees may be planted by households with access to sufficient income from non-farm sources, which consequently have less need to cultivate their land intensively.

The quality of land within a holding, as well as across holdings in a given agroecological

zone, may vary greatly. Trees may be planted in those areas which would require most labour to cultivate in order to even out labour demands.

Trees may be planted and maintained as an alternative to sale of land that is surplus to the household's immediate needs in order to retain resources which can be passed on to the next generation. Tree growing may also be preferred to renting out of surplus land because the latter might jeopardize the tenure holder's long-term rights of ownership.

Source: Derived from Dewees & Saxena 1995

A tree crop that can be appropriate in one set of circumstances would therefore be unsuitable in another. Furthermore, these circumstances often change, sometimes quite rapidly. It is important to bear in mind that better functioning factor markets give greater access to capital and other inputs, possibly triggering a move away from the present spread of extensive and site-enhancing uses of tree cover, towards adoption of more valuable crops and intensive land-uses.

3.3.4 Implications for the poor

The information summarized above indicates that many people have become less reliant on the forest as a source of necessary products, maintaining or increasing output from farm tree, bush and managed fallow. This state of affairs has two explanations: changes in the quality, access and cost of gathering and production from forests, and the possibility to meet market and other pressures more readily met from resources under the control of the household or the individual.

However, the shift from forest to farm is only possible for those who have access to land, and sufficient resources to work the land. In addition, in many situations poor farmers still need to look to off-farm resources to help supplement what they can produce on-farm. In areas where fallow cycles are declining, bush fallow is likely to be diminishing as a resource. Not all the landless can find, or find enough, wage employment. For all of these and others common pool forest resources, and local management and control regimes that enable rural people to use these resources in an ordered manner, continue to be important (e.g. in the Indian situation illustrated in Box 2). This helps explain the recent revival of interest in this form of governance and initiatives to strengthen or reinvent them in forms that are more compatible with contemporary needs and constraints.

Although many earlier collective regimes have declined or disappeared in the face of demographic, social, economic and political change, it is increasingly clear that many contemporary situations present common property aspects. This is still not acknowledged adequately, probably due to failure to understand the complexities of a particular tenure situation, or because these have been obscured by policies and practices biased towards privatization or control by the state. In recent times, there is also growing evidence of indigenous initiatives to revive, or to create new, common property regimes (Arnold in press).

4. RIGHTS, CONTROL AND THE INSTITUTIONAL SUPPORT SETTING

4.1 Choice among forms of governance

As noted earlier, there are two reasons for much of the change that has negatively affected people who rely on forest and forest products for important inputs into their livelihood systems: the weakening and sometimes phasing out of user rights, and the erosion and breakdown of the regulatory systems

that enabled users to exercise those rights in a regulated and sustainable fashion. In this section, we look at some of the main issues arising from initiatives to stem and reverse this trend.

It is often unclear which institutional models might be appropriate at present in situations marked by increasing conflict and less commonality of purpose, and increasingly ineffective conflict resolution mechanisms (Neumann 1996). Some of the problems that arise stem from failure to distinguish between property rights to use a resource and the rights related to the resource itself (Ostrom 1990). This becomes particularly important in understanding the situation of forests, where much of the resource is owned by the state, but most use is by individual, collective or industrial entities - frequently with multiple users exercising rights to different products or to use at different times of the year.

Another important area of misunderstanding relates to the relative merits of private and common property. The preference for private property, which underlies much of the transfer out of common property, rests on the argument that only private property rights ensure that the holder will use resources efficiently and responsibly. However, much of the debate about privatization assumes that private property is synonymous with individual ownership. This overlooks the fact that much private property is held by business partnerships and shareholder-owned industrial corporations, and other collective entities. As access to use of common property is also confined to members of a defined user group, which excludes other potential beneficiaries, it therefore has some of the attributes of shared private property, in the sense that it secures for the group the same use rights as private property. Thus, private property and common property are more usefully seen not as being mutually exclusive, but as two types of property system with a good deal in common (Bruce 1996, McKean 1995).

Historically, common property regimes have evolved in places where the demand on resources is too great to tolerate open access use any longer. Thus property rights to resources have to be created, but some other factor makes it impossible or undesirable to allocate the resource itself to individuals (McKean 1995). By definition, management of forests as common property is situation specific - tied to individual local user groups or communities, and thus most research and attention focus on the micro factors that influence its functioning at this level. Investigation and intervention have mainly concerned the interrelationships between the resource, the community, local institutions, etc.

However, the success of local solutions is ultimately governed by broader political, economic, and institutional factors that determine whether or not common property is an appropriate option. If their influence is not understood and taken into account, there is a danger of creating common property regimes and institutions that are not appropriate, or feasible, in a particular situation. This needs to be stressed; many recent initiatives have attempted to create or maintain systems based on local collective control in situations where political, economic and demographic pressures (of the kinds discussed earlier) make this no longer viable or appropriate.

When assessing potentially appropriate forms of governance, it will be necessary to take into account the implications of the trends in forest product use and dependence discussed earlier. For instance, if people are moving out of forest product activities, or should move out in the near future, is it still as necessary to have effective local control and management of the forest resource?

Given the degree of variation from one situation to another, there are no universally applicable models (Ostrom 1990). This point should be underlined as some of the main initiatives in support of collective management of forests have attempted to apply uniform solutions to many different situations, with poor results. Analysis therefore needs to be pursued within a framework that recognizes this diversity.

4.2 Local collective control

By definition, collective systems can only function if the group is organized, or can organize itself, to function collectively. It will be necessary to coordinate users in order to create and enforce user

rules, and to provide individual members with access to inputs and services that are more effectively organized collectively. Box 4 reproduces a list of core features of successful user group institutions, which reflects lessons learned from long-standing common property systems, as well as from more recent experience (McKean & Ostrom 1995).

BOX 4: DESIGN PRINCIPLES FOR COMMON PROPERTY REGIMES FOR FORESTS

User groups need the right to organize their activities, or at least a guarantee of no interference.

The boundaries of the resource must be clear.

The criteria for membership in the group of eligible users of the resource must be clear. Users must have the rights to modify their use rules over time.

Use rules must correspond to what system can tolerate and should be environmentally conservative to allow a margin for error.

Use rules need to be clear and easily enforceable.

Infractions of use rules must be monitored and punished.

Distribution of decision-making rights and use rights to co-owners of the commons need not be egalitarian, but must be viewed as "fair".

Inexpensive and rapid methods of resolving minor conflicts need to be devised.

Institutions for managing very large systems need to be layered, with considerable authority devolved to small components.

Source: McKean & Ostrom 1995

Other factors that are likely to affect the capacity of local institutions to organize forest management as common property include: physical and technical characteristics of the resource, characteristics of the group of users, attributes of institutional arrangements (Rasmussen & Meinzen-Dick 1995).

4.2.1 Characteristics of the resource

An important consideration in deciding whether a forest product resource is more appropriately controlled and managed by the group of users as a whole, or by individual users, is whether or not it can be effectively divided among the latter. McKean (1995) has identified a number of natural resource attributes which favour placing property rights with groups:

Resources that are simply indivisible or, like many forest ecosystems, have to be managed in their entirety in order to maintain the interactive environment needed to produce some of their outputs.

Large resource systems, such as range and woodland in arid areas, in which there is much uncertainty about the location from year to year of the most productive zones.

Resource systems with congested and competing uses, in which coordination among users is essential in order to cope with issues arising from multiple uses.

Resource systems where group control and thus group enforcement of rules can be an efficient way to cope with the costs of monitoring otherwise porous boundaries and of enforcing restraints on use within those boundaries.

Others (IFAD 1995) have also highlighted the role common property can play where resource productivity is too low to support private holdings. Where forest resources exhibit some or all of these characteristics, it is likely that they would be good candidates for management as common property regimes. Many forest use situations clearly qualify.

However, it should be kept in mind that many forest situations are characterized by multiple uses, for different products or by different groups, or at different times of the year. In practice it may be appropriate - as is often the case in practice - for forests to be held under overlapping combinations of private, state and common property regimes (Bruce 1996, Campbell 1990). In short, it may make sense for some uses in a given forest area to be controlled collectively, but for others to be controlled privately, or by the state.

4.2.2 User group size and effectiveness

It has been widely argued that small homogeneous groups, restricted to people with similar views on how to use resources, are more likely to be successful than larger groups. However, although the task of dividing responsibilities and benefits may favour small and cohesive user groups, the task of managing and exercising control over the resource may call for a larger body that encompasses all those with a claim on the resource. Authority to negotiate with the state and to protect boundaries also appears to favour larger bodies (Ascher 1995, Agrawal 1994).

The benefits of size may also be achieved by "nesting" the user group in a larger local body, such as the village leadership group, a panchayat committee or the district council. Alternatively, user groups can come together to form larger associations, as in Nepal (Hobley 1996a).

Migration, market integration, changing attitudes, and increasing wealth, may offer opportunities to benefit from privatization, or introduce the danger that the user group is captured, or usurped, by an emerging elite within the broader community. As communities change in these ways, the composition or objectives of a user group are likely to change as well.

4.2.3 Equity, participation and independence

Another aspect that can require attention is the extent to which the interests of those who run or control the organization coincide with the interests of the forest user group, or groups. Elected local government bodies have often proved to be unsatisfactory in this respect, because of their predominantly political and bureaucratic agendas, and because they generally cover much larger areas and populations than a forest user group.

An existing communal institution, reflecting social values from the earlier period when it was set up, and long-standing and entrenched patron-client relationships within a community, may also not adequately reflect the current interests and concerns of all its present users. In particular, there can be continued widespread exclusion of, or failure to properly involve, women and other disadvantaged groups (Hobley 1996b, Sarin 1993). Creating new institutions can also be problematic in this respect. Previous users of the resource may find themselves excluded, or left worse off. For instance, the claims of people close to a forest may be given priority over those of users further away who are equally dependent upon the forest. Or the institution may become dominated by particular interests or by the forest department (Ascher 1994). A recent study on the subject (Thomson & Freudenberger 1996) has consequently stressed the importance of carefully weighing up the potential for basing a common property management intervention on existing institutions, even with some of the constraints outlined above, against the difficulties of creating functional new institutions.

Nevertheless, it is becoming increasingly clear that management by non-representative or non-accountable local bodies runs the risk of defeating the social objectives of "participatory" forestry. Devolving control or decision-making powers to such bodies is more likely to give resource

control to particular individuals or groups of individuals within the community, effectively privatizing use rights in their favour (e.g. Ribot 1997, Hobley 1996b).

4.3 Conflicts and conflict management

Multiple uses and the different categories of user or stakeholder mean that local exploitation of forests and forest resources is open to conflict and dispute. For instance, a community's right to exclude under a common property regime is likely to be challenged by other groups seeking access to the resource, and not everyone within the community is likely to agree with the creation or conditions of the regime (Bruce 1996).

In their special paper on the subject, Desloges & Gauthier (1997) summarize various typologies of community forestry conflicts, classified on the basis of different but complementary perspectives:

- the space where conflicts occur, according to different property regimes (private, state, common, open access) or varying perceptions of the same land, for example land officially classified as forest land but traditionally used for shifting agriculture;
- the actors involved in the conflict and the levels of conflict: (i) within communities, (ii) between communities, (iii) between community and government, (iv) between NGOs and government, (v) between entrepreneur and community, (vi) between NGO and community, (vii) between government agencies at the same or different levels;
- the different issues at stake: subsistence, economic, environmental, social, cultural.

They point out that conflicts or disputes can stimulate progress. If not resolved, conflicts can equally be very debilitating, and can weaken or even destroy the institution involved. Effective institutional arrangements therefore need to have recourse to conflict management or dispute resolution mechanisms, which may be legal mechanisms, or less formal "alternative" arrangements (see the special paper for a fuller discussion).

4.4 Coping with market pressures and opportunities

Market pressures, and opportunities, are among the more powerful factors affecting control and use mechanisms. As noted earlier, commercial demand is likely to increase pressures from users both inside and outside the user group to use the resource, which can increase the likelihood of conflicts of interest and make the process of control more complex and difficult. This can cause breakdown of the mechanisms for exclusion and control, leading to overharvesting and degradation of the resource. Where transactions have been traditionally based on reciprocity, exposure to market forces and market values can lead to an even more fundamental breakdown within a community (Chase Smith 1995).

On the other hand, market opportunities can improve product value-added and increase economic incentives to control their use and management. In weighing up the positive and negative impacts of commercialization on forest management and use practices, McElwee (1994) suggested that: "communities who seem best able to adapt to commercialization are either those with flexibility in determining whether to participate, which allows control over the degree of change, or are those in which change has been less rapid".

Some of the more ambitious and complex instances where local people have benefited from demand for their forest resources have required the creation of new institutional arrangements that are specifically geared to commercial operations, as in the following examples: in Quintana Roo, Mexico, ejido groups function as industrial corporate entities, with a cooperative acting for all the groups in the market and in negotiations with the state (Richards *et al.* 1995); in Korea, an umbrella cooperative organization gave village level forestry associations marketing muscle and access to support services

(Gregersen 1982); and in the CAMPFIRE programme in Zimbabwe, communities have formed joint ventures with the private sector to gain access to the specialized safari and hunting skills and experience needed to generate commercial revenues from their wildlife resources (Murphree 1996).

Market impacts not only constitute one of the most important factors that influence the links between people and forests, but also one of the most complex and least understood. In recognition of this, a recent meeting convened by CIFOR recommended this as a priority area for further research (CIFOR 1996).

4.5 The role of government

4.5.1 Policy and strategy

As shown earlier in the paper, policies, legislation and their application and enforcement widely discriminate against local collective management of forests in situations where otherwise it would often appear appropriate. Effective local control, or joint control with the state, requires government willingness and ability to reverse this tendency, and to legitimize and empower local institutions, helping them enforce their rights. Given the chronically weak political influence of communities compared with government authority, this is only likely to come about through centralized action.

Concern about the size and the role of government has recently been reflected in initiatives to halt and reverse the continuous accumulation of responsibility and power towards the centre. This trend has led to moves to decentralize activity to local level and to devolve activities to private and non-governmental sectors which they can carry out just as effectively and efficiently as the state. Growing interest in local control and management of forest resources owes much to these new priorities.

However, some consequences of the ways these new policies have been pursued can themselves threaten local users. For instance, the widespread titling of land to individuals in many African countries, in pursuit of agricultural growth, threatens the complexity of overlapping rights that previously enabled different user categories to access some of the resources on those lands (Neumann 1996).

A more widespread concern is the actual extent to which the state relinquishes authority and responsibility through some of these devolution programmes. One observer has pointed out that "Recent decentralization activities within the forest sector in India could be considered to have led to greater penetration of the state into the village, without the villagers acquiring an equal degree of power to question the actions of the state ... In many situations, village forest committees established under joint forest management have effectively become an arm of the Forest Department, rather than being developed as independent organizations that could challenge the authority of the department" (Hobley 1996).

State reluctance to relinquish power is widespread. Even in Nepal, which benefits from unusually progressive policies and legislation in this area, the state reserves the right to reverse the process of devolving control over forest land to local groups and retains ownership of that land. Where real control has been transferred to local communities, encouraging results have been reported (e.g. Wily 1997).

4.5.2 Bureaucratic reform

One reason for tardiness in implementing change is that it can be difficult for government departments to give up the power, status, and control over budgetary and extra- budgetary resources and income that stem from their control over large forest areas. Furthermore, in many countries, these departments continue to be responsible for regulatory functions, and for direct management of large parts of the forest estate. Understandably, internal confusion and tensions arise when these functions have to be combined with transferring control of parts of the forest estate to other groups (Gilmour & Fisher 1991).

Another concern is the difficulty forest departments experience in adapting to the management of forests as common property. Heavy promotion of participatory management, often at the urging of donors, imposes pressures on the forestry bureaucracy that can be difficult to sustain. It has been argued that the need for change has been promoted ahead of the capacity to implement it. The demands placed on foresters have shifted radically, and criticisms that they have failed to respond appropriately often aggravate the situation. A period of consolidation would be desirable to allow more considered deliberation of how best to deal with these issues (Vira 1997, Hobley 1996).

4.5.3 Removing impediments to market access

Because of the high priority accorded to conservation, many governments have instituted forest and environmental policies and regulations aimed at limiting rather than encouraging private production and sale of forest products. Restriction of output is often favoured as a conservation means as it is considered an easier option than addressing the issue of land clearance (Dewees & Scherr 1996).

Government interventions in support of tree growing by farmers have also often been poorly targeted, concentrating on subsidizing tree establishment and usually focusing on just one tree- related issue (generally fuelwood supplies). Recently more holistic approaches that recognize farmers' multiple objectives, and the need to balance tree-based solutions against alternative courses of action, have suggested that interventions should aim at matching production to demand. In particular, higher priority should be given to changing policies and practices that currently hamper farmers' access to markets and which depress market prices for their tree products (Dewees & Scherr 1996), including the following: lack of market information, poorly functioning trading systems serving small producers, competition from subsidized supplies from state forests and plantations, fuelwood prices depressed by subsidies to alternative fuels, and restrictions on private harvesting and trading of wood products. By hindering farmer access to tree product markets, governments inadvertently run the risk of interfering with the shift from a subsistence to a market economy.

4.6 NGOs and the support process

Many forest services still face rigidity and constraints in making the transition to a role that supports tree and forest management by local people; this has resulted in an increasingly important role for non-governmental organizations (NGOs) in many participatory forestry programmes. NGOs can act as intermediary between the state and users, facilitating change at village level and training government staff in community organizing skills. In the Philippines and Thailand, for instance, NGOs are instrumental in institutional support groups that have played a key role in identifying and negotiating mutually agreeable strategies to pursue. They have also started producing guidelines and manuals to provide a framework for field workers' activities.

NGOs are also instrumental in promoting better communication in participatory forestry. As emphasized in the special paper on the subject (Ramirez 1997), better communications are becoming increasingly important for transfer of technology, promoting public awareness, and enhance stakeholders' ability to negotiate on forest resource management issues.

However, not all NGOs are better equipped or skilled, or more appropriately motivated, in such tasks than the government departments they seek to replace. Recently it has become increasingly obvious that some NGOs are pursuing agendas of their own (e.g. related to environmental issues), which do not necessarily match the interests of the populations they work with.

Another restricting factor is tension between NGOs and the government, or NGOs and government departments such as forestry, because of perceptions that they are pursuing competing goals. At the same time, it is now evident that forestry departments sometimes delegate tasks to NGOs to avoid having to do them themselves, i.e. in order to "avoid internal change" (Dove 1995). Instead of

considering NGOs as an alternative channel for providing external support to groups managing forests as common property, it would be better to draw on the complementary strengths of NGOs and forest departments,

BOX 5: INTERNATIONAL FORESTRY RESOURCES AND INSTITUTIONS (IFRI) RESEARCH PROGRAMME

The International Forestry Resources and Institutions (IFRI) research programme was recently initiated as a network of collaborating research centres, with the support of the Forests, Trees and People Programme at the Food and Agriculture Organization of the United Nations, the Ford Foundation, the MacArthur Foundation, and the National Science Foundation. The objective of the programme is to undertake a multi-disciplinary approach to the collection of valid and reliable data about the extent and composition of forests so that comparisons can be made across forests within the same country, across forests located in similar ecological zones in multiple countries, and across time.

The initial studies conducted with the IFRI methodology underscore how forests are associated with multiple products (e.g. wood for construction and/or fuel, wildlife, water, fruits, fodder, seeds, shade, fertile soil and even stones) and multiple user groups (defined by property rights, product, location, citizenship, religion, caste, ethnicity, property rights, technology, income, access) resources. The variety in local institutions discovered by collaborating research centres also discourages the view that uniform forest policies are likely to work when imposed on a country as a whole. The diversity of conditions, rules, and outcomes found in the initial IFRI studies, has equipped policy-makers with an assessment of the complexity of forestry resources as well as examples of management successes and failures, thereby assisting in the design of better policies.

The IFRI programme has concentrated first on the design of ten research protocols and careful field methods for collecting valid and reliable information about micro-level institutional, socioeconomic and demographic, and local physical factors that affect human incentives and behaviour and the impact of this behaviour on local forests. It is the first study to our knowledge that combines systematic forest mensuration techniques for a random sample of plots in each forest with systematic data collection regarding local institutions and socio-economic and demographic variables. In the early stages of this research programme, a small but growing number of case studies have been completed in the countries where initial research was conducted: Bolivia, Ecuador, India, Nepal, and Uganda.

Additional data are currently being collected from new sites in India, Uganda, Nepal, Bolivia, and Ecuador, and return visits are planned in 1997 to initial study sites in Uganda and Nepal. By monitoring sites over time, colleagues associated with the IFRI research programme will be able to assess how essential processes work over time. Additional collaborating research centres are now operating in Kenya,Madagascar, Mali, Tanzania as well as in other parts of India. As the number of sites (and particularly the number of sites monitored over time) continues to grow, the policy relevance of these studies will increase exponentially. Efforts are now under way to link local IFRI studies to data collected by remote satellites, thus enhancing to the generalizability of IFRI findings.

Source: Based on information provided by Elinor Ostrom, Coordinator of the IFRI Programme at the Center for the Study of Institutions, Population, and Environmental Change, at Indiana University in Bloomington, Indiana, USA.

4.7 Improving the knowledge base

Throughout this paper, we have drawn attention to the importance of improving understanding of what is happening and why it is happening. Such knowledge is essential in order to identify people's future requirements from forests, and the most appropriate policies and measures to make this possible. To this end, many aspects of the knowledge base need to be worked on.

Many issues requiring attention can only be adequately understood within a framework that takes account of the inter-relationships between the socio-economic, ecological and institutional factors that influence the forest sector at local level. Box 5 provides information on a major interdisciplinary research programme designed to address this need. Comparable data on a range of factors are collected from sites in as many different situations as possible, fufilling two objectives: providing a more holistic approach to analysing local situations, and, as the number of sites and data sets builds up, a basis for making comparisons across different situations, and over time.

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