

# The politics of community participation in natural resource management: lessons from community forestry in Nepal

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## Summary

Australian aid to Nepal and Australian foresters' assistance to Nepalese forestry have been very influential in the recent development of forestry in Nepal, a country widely acknowledged as being at the forefront of community forestry. This paper examines the experience of three Forest Users Groups participating in the Nepalese community forestry program. Using a mix of qualitative and quantitative methods, information was obtained from 72 households, 21 key respondents, 6 focus group discussions and 3 vegetation assessments. The study demonstrates that the condition of forests has improved compared with the highly-degraded state from which most community forests started, but that community forestry may not have produced the significant biodiversity conservation outcomes expected by many of its supporters. Further, the forests were found to be underutilised, largely because powerful actors emphasise protection-oriented management to ensure forest conservation. As a result local communities, particularly poorer groups, gain little benefit. We conclude that the sustainable conservation as well as utilisation of forests managed by local communities is a major challenge requiring a deeper understanding of the political ecology of community forestry.

*Keywords:* community forestry; conservation; production; forest products; forest policy; administration; political power; development programmes; human ecology; Nepal

*Abbreviations:* CF = Community Forestry; DFO = District Forest Office; DoF = Department of Forests; FUG = Forest Users Group; FUGC = Forest Users Groups Committee; HQI = Household Questionnaire Interview; MPFS = Master Plan for Forestry Sector; RFA = Rapid Vegetation Assessment; SSI = semi-structured interview; VDC = Village Development Committee

## Introduction

The role of local communities engaged in collective action has been increasingly recognised as important in the conservation and sustainable utilisation of natural resources. The management of forests has been at the forefront of this shift in focus from state and private management. The active participation of local communities in forest management and use, loosely known

as community forestry (CF), has become one of the popular approaches to sustainable forest management. CF is particularly popular in rural settings in developing countries, with Nepalese CF being recognised as a world leader (Brown *et al.* 2002; Mahanty *et al.* 2006). The important role of local communities in sustainable management of forests was highlighted by the publication of *Forestry for Local Community Development* (FAO 1978). It was affirmed by the 1992 Earth Summit in Rio de Janeiro and reaffirmed by the 2003 World Summit on Sustainable Development in Johannesburg. The forests owned or managed by communities occupy more than 25% of the forest estate in developing countries, with the area expected to double by 2015 (Bull and White 2002).

Nepal is of particular interest to Australian foresters for two significant reasons. First, Australia has been involved in Nepalese forestry since the early 1960s, beginning with reforestation projects designed to meet the increasing demand for timber and fuel for the growing cities of the Kathmandu Valley (Griffin 1988; Cribb 2006). The aid projects, involving about \$40 million in investment, are directed at improving the physical environment and the quality of life for local people in Nepal (Cribb 2006). Second, the generally positive experience of community forestry in Nepal potentially contains lessons for other countries such as Australia that have, or may engage in, forms of community forestry now or in the future (Roberts and Gautam 2003). In order to benefit from the Nepalese experience, it is important that Nepalese community forestry is studied in a critical and rigorous manner.

A fundamental assumption of community participation in forest management is that individual forest users will cooperate to manage and use forest resources in a sustainable way. There are, however, contradictory explanations about collective behaviour of local people involved in resource management. It has been argued that cooperation among self-interested individuals is often impossible because it may actually harm individual interests (Olson 1965; Hardin 1968). Olson (1965, p. 2) argued that '... rational self-interested individuals will not act to achieve their common or group interest'. Similarly, Hardin (1968) argued in his paper, *The Tragedy of the Commons*, that the individual's rational action results in collectively irrational outcomes. It has

been thought that when individuals share ownership of resources with others they are prone to over-use those resources (Demsetz 1967; Hardin 1968).

Responding to the pessimistic predictions by the 'tragedy' proponents, many geographers, political scientists, anthropologists and natural resource analysts have demonstrated that many societies have devised, maintained or adapted collective arrangements to manage natural resources for centuries (Blaikie and Brookfield 1987; Ostrom 1990; McCarthy *et al.* 2004; Agrawal and Chhatre 2006). These writers advocate Common Property Regimes (CPR<sup>1</sup>) and argue that Hardin confused common property (i.e. where access and use is controlled effectively by community group(s)) with open access (i.e. where effective management and control is lacking), failing to distinguish between common property and open access resources (Ciriacy-Wantrup and Bishop 1975). The tragedy of the commons results not from the sharing of rights, but from the absence of rights. There is now a broad consensus that collective management of natural resources by their users is an appropriate system for achieving efficiency, equity and sustainability.

A growing number of critical scholars argue that the above propositions are insufficient to explain why individuals collectively act (or do not act) to manage natural resources. The assumption that individuals are rational actors who behave in their best self-interest to maximise material economic gain has been challenged by a countervailing position that considers trust, social norms and power as influences that can significantly offset pure self-interest (Petrzelka and Bell 2000; Granovetter and Swedberg 2001). Both explanations, however, reduce humans to autonomous, profit-maximising individuals whose economic behaviour can be extracted from social relations and culture (Uphoff 1992; Fisher 1994). For this reason, authors such as Mearns (1996) and McCarthy *et al.* (2004) argue that collective action and resource management are better understood by analysing them as embedded in social, economic and political situations. Moreover, decisions made by local communities to manage resources are highly integrated with the social, economic, political and ecological dynamics at various levels (Robbins 2004). Many authors are now calling for resource management to be analysed through the concept of embeddedness (Mosse 1997; Cleaver 2002; Shrestha 2005). Little empirical evidence exists, however, on how and why local communities conserve and sustainably utilise resources and realise benefits in the context of changing social, economic, political and ecological circumstances.

Community forestry aims to link the conservation of forest resources with the development needs of rural populations (Gilmour 1995). And it is further argued that 'the focus on improved forest management and reforestation activities involving FUGs have beneficial biodiversity results' (Hill 1999, p.13), and that conservation and biodiversity objectives are of high priority in many international and national programs (Warner 1997; Arnold 2001). In fact, current policy reforms are characterised by a transfer of extremely limited and overly specified power to local

institutions, under tight central government oversight (Ribot 2002). In the policy implementation phase, responsibility and authority are often devolved to the wrong people, such as to wealthy and traditionally powerful members of the society (i.e. elites) who are, in practice, appointees of the central government (Fisher 2003). In situations where there is limited devolution of power and or the local elites are empowered, the conservation of forests is central while the development needs of the communities are peripheral. Hence there is a critical need to link the conservation of forests and their utilisation with power and authority exercised by actors operating at various levels in the polity.

The study presented here is an attempt to critically investigate the politics of community participation in the conservation and utilisation of forests in Nepalese CF. We do this by asking the following research questions:

- What is the condition of forests managed by the local communities?
- What causes forest improvement (or degradation)?
- What are the benefits of CF, and who receive them?
- Why are the forests conserved and utilised in particular ways?

This paper is structured as follows. In the next section, we review CF policy in Nepal, followed by some empirical evidence on the conservation and utilisation of forests under Nepalese CF. We then outline methodological strategy, case studies and data collection. Results of three case studies follow, and we identify key processes and outcomes relating to the conservation and utilisation of forests. We then analyse how and why the forests are conserved and utilised in particular ways, and the implications. We conclude by summarising key points and their theoretical, policy and practical implications.

## Community forestry in Nepal

Nepal<sup>2</sup> is a small, landlocked kingdom located between the giant neighbours of India and China. It has the world's highest mountains (including Mt Everest), it is the birthplace of Buddha, and it is now a world leader in CF. The CF policy emerged in Nepal in the 1970s after the failure of the previous forest policy to halt deforestation, and a realisation of the need to build an effective forest management response based on local needs and the indigenous systems. Conceptually, the change in forest policy was a paradigm shift from the state's centralised control (top-down) to users' decentralised control (bottom-up) (Gilmour and Fisher 1991). In 1976, the *National Forestry Plan* introduced a new policy to hand over responsibilities for forest protection and management to local political bodies. The externally supported plantation and protection-focused forest policy did not receive much support from local communities (Hobley 1996). This changed in 1989 when the government of Nepal prepared and implemented the *Master Plan for the Forestry Sector* (MPFS). The needs and participation of local people were elevated to a

<sup>1</sup> Ostrom (1990) and Ostrom *et al.* (1994) provide definitions and discussion on CPR and Common Pool Resources.

<sup>2</sup> Nepal is divided into three physiographic regions: the Terai (59–610 m asl), the Middle Hills Region (610–4877 m), and the Mountains/Himalayas (4877–8848 m) (see Fig. 1). Administratively, the country is divided into 5 development regions, 14 zones, 75 districts, 58 municipalities and 3912 Village Development Committees (VDC).

central position. The plan, effective until 2010, aimed to combine environmental objectives of protecting land and forest resources with social and economic objectives. In 1993, the *Forest Act* was revised and in 1995 regulations were introduced to provide a legal framework, while operational guidelines were provided to field staff for implementing CF. The policy provided the Forest Users Groups (FUGs) with total ownership of forest products, while the entire staff of the Ministry of Forest and Soil Conservation (MFSC) was retrained for a new role as advisors and extensionists. The MPFS aimed to transform externally imposed CF intervention into a community-driven CF process.

CF policies and legislation have further developed. A significant 1998 amendment of the *Forest Act* requires FUGs to submit an annual report to the District Forest Offices (DFOs<sup>3</sup>), describing the condition of their forest and the status of their funds (Kanel 2001). The amendment empowered the DFOs to penalise FUG Committees (FUGCs) and required the FUGs to spend at least 25% of their income on forest development. In 2001, the government drafted a *Forest Bill* aimed at generating revenue, but as a result of huge opposition by the general public parliament rejected the draft.

Despite increasing tensions, CF in Nepal is considered a success, with currently over 14 250 FUGs managing about 11 800 km<sup>2</sup> of forest — over 20% of all forest land — and benefitting more than 1.6 million households<sup>4</sup>.

### Forest conservation and utilisation under Nepalese community forestry

Sustainable use and conservation of forests, and the improvement of local livelihoods, are the key objectives of CF in Nepal. It is not clear, however, whether both objectives are actively pursued at the operational level. A few studies suggest that forests have been better protected by communities than by the state (Maharjan 1998; Dev *et al.* 2003). The improvement of forest condition is attributed to the FUGs being focused on forest protection, not on utilisation. As a result, the forests do not realise their productive potential.

To date no systematic study has critically analysed the reasons for and implications of the improvement in the condition of forests and the under-utilisation of forest resources in Nepalese CF. The CF processes and activities are only one of many tasks for local communities. Social, economic, political and cultural activities are parts of people's lives and they inevitably influence CF (Nightingale 2003; Maskey *et al.* 2006; Nepal *et al.* 2006). Most analyses, however, are narrow and simplistic in that they blame local users, population size and users' dependence on forests as the major sources of problems. The historical development of CF, and the influence of broader political economy and unequal power relations in the decisions of the FUGs, has been overlooked. There

is thus a need to analyse the processes and outcomes of CF as a part of systems of power and influence.

A growing number of studies have begun to analyse the contribution of CF to improving users' livelihoods and the distribution of benefits among different groups (Dev *et al.* 2003; Kanel and Niraula 2004; Adhikari *et al.* 2006). There are, however, contradictions between those researchers who argue that local communities have received increased and more secure flows of forest products (e.g. Kanel and Niraula 2004), and those who argue that the benefits have been minimal, particularly for the poorer groups (Shrestha 2005; Luitel 2006). Some analysts further argue that CF has worsened the livelihoods of women and poor households (Neupane 2003; Shrestha and McManus 2005). Scholars who have examined Nepalese CF seem to agree that those who are wealthy and from higher castes (i.e. elites) capture the decision-making and implementation processes, and that this leads to inequitable processes and outcomes (Malla *et al.* 2003; Iversen *et al.* 2006). The nature and extent of the contribution made by CF, and the causes and implications of a particular method of forest management under CF, are still not well understood.

### Research method

This research is informed by the concepts developed within political ecology. Political ecology may be defined as an inquiry into ecology and broadly defined political economy (Blaikie and Brookfield 1987). It is more often interpreted as a research framework (Carney 1993) and method of analysis than a theory (Peluso 1992). Robbins (2004, p.12) defines political ecology as 'empirical, research-based explorations to explain linkages in the condition and change of social/environmental systems, with explicit consideration of relations of power'. Political ecology is used in this study to assist understanding of how decisions of FUGs are taken at various levels, how and why certain CF outcomes are produced, what the key issues are and what possible measures can be taken to resolve them.

The study employs comparative case studies as a key research strategy. These case studies offer a method of learning about a complex instance through extensive description and contextual analysis (Yin 2002). It is a valuable method for identifying, linking and comparing issues of resource management (Howitt 2001). The comparison of case studies is useful in understanding how local communities with specific social, economic, political and ecological situations are influenced by, and cope with, the changes brought about by changing socio-economic and political forces operating at various levels.

### The selection of study sites

Nepalese CF is interesting because it is large in scale, is supported by legislation and is often regarded as one of the most progressive policies implemented in one of the poorest and most environmentally sensitive countries in the world. A pre-fieldwork exercise was carried out as a part of the research method to identify suitable sites for case studies. This involved discussions with forest users, with the staff of DoF, NGOs and project officers together with a review of relevant information. Three FUGs were selected for detailed study: Laglage Pakha FUG, Bagbhanjyang

<sup>3</sup> DFO stands for District Forest Office, while DoF refers to Department of Forests. The DFO is a district branch of the DoF.

<sup>4</sup> CPFD (2006) Community Forest User Group Data Base. Nepal Government, Department of Forests, Community and Private Forest Division (CPFD). Kathmandu.

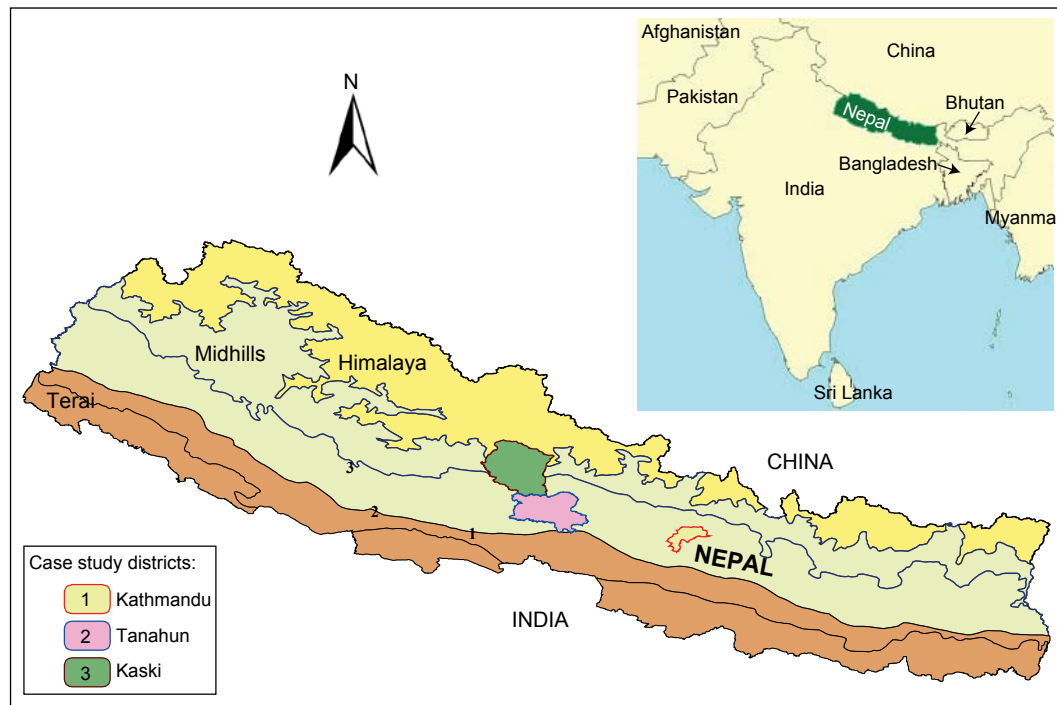


Figure 1. Nepal showing three case study districts

FUG and Pragatisil FUG from Kathmandu, Tanahun and Kaski districts respectively (Fig. 1). While the three districts are in the mid-hill region of Nepal where CF has mainly been implemented, their social, economic and political contexts differ. The districts also sample the diversity of CF in terms of the stage, the number of FUGs and the issues involved in the conservation and utilisation of forests. The three FUGs were selected on the basis of the history of collective forest management, the size of the FUGs and the forests, the present condition of the forests and the benefit flows to communities as perceived by the DoF staff and FUGC, the development status of FUGs, and socio-economic diversity such as poverty, ethnicity and culture.

### Data collection

The research used triangulation of sources and methods to collect and analyse data so as to minimise biases and maximise the representation of diverse sets of contextual factors. The FUG was considered as a focus for data collection in the fieldwork which was conducted between August 2001 and February 2002. The fieldwork was influenced by key concepts developed within the Participatory Rural Appraisal research method (Chambers 1994), which draws on the knowledge and skills of rural people in the analysis of their local resources and livelihoods.

Data were collected by Krishna K. Shrestha. Indirect methods were used to gather data on the history and present situation of CF from records maintained by the households, FUGC, and publications of government and non-government organisations. Direct methods — a mix of quantitative and qualitative methods — were used to collect information on forests, demography and other variables. Quantitative methods such as household questionnaire interview (HQI) and rapid forest assessment

(RFA) were complemented by qualitative methods such as the semi-structured interview (SSI), group discussions and participant observation.

A participatory rural appraisal technique was applied to select sample households for HQI. For each FUG, five FUG members — representing the FUGC, VDC, local NGOs, women and disadvantaged groups — were purposively selected from the overall list provided by the VDC. The selected members were first given a list of all member households and asked to categorise the households into different social, economic and ethnic groups using their own criteria. They grouped the households in three wealth categories: poor, medium and rich. These wealth categories were then characterised by three socio-economic attributes: food security, land and livestock ownership and occupation. They also grouped the households in terms of ethnicity or caste in the following categories: lower caste, middle caste and higher caste — based on the traditional Hindu caste hierarchy. Similarly, they grouped the households into male-headed households and female-headed households. The final list was then cross-checked with other villagers for accuracy. All households ( $n = 521$ ) in each case study (61, 170 and 290 in the first, second and third FUGs) were then divided into different groups based on wealth rank, ethnicity and gender. For HQI, 72 (20, 23 and 29 from cases 1, 2 and 3 respectively) households were selected by using proportional stratified random sampling. Household-heads were interviewed in the Nepali language using a carefully designed questionnaire. Data were collected from sample households relating to: demography; the household's forest product needs and products received from CF; views on the past, present and future of collective action; and their involvement in, and satisfaction with, CF. The HQIs were conducted within a workshop environment

where all household members had opportunities to contribute. All data were recorded in the questionnaire and field book at the time of interview.

Of necessity, a snowballing method was used to select five key respondents in each FUG for SSI, representing different socio-economic and ethnic groups. Respondents were asked the same questions relating to the politics of CF, and on the relationships among different stakeholders in making and implementing FUGs' decisions. An SSI of the same format was used to interview two field-level DFO staff members in each case-study site. Two group discussions, one before and one after the SSI, were organised with the five respondents selected for SSI to discuss the key issues identified during the HQI. The condition of forests and biodiversity conservation issues were discussed. The behaviour of respondents was also observed during the interview and discussions. The researcher lived in each FUG for four weeks (i.e. a total of 12 weeks in three FUGs). The views on the past, present and future of CF and the factors shaping these views were investigated through participant observation. Each night a narrative description of the interaction was written after returning to the field residence.

An RFA was carried out to assess the condition of forests and the potential availability of forest products. This was in addition to the analysis of existing data from previous forest inventories conducted by the DFO and the analysis of views from respondents on the past and present condition of forests and the availability of forest products. RFA is a derivative of rapid vegetation assessment, which is a hybrid of formal forest inventory techniques and participatory appraisal techniques. To carry out the assessment, stratified random sampling was used. The forests of each case were divided into three strata on the basis of the types of regeneration, level of canopy and extent of harvesting. For each case, three rectangular plots, each of 100 m<sup>2</sup>, were established — one per stratum. The number of seedlings was counted and recorded. The dbh<sup>5</sup> of saplings (dbh 4–10 cm), poles (10–30 cm) and trees (>30 cm) was measured and the numbers counted. Villagers and DFO field staff helped to identify species and estimate heights. The volume, density and diversity of the forests were calculated, while the ecological condition of forests was observed. Recent changes in ecological condition of forests were also discussed with respondents. All data were recorded in a field book.

## Results

### Case study one: Laglage Pakha Community Forestry

Laglage Pakha FUG is in Thankot VDC of Kathmandu district. It is a community of 61 households that manages 0.135 km<sup>2</sup> of forests. The members of the FUG are relatively homogenous, with most belonging to a *Magar* ethnic group. This group is socially cohesive, with a tradition of members following their ethnic leaders. The FUG members are poor and illiterate farmers who depend heavily on forests for fuelwood, fodder and timber. Despite the FUG being situated only about 10 km west of the capital Kathmandu, the village lacks basic infrastructure such

as schools, roads, electricity and a drinking water supply. The Prithivi Highway, which links the capital to the other regions of the country, runs along the southern edge of the forest. This exposes the Laglage forest to illegal harvesting.

Our reviews of publications and interviews with respondents revealed that the forest in Laglage was heavily degraded prior to CF. In 1965, the DFO planted exotic species and implemented strict protection measures. Forest degradation continued, however, because the ethnic leaders were not respected and this prevented effective protection. With the implementation of the new national forest policy in 1989 and the restoration of democracy in 1990, the respondents believed that the DFO staff received the support of ethnic leaders to organise local communities into the FUG to manage and utilise the forest. In 1993, the DFO handed over the forest as CF and in 2000 the DFO of Kathmandu awarded first prize to this FUG (among other FUGs in the district) for its success in protecting the forest.

### Condition of the forests

The RFA revealed that the condition of the forests had improved in terms of the number of trees and the presence of greenery. The forest had become a mixture of hardwood and coniferous species, the former having naturally regenerated and the latter having been planted. Respondents said that they had also planted cash-generating plants like *amriso*<sup>6</sup>, *bamboo* and *jethimadhu*. The forest had a closed canopy with no evidence of soil erosion.

The RFA found that the total number of stems per hectare<sup>7</sup> was 11 700, but the forest was still young, dominated by seedlings (59%) and saplings (33%), with few poles (7%) and trees (0.6%). *Salla* was the only tree species that was established by planting. The forest was diverse in terms of species, dbh and height. A total of 24 species were found to be present, with a plant diversity index (PDI) of 0.07 (out of a possible 1)<sup>8</sup>. The average crown cover was 72%, with micro-site variation in slope and aspect. Analysis of the RFA data indicated that the forest could potentially supply 1.78 m<sup>3</sup> of timber, 174 bhari of fuelwood and 77 bhari<sup>9</sup> of foliage (excluding ground grass) ha<sup>-1</sup> y<sup>-1</sup>. We estimate that if the forest was scientifically managed the average annual availability of forest produce for each household would be 0.4 m<sup>3</sup> of timber, 39 bhari of fuelwood and 17 bhari of foliage.

The results from participant observation, SSI, HQI and group discussions confirmed the result of RFA, namely that the condition of forest in Laglage had improved. The improvement was due to people taking up responsibility for forest protection and management. As one participant said, 'who else will protect our forest, we have to do it'. Respondents were more concerned with forest protection than utilisation because their livelihoods had been affected by the degradation of forests in the past. One respondent said, 'we focus on protection because we want to make

<sup>5</sup>Diameter at breast height (dbh) is usually measured at 1.3 m in Nepal.

<sup>6</sup>All names of the trees and other plants are local names in Nepali and are in italics. Shrestha (2005) provides corresponding scientific names.

<sup>7</sup>1 hectare = 10 000 m<sup>2</sup>

<sup>8</sup>Shrestha (2005) provides the basis for all calculations.

<sup>9</sup>Bhari is a Nepali term which refers to an average load of forests products that a person can carry. It is about 30 kg (Malla *et al.* 2003).

sure that the forest would never be destroyed again as it was in the past'. No sales of forest products occurred, but respondents were enthusiastic about income generation from the sale of non-timber forest products. Most respondents were unhappy with the DFO because it had stopped providing financial support to the FUG. The respondents from the FUGC were particularly concerned about an institutional barrier created by policies and guidelines supplied by the DFO which prevented them from making decisions according to community aspirations. The DFO field staff, however, argued that the policy limitations were there to ensure sustainable CF and sustainable livelihoods for the communities.

### *Utilisation of the forests*

To determine whether the potential supply of forest products could meet the needs of the FUG, discussions were conducted with sample households during the HQI. The estimated average annual household requirement was 0.32 m<sup>3</sup> of timber, 49.5 bhari of fuelwood, 70.5 bhari of fodder and 10.1 bhari of leaf litter. The sample households suggested that they expected to meet their needs from CF. We estimated, however, that the average annual supply of forest products for each household was only 0.05 m<sup>3</sup> of timber, 15.1 bhari of fuelwood, 14.1 bhari of fodder and 6.1 bhari of leaf litter. The households collected these products during silvicultural operations aimed at improving the condition of the forests. The community needs were not fulfilled.

The respondents emphasised that a major reason why their needs were not met was under-utilisation of the forest. Other reasons suggested referred to the size and maturity of the forest: (a) small forest size compared to population size, and (b) the young forest with no current possibility of supplying sufficient and suitable products to all users. Analysis of RFA data revealed that the quantity of major forest products (i.e. timber and fuelwood) potentially available for harvesting is far greater than what is actually being harvested. The analysis also demonstrated that the potential continuing supply from forests can meet the timber demand, but cannot meet the fuelwood demand.

Most respondents agreed that the decisions on the harvesting and distribution of forest products were not driven by community needs and product availability, but by the wishes of the FUGC, which is in turn was controlled by the DFO. The under-utilisation of forests was a key issue among respondents. One participant said 'we have many dead trees, which can be sold, I don't know why they are left to decay'. All respondents belonging to the poorer and disadvantaged groups emphasised their hardships compared to those of other members, and argued that their survival needs were neglected by the FUGC. For example, a blacksmith said, 'I can no longer get charcoal from the forest. I stopped making sickles and tools ... [and] lost my major survival means. The committee does not pay attention to my needs'. A common point that emerged from the respondents was that the contribution of CF to improving users' livelihoods had been negligible because the use of the forest had not been the priority of the DFO and FUGC.

### **Case study two: Bagbhanjyang Community Forestry**

Bagbhanjyang FUG is an urban community situated in Vyas Municipality of Damauli Town, a business centre and administrative headquarters of Tanahun District. The FUG

included 170 households and it managed 0.30 km<sup>2</sup> of forest north-west of the town. A large number of non-FUG members live close to the forest. The interviews with respondents revealed that the area was originally inhabited by indigenous groups, *Daraii* and *Bote*, but these had been displaced by business owners and administrators who migrated to Damauli when the Prithivi Highway (a major link between Damauli and other cities) was constructed and the district headquarter relocated in 1969 from Bandipur to Damauli. Most FUG members are relatively wealthy business-owners who use gas for cooking and are not directly dependent on forests. Most FUG members support Nepali Congress (a major political party in Nepal) and some of the influential leaders are also members of the FUG.

Interviews and discussions with respondents revealed that the forest was healthy in Bagbhanjyang until it was used and managed by indigenous groups. Forest destruction started from a political decision to relocate the district headquarters to Damauli. With the relocation, local forests were extensively harvested for the construction of government offices and private houses. The new Prithivi Highway provided good access for transporting forest products to bigger markets. Massive deforestation occurred, particularly during the time of the national referendum in 1980. In response, some members of Damauli Panchayat (a local government body) organised an informal forest protection committee in 1983 to protect the forest. The locally initiated, elite-inspired protection committee collected money from each household and employed a forest watcher to look after the forest. The committee was recognised by the DFO in 1991 after the restoration of democracy in 1990. Since that time, forest protection has continued to be carried out by paid forest watchers. In 1999, the DFO of Tanahun awarded first prize to the FUG (among others in the district) in recognition of its successful forest management.

### *Condition of the forests*

The RFA data revealed that the Bagbhanjyang community forest was a naturally regenerated broad-leaved forest. The forest had vigorous regeneration and a closed canopy with estimated total of 18 500 stems per hectare. The forest was young and dominated by seedlings (86%), saplings and poles of *sal* and *chilaune* species. The plant diversity index was low at 0.04. The forest was diverse in terms of dbh, height, biomass and volume. We estimate the average availability of forest products to be 2.97 m<sup>3</sup> of timber, 184 bhari of fuelwood and 64 bhari of foliage (excluding regeneration and ground grass) ha<sup>-1</sup> y<sup>-1</sup>. Analysis of RFA data shows that each household could receive an annual average of 0.53 m<sup>3</sup> of timber, 32.9 bhari of fuelwood and 11.5 bhari of foliage.

There was a consensus among respondents that the Bagbhanjyang forest has significantly improved through CF. One respondent said, 'CF has changed the face of Bagbhanjyang. It used to be a barren land; now, it is a dense and green forest'. Most respondents viewed the change in forest condition as being a result of the relatively effective protection achieved by forest watchers. Some respondents, however, were worried about the decreasing interest and participation of many FUG members, as most members are busy in businesses and jobs. As a result, respondents were not confident of sustaining forest protection and criticised the DFO for avoiding its forest protection responsibilities. A common point to emerge from the views of respondents was that the sustainability

of CF in Bagbhanjyang is in danger due to the decreasing participation of members and the increasing pressure from a huge cohort of non-members, the easy access to the forest products and the increasing price of these products in the market.

### *Utilisation of the forests*

We estimated that each household required an average of 0.57 m<sup>3</sup> of timber, 17.6 bhari of fuelwood, 37.4 bhari of fodder and 1.7 muttha<sup>10</sup> of *sal* leaves from CF and other sources. Respondents suggested that almost one-third of their requirements were expected to be met from CF. We estimated each household received an average of only 0.09 m<sup>3</sup> of timber, 5.8 bhari of fuelwood, 0 bhari of fodder and 1.7 muttha of *sal* leaves per year. These products were extracted during silvicultural operations as a part of improving forest health, and were sold to member households. The users' needs were not fulfilled as the supply of products was far less than what was wanted. Further, the harvest of products was far less than what was available (i.e. the forest was under-utilised). Most households used alternative fuel for cooking, and there was an enormous surplus of fuelwood, but the forest could not meet the high demand for timber. This case is opposite to that of Laglage Pakha FUG.

All respondents emphasised that the utilisation of forests in Bagbhanjyang has been minimal. This was because, as one respondent said, 'the committee is not confident to regulate the extraction and maintenance of forest cover'. Another respondent argued; 'the DFO discourages forest utilisation'. Respondents agreed that their dependence on forests is marginal, but they need forests for various purposes such as recreation and religious functions. Most respondents believed that the lack of controlled use of the forest in Bagbhanjyang was more influenced by the political leaders (who were also members of the FUG) than by the DFO. As argued by many respondents, if the leaders, who wished to maintain greenery for showcasing their success to wider voters and attracting donors, supported the generation of income from utilising the forest, the DFO would not be able to oppose it.

The participant observation, SSI, HQI and group discussions indicated that peoples' participation was mainly in the buying of products at prices that were less than the market price. Some respondents, however, complained that the prices were still too high for poor users. Most respondents indicated that the poor users have been unfairly penalised by this selling system because they were not able to purchase at auction against their wealthy counterparts. All poorer and disadvantaged respondents agreed that they did not (and will not) bid at auction against wealthy people because they depend on the wealthy for jobs and loans, and cannot risk their livelihood sources. Most respondents believed that the poorer households illegally met their needs from nearby forests, thus shifting the pressure to forests elsewhere.

The views of the respondents demonstrated that income generation and community development through CF were popular, but that activities on the ground were limited. Besides selling timber, most respondents favoured measures such as eco-tourism and

recreational use of the site to generate income, views supported by the DFO.

### **Case study three: Pragatisil Community Forestry**

Pragatisil CF is in Lekhnath Municipality of Kaski district. It managed 0.58 km<sup>2</sup> of broadleaved forests scattered in five patches. The Prithivi Highway runs through the forests, connecting Pragatisil with the second-biggest city of Nepal, Pokhara, about 10 km west of Pragatisil. Pragatisil FUG was a community of 290 member households. Most residents were migrants who were illiterate landless poor and members of low castes who worked as labourers in the city. The minorities were the traditional inhabitants (*Brahmin* and *Chettri*), but they owned most agricultural land and controlled socio-economic and political activities of the community. The population was rapidly increasing because of the proximity of Pragatisil to Pokhara and the relatively low value of land.

Our reviews of publications and interviews with respondents revealed that the nationalisation of forests in Nepal in 1957 quickly led local people to cut trees and encroach on forests, fearing that the government would permanently lock up the forests. The expansion of forest bureaucracy in Pokhara in 1960 and the development of roads also contributed to deforestation. By 1976, the cadastral survey clearly categorised Pragatisil as shrubland. The northern part of the forest was less degraded than the south because of the recognition of a Hindu goddess temple, *Kalika*. The first plantation program was introduced in 1976 by Queen Aiswarya on the occasion of International Women's Day to protect the Pragatisil settlements from massive flooding. This program was not extended elsewhere, and the rapid encroachment and deforestation continued. In 1978, traditional residents formed a forest protection committee to control forest encroachment and deforestation. Although this supra-legal committee worked well, it had to cope with frequent harassment from the DFO. After implementation of the new national policy in 1989, users asked the DFO to recognise the existing committee. The DFO, however, imposed a new committee including poorer groups, but the influential positions remained with traditional elites. Pragatisil CF was officially handed over in 1993. The DFO awarded first prize to the FUG (among other FUGs in the district) in 2000 because the FUGC effectively protected the forests.

### *Condition of the forests*

Pragatisil community forest was a mixed broad-leaved forest, dominated by the naturally regenerated *sal* and planted *sissoo* species. The RFA data revealed that while the condition of forest had improved in terms of the number of trees and the presence of greenery, it was still young, dominated by seedlings (91%) and poles (7%), with few trees (0.2%) and saplings (1.5%). A total of 23 species were found in stands of 18 100 stems ha<sup>-1</sup>. The plant diversity index was low at 0.03. The crown density was 55%, largely attributed to 1600 stems ha<sup>-1</sup> (excluding seedlings). The forest condition was improving in terms of the diversity of dbh, height, biomass and volume. Analysis of RFA data indicated that the forest can potentially supply 1.59 m<sup>3</sup> of timber, 83.2 bhari of fuelwood and 24.1 bhari of foliage (excluding regeneration and ground grass) ha<sup>-1</sup> y<sup>-1</sup>. We estimate that if the forest is

<sup>10</sup>A bundle of leaves tied by rope and about 2 kg in weight

scientifically managed, each household can receive an average of 0.32 m<sup>3</sup> of timber, 16.7 bhari of fuelwood and 4.8 bhari of foliage per year.

The results from the HQI, SSI, group discussions and participant observation indicate that the forest condition had improved. As one respondent stated, 'the forest has improved from almost denuded land ... [and] users and forest watchers jointly look after the forest to ensure forest protection'. Most respondents agreed that users attended meetings, plantation and protection activities because they received some forest products. Participation had become a norm with the result that people failing to participate would have had to face social exclusion from non-CF activities. The FUG had encountered some critical problems because most respondents are unaware as to how and why certain rules were made and implemented.

### *Utilisation of the forests*

We estimated average annual household requirements to be 0.46 m<sup>3</sup> of timber, 42.9 bhari of fuelwood, 359.3 bhari of fodder and 16.7 bhari of leaf litter. The sample households suggested that about two-thirds of their demand was expected to be met from CF, but the average annual household supply from CF was estimated to be only 0.10 m<sup>3</sup> of timber, 10.3 bhari of fuelwood, 14.3 bhari of fodder and 7.3 bhari of leaf litter. The quantities of products harvested were far less than were needed, and what was potentially available, indicating that the needs of people were not being fulfilled while the forest was underutilised.

Most respondents agreed that they received fuelwood, grass and leaf, but the quantities were a very small portion of their actual needs. Although the distribution of products was supposedly based on the equality principle (i.e. providing equal share of forest products to all users, regardless of their needs, private landholding, wealth, family size etc.), a poor teashop owner was frustrated with the product distribution rules, viewing these rules as unfair because 'the poor people do not have alternatives to meet their needs, while the wealthy have a lot of land and private resources'. A poor woman argued 'I only need fuelwood, which is insufficient, nothing else. I cannot swap products with other users'. One respondent said 'the chairman of the committee makes all decisions. He is powerful; he has a support from the DFO and political parties'. Most poor and disadvantaged respondents emphasised that due to the strict enforcement of protection-focused rules by the FUGC and DFO, they now receive far less forest produce than before CF.

We found product harvesting and distribution to have been driven by the wishes of the DFO, not by collective decisions of the community. Most respondents viewed the DFO as the source of power, knowledge and finance. A common point to emerge was that the DFO directly or indirectly controls the way forests are managed and used. One respondent noted that 'the ultimate decisions on forest product harvesting depend on the DFO ... the power comes from the ownership of land'. Overall, the respondents were unhappy with the DFO controlling the decisions on forest use and management at Pragatisil CF.

Income generation and community development are promoted by the DFO and other agencies. The respondents, however,

suggested that for Pragatisil FUG the generation of income and community developments were limited and that the rhetoric of the benefits to the FUG did not flow through to practice. There was, however, a strong expectation among the respondents that the CF can generate income.

## **Discussion**

### **The improvement of forest condition: reasons and implications**

The study demonstrated that the condition of forests had improved through CF. Respondents frequently commented on such improvement. This study suggests that CF is reversing degradation and regenerating degraded areas, a great achievement and an endorsement for CF in Nepal. These findings are consistent with those of previous studies (Branny and Yadav 1998; Yadav *et al.* 2003). A central question to emerge, then, is what causes forest improvement?

Two key reasons for forest improvement are revealed by this study:

- Firstly, the FUGs have protected the forests effectively, either through direct efforts of users (in Laglage) or through forest watchers (in Bagbhanjyang), or sometimes both (in Pragatisil). Different protection systems are employed in different FUGs to suit local circumstances. These examples suggest that a uniform system as previously employed by the state, if imposed on the FUGs, is likely to be less effective because feasibility and effectiveness largely depend on the specific socio-economic and ecological context of each FUG.
- Secondly, the forests have improved because they have not been fully utilised. The harvest of forest products is far less than the quantity available. Under-utilisation of community forests in Nepal has also been identified by previous studies (e.g. Springate-Baginski *et al.* 2003). The implication of under-utilisation is that there are foregone opportunities from sustainable product harvesting, processing and marketing of both timber and non-timber forest products. Current practices neglect commercial or monetary possibilities (Malla 1993), while the subsistence focus of CF has also been compromised. If the goal of CF is to improve peoples' livelihoods, community forests should be protected and utilised according to the local social, economic and ecological contexts.

Some critical implications can be derived from the examples of forest conservation in three FUGs:

- Firstly, the improvement in forests means that their ability to supply forest products has increased, and thus users may be able to get more products and therefore better meet their needs. As this study has revealed, however, none of the three forests has reached the stage where the demand by all users for timber, fuelwood and foliage can be met, even if the forests are scientifically managed and utilised. Therefore the frequent suggestions that an improved forest will produce surplus forest products that can generate a significant level of income for the FUGs are flawed. Time is an important variable, as is the level and manner of utilisation of forest products.

- Secondly, the examples of the three FUGs clearly demonstrate that they all have low species diversity, and that the trees and poles are dominated by a few species promoted by the FUGs for their particular social, economic and political values. Considering the increasingly active management of forests under CF with a specific selection of species conditioned by social, economic and political values, despite optimistic assertions that CF significantly improves biodiversity (Hill 1999; Acharya 2003), CF is unlikely to focus on biodiversity conservation. Community forests are therefore not ideal for biodiversity conservation. However, given that the forests were established in degraded areas in the first place, as argued by Fisher (2000b), CF should be judged by comparing the result with the initial state, not with some theoretical ideal.
- Thirdly, Nightingale (2003) argued that the management of forests is associated with historical, socio-economic and political processes. This study demonstrates that the rise of CF policy in Nepal is based on learning from indigenous practices and the failure of the top-down forest management models. Historical and field experience provided motivation for state officials to work with local communities. This motivation was converted into actions with a timely change in the political process; namely the restoration of democracy in Nepal in 1990 and the shift in the global development discourse from a top-down modernisation model towards a participatory development model. The government of Nepal received a huge flow of international grants and loans to support participatory development activities including community forestry. New forest policies were made, the staff re-trained and institutions were promulgated to support the efforts of forest users to manage forests. With legal access and secure rights over the use and management of forests, the local communities seized this opportunity to effectively protect the forests and regenerate degraded lands with a view to receiving a range of benefits. This implies that any attempts to improve the condition of forests at the local level should attend to the linkages between the shaping and making of local decisions, and the changing historical, socio-economic and political processes operating at various levels in the polity.

### **The limited benefits and inequity in community forestry**

The utilisation of forests and benefits to livelihoods are the fundamental elements of CF and are seen as an underlying part of the rationale for CF. This study indicates, however, that the material benefits from CF are very limited. There are examples of poor users becoming worse off as a result of CF. The harvest of forest products is minimal in comparison to the individual users' demand and potential availability of products. There is a huge gap between the demand for and supply of forest products. This affirms the findings of Malla (2000) that contributions from CF have not been substantial. Despite the policy commitments to provide livelihood benefits, much remains to be achieved.

An important question to emerge then is 'why have the benefits of CF been so limited?' A simple reason for the limited benefits from CF is the under-utilisation of the forests. The FUG members do not harvest all potentially available forest products because they may be lacking necessary knowledge, skill and confidence

to use and conserve the forest in a sustainable way. However, an underlying reason for the limited benefits from CF may be that the users *cannot* use the forest at their will.

### **The politics of community forestry: explaining the particular ways of forest use and conservation**

Our results clearly indicate that the politics of forest management that involve the persistent control by the DFO to meet its conservation interest deprives forest users of any real authority to harvest forest products. While there is a policy commitment to give full use rights to users, and users have some power to make decisions, these decisions are constrained by various rules and circulars, and by the overriding power of the DoF. Therefore, as Fisher (2000a) argued, the claim of limited benefits from CF is flawed because the problem is largely the control of forest resources, not the limited flow of benefits and lack of knowledge and skills of users. This reinforces the need for genuine devolution of power to local-level community groups.

The politics leading to under-utilisation of forests in the case studies have been supported by the elites who hold the FUGC positions and control the FUG agenda. Elites dictate the protectionist management of forests because they depend less on communal forests than do others, and hence the consequences of the protection focus have less impact on them. For elites, managing protection is easier than managing controlled use. Accordingly, institutions are devised in such a way that a limited quantity of forest products is extracted — largely in the course of forest improvement rather than to meet users' needs. In fact, the central issue for the elites is to minimise use so as to ensure the protection of forests, while users' needs and the supply potential of forests are peripheral. As a result of the limited use and the protection focus, most users are deprived of basic forest products and are constrained by the rules administered by the FUGC. CF may meet conservation objectives, but only at the expense of poor users who are mostly dependent on forest products. Further devolution within the FUG is therefore needed.

A key implication of this study is that due to the absence of real devolution of decision-making and the limited access to forests for the FUGs, the users do not have power to demand and receive CF benefits. A reason for the lack of devolution and secure tenurial rights is institutional rigidity within the DoF and the failure of policy attention to devolution and creating secure rights. There have been many changes in the techniques of CF and in training provided for users, but the underlying control structures together with the lack of benefit to communities have largely been maintained (Fisher 2003). A fundamental cause of the limited devolution and inequity in CF is that the emergence of CF has not brought about any shift in the underlying role of the state as a decision-making controller. The custodial role of the DoF in making decisions for people (often covertly) has simply been reinforced in the new CF policy context. Real devolution of power to the local level, and further devolution within the local level, can be achieved only when there is a functional, conceptual and ideological assumption by state bureaucracy of the role of a genuine facilitator, not of a decision-maker and implementer of CF.

What factors are likely to assist in bringing these fundamental changes in the state bureaucracy in Nepal? A major part of the answer seems to lie within the linkage between the behaviour of the state bureaucracy and the international political economy. Nepal, as one of the poorest countries in the world, depends heavily on grants and loans from donors to design and implement the country's policies. While all donors have the interests of Nepal at heart in assisting in development, poverty reduction, peace, security and democracy, they also emphasise the need to fulfil the country's international responsibilities such as the conservation of biodiversity under the UN's *Convention on Biological Diversity*. The policies of many donors, however, are still informed by the environmental crisis discourse of the 1970s, which highlighted the need for urgent policy action for environmental conservation and maintained that conservation can be a sustainable means to poverty alleviation. For this reason the state bureaucracy of Nepal has no choice. By necessity, it tends to devise and implement policies and programs that are likely to please donors and international communities. The corollary is that the state forest bureaucracy devolves some responsibilities and authority to the local level (to please some donors), while at the same time retaining power in key decision areas to ensure forest conservation so as to fulfil its biodiversity conservation commitment and attract more donors. The subordinate organisations of the DoF focus on ensuring forest conservation because their institutional efficiency is judged in terms of the protection of forests, rather than management of controlled use. In order to make a major change in the functional role of the state bureaucracy, there is an urgent need for a major rethinking of how donors' policies are informed, made and implemented.

Secondly, despite a global move for decentralisation, democracy and social justice, and the development and refining of many theories and concepts within the social sciences, there has been little progress in developing a robust theoretical discourse. This would make a significant contribution to refining the ideological and conceptual basis of bureaucracy and allow it to operate effectively within different social, economic and political contexts. Nepalese bureaucracy (and many others) largely functions through standardised procedure, formal division of responsibility, hierarchy and impersonal relationships. Maximising efficiency and public goods are still the driving forces of Nepalese forest bureaucracy. In order to bring required change in forest conservation and utilisation, a major reconsideration of the ideological and conceptual basis of forest bureaucracy in Nepal is needed.

Alternatively, if the survival of local communities is seriously threatened, and no feasible options for efficient, equitable and sustainable resource management are available, a massive political movement by local communities may be inevitable. This movement may not only challenge the way forest resources are being managed, but also the ways that the state bureaucracy and international organisations operate. A deeper understanding of the political ecology of CF is warranted to further explain the nexus between the state and global political economy, and the local movements and the revolution in resource management.

## Conclusion

This study of community participation in the utilisation and conservation of three community forests in Nepal addresses a number of important debates in community forestry. The analysis shows that community forests have improved in quality, and that this may have also improved biodiversity (e.g. Hill 1999; Acharya 2003) especially when measured against the degraded condition before CF. Yet our study also shows that forests managed under CF might not have produced the significant biodiversity conservation outcomes expected by many of its supporters. Although CF is clearly reversing degradation and regenerating degraded areas, the improved forests are still not at a stage where they can meet users' needs and produce surpluses that can be sold to generate much-needed income. Although the implementation of CF is based on the assumption of widespread benefits, the benefits remain very limited and are unfairly distributed among users dependent on forests products. Those users who are poor and who have little or no private land from which to fulfil part of their needs and are thus heavily dependent on forest products are largely ignored by the DFO and local elites.

In fact, the arguments that limited benefits flow from CF are flawed because the problem is really one of protection-oriented forest management. The under-utilisation of forests is shaped by the interest of the DoF and donors to maintain forest cover. The state policies and implementation processes deprive users of sufficient knowledge about, and of authority for, harvesting forest products. There is also an absence of devolution of real decision making, and limited access to forests, for the FUGs. The users therefore do not have the power to demand and realise CF benefits. The powerful actors tend to blame local users for their lack of knowledge, skills and capacity to actively utilise the forests. It seems, however, that entrenched politics at various levels and wider political and economic forces have resulted in under-utilisation of forests and inequitable distribution of forest products under the existing system of CF. The conservation and utilisation of forest resources are clearly linked to power and authority exercised by actors operating at local, national and international levels.

There is a need for major rethinking at least in two key areas: (a) the basis of donors' policies for loans and grants for developing countries; (b) the functional, conceptual and ideological basis for the role of state bureaucracy. If this rethinking does not occur, political movement by local communities may be inevitable. Hence, a deeper understanding of the political ecology of CF is necessary to explain the linkages of forest management to power and authority.

Despite the limited contribution of CF to some members of the community, as identified in the three case studies, most users still attend meetings, participate in forest protection and management activities and conform to rules for a variety of economic reasons such as receiving some benefits and in anticipation of future benefits. Users' continued participation is also conditioned by non-economic reasons such as the maintenance of social

relationships and local political considerations. Finally, this study has also demonstrated that the utilisation and conservation of the forests is simultaneously a matter of physical change, values, power relationships and socio-cultural understandings that are specific to each location. Despite the shortcomings of CF identified above, it is an approach to resource management that has the potential to address these considerations. CF has an important role in Nepal and potentially in countries like Australia, but it must be recognised that the possibilities of CF have been limited by politics at the local level as well as by the wider political economy. Critical assessment of CF such as this research is not anti-CF. It should be seen as a sympathetic, positive contribution to understanding relationships between humans and the environment for the purpose of developing CF.

## References

- Acharya, K.P. (2003) Conserving biodiversity and improving livelihoods: the case of community forestry in Nepal. In: *Proceedings of International Conference on Rural Livelihoods, Forests and Biodiversity*. Centre for International Forestry Research. 19–23 May 2003, Bonn.
- Adhikari, B., Williams, F. and Lovett, J.C. (2007) Local benefits from community forests in the middle hills of Nepal. *Forest Policy and Economics* **9**, 464–478.
- Agrawal, A. and Chhatre, A. (2006) Explaining success on the commons: community forest governance in the Indian Himalaya. *World Development* **34**, 149–166.
- Arnold, J.E.M. (2001) *Forests and People: 25 Years of Community Forestry*. Food and Agriculture Organization of the United Nations. Rome.
- Blaikie, P. and Brookfield, H. (1987) *Land Degradation and Society*. Methuen, London and New York.
- Branny, P. and Yadav, N.P. (1998) *Changes in Community Forestry Condition and Management 1994–1998: Analysis of Information for the Forest Resource Assessment Study and Socio-economic Study of the Koshi Hills*. Nepal UK Community Forestry Project (NUKCFP). Kathmandu.
- Brown, D., Malla, Y.B., Schreckenberg, K. and Springate-Baginski, O. (2002) From supervising ‘subjects’ to supporting ‘citizens’: recent developments in community forestry in Asia and Africa. *ODI Natural Resource Perspectives* **75**, 19–32.
- Bull, G. and White, A. (2002) Global forests in transition: challenges and opportunities. In: *Proceedings of Global Perspective on Indigenous Forestry: Linking Communities, Commerce and Conservation*. Vancouver, 4–6 June 2002.
- Carney, J. (1993) Converting the wetlands, endangering the environment. *Economic Geography* **69**, 329–348.
- Chambers, R. (1994) Participatory rural appraisal (PRA): analysis and experience. *World Development* **22**, 1253–1268.
- Ciriacy-Wantrup, S.V. and Bishop, R.C. (1975) Common property as a concept in natural resources policy. *Natural Resources Journal* **15**, 713–727.
- Cleaver, F. (2002) Reinventing institutions: bricolage and the social embeddedness of natural resource management. *The European Journal of Development Research* **14**, 11–30.
- Cribb, J. (2006) *Recovering Shangri La: The Partnership in Community Forestry between Nepal and Australia 1966–2006*. AusAid, Canberra.
- Demsetz, H. (1967) Toward a theory of property rights. *The American Economic Review* **57**, 347–359.
- Dev, O.P., Yadav, N.P., Springate-Baginski, O. and Soussan, J. (2003) Impacts of community forestry on livelihoods in the Middle Hills of Nepal. *Journal of Forest and Livelihoods* **3**, 64–77.
- FAO (1978) *Forestry for Local Community Development*. Food and Agriculture Organization of the United Nations (FAO). Rome.
- Fisher, R.J. (1994) Indigenous forest management in Nepal: why common property is not a problem. In: Allen, M. (ed.) *Anthropology of Nepal: Peoples, Problems and Processes*. Mandala Book Point. Kathmandu, pp. 64–81.
- Fisher, R.J. (2000a) Decentralization and devolution in forest management: a conceptual overview. In: Enter, T., Victor, M. and Patrick, D. (eds) *Decentralization and Devolution of Forest Management in Asia and the Pacific*. RECOFTC (Regional Community Forestry Training Centre). Bangkok, pp. 3–10.
- Fisher, R.J. (2000b) Poverty alleviation and forests: experiences from Asia. In: *Forest Ecospace, Biodiversity and Environmental Security*. World Conservation Congress, pre-congress workshop. Amman, Jordan, 5 October 2000.
- Fisher, R.J. (2003) Innovations, persistence and change: reflections on the state of community forestry. In: *Community Forestry: Current Innovations and Experiences*. RECOFTC and FAO. Bangkok, pp. 16–29.
- Gilmour, D.A. (1995) Conservation and development: seeking the linkages. In: Sandbukt, O. (ed.) *Management of Tropical Forests: Towards an Integrated Perspective*. Centre for Development and the Environment, Oslo, pp. 255–268.
- Gilmour, D.A. and Fisher, R.J. (1991) *Villagers, Forests and Foresters: The Philosophy, Process and Practice of Community Forestry in Nepal*. Sahayogi Press, Kathmandu.
- Granovetter, M. and Swedberg, R. (2001) *The Sociology of Economic Life*. Westview Press, Boulder and Oxford.
- Griffin, D.M. (1988) *Innocents Abroad in the Forests of Nepal: An Account of Australian Aid to Nepalese Forestry*. Anutech Pty Ltd, Canberra.
- Hardin, G. (1968) The tragedy of the commons. *Science* **162**, 1243–1248.
- Hill, I. (1999) *Forest Management in Nepal: Economics and Ecology*. World Bank Technical Paper No. 445. The World Bank, Washington, DC.
- Hobley, M. (1996) *Participatory Forestry: The Process of Change in India and Nepal*. Overseas Development Institute, London.
- Howitt, R. (2001) *Rethinking Resource Management: Justice, Sustainability and Indigenous Peoples*. Routledge, London and New York.
- Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A. and Seeley, J. (2006) High value forests, hidden economies and elite capture: evidence from forest user groups in Nepal’s Terai. *Ecological Economics* **58**, 93–107.
- Kanel, K. (2001) Forests, collective action, and policy instruments in Nepal: aligning decentralization with fiscal responsibility. In: *Eighth Workshop on Community Management of Forestlands*. The East-West Center, Honolulu.
- Kanel, K. and Niraula, D.R. (2004) Can rural livelihoods be improved in Nepal through community forestry? *Banko Janakari* **14**, 19–26.
- Luitel, H. (2006) Do civil society organizations promote equity in community forestry? A reflection from Nepal’s experience. In: Mahanty, S., Fox, J., Nurse, M., Stephen, P. and McLees, L. (eds) *Hanging in the Balance: Equity in Community-Based Natural Resource Management in Asia*. RECOFTC and East-West Centre, Bangkok and Honolulu, pp. 122–142.
- Mahanty, S., Fox, J., Nurse, M., Stephen, P. and McLees, L. (2006) *Hanging in the Balance: Equity in Community-Based Natural Resource Management in Asia*. RECOFTC and East-West Centre. Bangkok and Honolulu.
- Maharjan, M. (1998) *The Flow and Distribution of Costs and Benefits in the Chuliban Community Forest, Dhankuta District, Nepal*. Overseas Development Institute. Rural Development Forestry Network. London.

- Malla, Y.B. (1993) Changing role of the forest resource market: an ignored dimension of community forestry. *Banko Janakari* **4**, 28–31.
- Malla, Y.B. (2000) Impact of community forestry policy on rural livelihoods and food security in Nepal. *Unasyuva* **51**(202). <http://www.fao.org/docrep/x7273e/x7273e00.htm>.
- Malla, Y.B., Neupane, H.R. and Branney, P.J. (2003) Why aren't poor people benefiting more from community forestry? *Journal of Forest and Livelihoods* **3**, 78–93.
- Maskey, V., Gebremedhin and Dalton, T.J. (2006) Social and cultural determinants of collective management of community forest in Nepal. *Journal of Forest Economics* **11**, 261–274.
- McCarthy, N., Dutilly-Diane, C. and Drabo, B. (2004) Cooperation, collective action and natural resource management in Burkina Faso. *Agricultural Systems* **82**, 233–255.
- Mearns, R. (1996) Community, collective action and common grazing: the case of post-socialist Mongolia. *Journal of Development Studies* **32**, 297–339.
- Mosse, D. (1997) The symbolic making of a common property resource: history, ecology and locality in a tank-irrigated landscape in south India. *Development and Change* **28**, 467–504.
- Nepal, M., Bohara, A.K. and Barrens, R.P. (2006) *Investigating the Impacts of Social Networks on Household Forest Conservation Effort in Rural Nepal*. Nepal Study Centre, University of New Mexico, Albuquerque, New Mexico.
- Neupane, H.R. (2003) Contested impact of community forestry on equity: some evidences from Nepal. *Journal of Forest and Livelihoods* **2**, 55–61.
- Nightingale, A.J. (2003) Nature — society and development: social, cultural and ecological change in Nepal. *Geoforum* **34**, 525–540.
- Olson, M. (1965) *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge University Press, Cambridge.
- Ostrom, E. (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge.
- Peluso, N.L. (1992) *Rich Forests, Poor People: Resource Control and Resistance in Java*. University of California Press, Berkeley and Oxford.
- Petrzelka, P. and Bell, M.M. (2000) Rationality and solidarities: the social organization of common property resources in the Imdrhas Valley of Morocco. *Human Organization* **59**, 343–352.
- Ribot, J.C. (2002) *Democratic Decentralisation of Natural Resources: Institutionalising Popular Participation*. World Resources Institute, Washington, DC.
- Robbins, P. (2004) *Political Ecology: A Critical Introduction*. Blackwell Publishing, Oxford.
- Roberts, E.H. and Gautam, M.K. (2003) International experiences of community forestry and its potentials in forest management for Australia and New Zealand. In: *Australia and New Zealand Institutes of Foresters Conference*. Queenstown, NZ, May 2003, pp. 394–404.
- Shrestha, K.K. (2005) Collective action and equity in Nepalese community forestry. PhD thesis, The University of Sydney, Sydney.
- Shrestha, K.K. and McManus, P. (2005) Sustaining inequity? Rethinking the history of Nepalese forest policy. In: Calver, M. (ed.) *Forest Consciousness*. Proceedings 6th National Conference of the Australian Forest History Society. Millpress, Rotterdam, pp. 681–691.
- Springate-Baginski, O., Dev, O.P., Yadav, N.P. and Soussan, J. (2003) Community forest management in the Middle Hills of Nepal: the changing context. *Journal of Forest and Livelihoods* **3**, 5–20.
- Uphoff, N. (1992) *Learning from Gal Oya: Possibilities for Participatory Development and Post-Newtonian Social Science*. Cornell University Press, Ithaca and London.
- Warner, K. (1997) The vision and role of community forestry in sustainable development. In: *Proceeding of the XI World Forestry Congress: Social Dimension of Forestry's Contribution to Sustainable Development*. Vol. 5, Section F.26, 13–22 October 1997, Antalya.
- Yadav, N.P., Dev, O.P., Springate-Baginski, O. and Soussan, J. (2003) Forest management and utilization under community forestry. *Journal of Forest and Livelihoods* **3**, 37–50.
- Yin, R.K. (2002) *Case Study Research, Design and Methods*. 3rd edition, Sage Publications, Newbury Park.