

A review of forest policies, institutions, and changes in the resource condition in Nepal

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SUMMARY

This paper reviews the evolution of forest policies and forestry institutions in Nepal and tracks the accompanying trends of change in the country's forest cover over the last century. Our objective is to provide an essential foundation to the policy reform process that is underway in Nepal and many other Asian countries. The review shows that before 1957 the Nepalese government's focus was on conversion of forestlands to farmlands, and extraction of timber for export. After the nationalisation of the forests in 1957 until 1976, policy-making efforts were oriented towards national control of forests through stringent laws and expansion of the forest bureaucracy. This approach failed as evidenced by widespread deforestation and forest degradation across the country during the 1960s through 1980s. Early efforts of the government and donor agencies to rectify the problem through reforestation and afforestation also largely failed, but these efforts paved the way for subsequent initiation of the participatory approach to forest management in the late 1970s. Since then, community-based forest management evolved continuously under the aegis of supportive forest policies and legislations. The present community forestry program has met with notable successes in some areas. However, the program has been confronted with some contentious issues in recent years including a policy debate over the suitability of forests in the southern lowlands (the *terai*) for community management and sharing of income obtained from community forests. These and some other issues surrounding the community forestry program are discussed and their implications for designing or improving future forest governance have been identified.

Keywords: Nepal, forest policy, deforestation, community forestry, conflicts

INTRODUCTION

Nepal has witnessed substantial shifts in forest policy and management approaches since the beginning of the twentieth century when serious public concern regarding the use of the country's forest resources began. Initially the focus of the Nepalese government was on maximising the utilisation of the resource either through exploitation of quality forests for exports to earn national revenue or through the conversion of forestlands to agriculture in order to widen the tax base and increase food production (Griffin *et al.* 1988). The forests were nationalised in 1957, beginning an era of increased national control of the resource. Following the nationalisation, stringent laws were promulgated and the forest bureaucracy was expanded, but this could not control the widespread deforestation occurring across the country. It is widely believed that the policy of nationalisation was one of the principal underlying causes for the increase in deforestation and forest degradation (e.g. Hobley 1985; Shrestha 1996).

Amid growing local and international concerns over the high rates of deforestation and its consequences, the government implemented community-based forestry in 1978 considering it as one potential mechanism through which the supply of basic forest products for subsistence needs

could be increased, and ecological degradation could be abated. Since then, the community forestry program has evolved continuously under the aegis of supportive forest policies and legislations. The present community and leasehold forestry programs, implemented by the government with supports from several bilateral and multilateral donor agencies, have met with some notable successes, particularly in the middle hills, in terms of reversing the deforestation process, local institutional development and economic benefit to the local people (Virgo and Subba 1994; Pardo 1995; Collett *et al.* 1996; Jackson *et al.* 1998; Sterk 1998; Acharya 2002; Gautam *et al.* 2002a, Gautam *et al.* 2003). Because of these successes, Nepal is now considered one of the most progressive countries in the world in terms of community-based forest management.

The community forestry program, however, is not free of problems. The success of the program is variable across the country. For example, the program has been far less successful in the *terai* and high mountain regions when compared to the middle hills, in terms of both spatial coverage and number of community forests (JTRCF 2001). Several anomalies and misconduct by community Forest User Groups (FUGs) have been reported from the field, particularly in the *terai* (see Baral and Subedi 2000). Moreover, the program has been confronted with a new

policy debate in recent years concerning the suitability of the *terai* forests for community management and sharing of income obtained from commercial sell of forest products from community forests (see HMGN 2000; Mahapatra 2001, Malla 2001). In fact, a new policy of collaborative forest management has emerged for the *terai* that has limited the expansion of community forestry in only barren lands, shrublands, and isolated forest patches.

Addressing the issues surrounding forest management in the future requires a great deal of information on forests through time. Similarly, a thorough knowledge of policy evolution, type of institutions, law, and participants that were involved in the policy process is of utmost importance to deal with the complex nature of policy reforms (Cubbage *et al.* 1993). Much research in the past tried to fulfil these requirements by analysing relationships between the biophysical changes in forest cover and policy and institutional changes (e.g. Schweik *et al.* 1997; Branney and Yadav 1998; Jackson *et al.* 1998; Gautam *et al.* 2002b, Gautam *et al.* 2003; Schweik *et al.* 2003). Similarly, a number of past studies investigated the causes and consequences of deforestation in the country (e.g. Wallace 1981; Thapa and Weber 1990; Schreier *et al.* 1994). Those studies, however, were neither able to explore the complete history of forest management in the country, nor could they provide information about the relationships among the policies, institutions and forest cover changes at the national level.

This paper reviews the evolution of forest policies, legislations and forestry institutions in Nepal, and tracks the accompanying trends of forest cover changes over the last century. The evolution of the community forestry program, its impacts on forest cover and some contentious issues surrounding the program have been discussed and their implications on national policy are identified. The objective is to provide foundation for the policy reform process that is underway in Nepal and many other Asian countries aimed at sustainable management of the remaining forest resources. The study is particularly important when viewed in the context that Nepal is one of the leading countries in the world in terms of community-based forest management.

CHANGES IN FOREST POLICIES AND LEGISLATIONS

The approach to the practice of forest management underwent a steady evolution in Nepal during the last century. Various forest policies were formulated and legislative arrangements were made to solve the perceived problems. Based on these major policy changes, the history of forest management in Nepal can be broadly divided into the following periods.

Before 1957

Before a Shah king of Gorkha unified Nepal in 1769, the area was divided into a number of smaller kingdoms. As

the population was small and the resources were abundant, the successive rulers of these early periods felt little need to regulate forest use, and therefore showed little interest in promoting sustainable forest management. The government encouraged individuals to convert forestland to agriculture to increase food production and to increase state revenue through land tax collection (Wallace 1981; Mahat *et al.* 1986). The earlier policy of encouraging individuals to convert forestland to agriculture was continued during the hereditary dynasty of the *Ranas* (1846 – 1950). In the mountains and hills, *talukdars* (village headmen appointed by the *Ranas*) had the responsibility of regulating forest use, but there was hardly any restriction on forest product extraction for subsistence (Mathema *et al.* 1999).

The extensive *terai* forests were little disturbed until the late 1920s, when the government initiated expansion of cultivated areas by clearing some forests and extracting timber in other forests for export to India to collect revenue (Joshi 1993). The government hired an experienced British forester (J.V. Collier) who had a long working experience in India for 1925–1930 to supervise and improve timber felling in the *terai*. Collier produced a report in 1928, which suggested extensive clearing of the *terai* forests for conversion to agriculture and settlements (Graner 1997). Many forestlands were also given as *birtas*¹ to the members of the *Rana* family and as *jagir*² to influential officials. According to one estimate, almost one-third of the total forests and cultivated lands were under *birta* tenure by 1950, 75% of that belonged to the *Rana* family (Joshi 1993).

A popular movement in 1950 overthrew the *Rana* government. The democratic government succeeding the *Ranas* prepared a draft policy on rural forestry in 1952–53 with the help of a Food and Agriculture Organisation expert (E. Robbe). The policy pointed to two important problems requiring immediate attention, namely the problems of reforestation in the hills and soil conservation in the *siwaliks*³ (Graner 1997). The draft policy, however, was not enacted and the practice of converting forestland into farmland and export of timber from the *terai* continued even after 1950.

From 1957 to 1976

The government nationalised all the forests in 1957 through the Private Forests (Nationalisation) Act. According to Regmi (1978), the intention behind the nationalisation was to prevent the destruction of forests and to ensure adequate

1 Land granted to individuals for special services. The system of granting *birta* was increasingly abused during the *Rana* period when members of the extended ruling family started issuing *birtas* favourably within their family and close relatives (Regmi, 1978).

2 Land assigned to government employees and functionaries for collecting and using share of produce accruing to the state in lieu of or in addition to cash remuneration. *Jagir* assignments were usually granted for the lifetime (Regmi, 1978).

3 *Siwaliks* are a narrow strip of fragile hills extending east-west in between the middle hills and the *terai*. *Siwaliks* are also known as the *churia*.

protection, maintenance, and utilisation of privately owned forests. The Forest Act of 1957 led to tremendous controversy and ignited debates regarding its role in deforestation. Many argued that nationalisation destroyed the indigenous forest management systems depriving the local people of their right to manage and benefit from the forests and as a result forests effectively became open access resources (e.g. Hobley 1985; Messerschmidt 1993). However, Gilmour and Fisher (1991) argue that new institutions arose even after the 1957 Act was passed thus rejecting the open access claim. Still others argued that the nationalisation was deemed necessary to prevent the deposed *Rana* rulers from continuing to use the *terai* forests as their own property (e.g. Joshi 1993). Although a separate ministry, the Ministry of Forestry, was established in 1959 and the government bureaucracy had expanded, the government was unable to control the widespread deforestation that was occurring in vast inaccessible areas. According to Joshi (1993), this was because the government was not prepared to assume the management responsibilities of newly formalised forest ownership after the nationalisation.

Following the replacement of the democratic government by a party-less *panchayat*⁴ system in 1961, a comprehensive forestry legislation – The Forest Act of 1961 – was promulgated. The Act, among other things, (i) divided forests into different categories, (ii) defined the duties and authority of the forest department, (iii) listed offences, and (iv) prescribed penalties. In an attempt to further strengthen the role of the forest department in controlling deforestation, the Forest Protection (Special Provision) Act was formulated in 1967. The Act made provisions for stronger penalties for damaging or removing forest products from national forests without official permission. These Acts, however, were still unable to produce the desired results, mainly due to poor enforcement (Wallace 1981). Moreover, none of the Acts dealt with sustainable management, future planning, and the needs of the people, but were only concerned with the sale of forest products, prohibition, punishment and organisational changes. In 1962, working plans were prepared for some *terai* districts but they were never implemented. The role of the forestry staff during this period was limited to forest protection through policing, and local people were considered offenders (Joshi 1993).

Pressure on the *terai* forestland was also accelerated due to migration into the region and the government's resettlement programs. The eradication of malaria in the *terai* during the 1950s and the 1960s encouraged a massive migration of people from the mountains and hills to the *terai* in search of fertile agricultural lands. Moreover, a total of 103,968 ha of forest in the *siwaliks* and the *terai* were cleared under settlement programs beginning in the 1950s (to the mid 1980s; HMGN/ADB/FINIDA 1988). An

additional 100,000 ha were illegally encroached during the same period (Joshi 1993). Although the stated objective of the resettlement program was to control forest encroachment and destruction by settling families in designated areas, in practice the policy indirectly encouraged illegal encroachment of forests for cultivation. People encroached forestlands with the hope of getting it registered as private property once the land was cleared and cultivated (Wallace 1981).

From 1976 to 1988

Following the recommendations of the Ninth Forestry Conference held in Kathmandu in 1974, the government drafted a national forestry plan in 1976. For the first time the Plan recognised the role of local communities and specifically emphasised their participation in forest management (Pokharel 1997). To implement the concept laid down in the Plan, the Forest Act of 1961 was amended in 1977 to define new categories of forests to be managed by local communities, religious institutions and individuals. Operating rules for the *Panchayat* Forest (PF) and the *Panchayat* Protected Forest (PPF) were prepared in 1978, which allowed village *panchayats* to manage barren or degraded lands for forest production. A further provision of leasehold forestry was made in the Rules, allowing a limited area of degraded forestland to be given to individuals or agencies for reforestation and production of forest products (Wallace 1981). These amendments in the Forest Act and Regulations have been taken as evidence of the government's realisation that forests cannot be managed without the cooperation of local communities and hence represent a major shift in Nepal's forest policy (Shrestha 1996). However, the success of the partnership between the Forest Department and the *panchayats* was very low due to various reasons (see Pokharel 1997).

During the initial stage of participatory policy creation, the emphasis of the government and donor agencies was on resource creation through reforestation and afforestation projects. People's involvement in forest management was limited to activities directly related to the government project objectives (Collett *et al.* 1996). Part of the reason for this emphasis was the strong international influence originating from the perception of an imminent ecological crisis in the Himalayas (see Eckholm 1975), which prompted donor agencies, particularly the World Bank, to recommend large-scale plantations to address the perceived problem.

1988 onwards

The 25-year Master Plan for the Forestry Sector (HMGN/ADB/FINIDA 1988) was prepared during 1986–88 and was approved by the government in 1989. The Plan recognised community and private forestry as the largest among the six primary forestry programs and encouraged the transfer of forest access and management rights (i.e. tenure) to local communities. The Master Plan emphasised the need to establish FUGs as the appropriate local management bodies

4 A village *panchayat* was the lowest politico-administrative unit during the party-less *panchayat* system of government. It has been renamed as Village Development Committee (VDC) after the restoration of democracy in the country in 1990.

responsible for the protection, development, and sustainable utilisation of local forests. The Plan also made the development of an operational forest management plan by communities a prerequisite to handing over forests for their use. It also emphasised the need for retraining the entire forestry staff for their new roles as advisors and extension workers. The Plan recommended handing over all accessible forests in the hills to local communities to the extent that they were willing and able to manage them (Bartlett 1992). The formulation and implementation of the Master Plan can thus be considered a turning point in the history of forestry sector policy in Nepal.

A new forestry legislation (HMGN 1993, 1995) was promulgated and enforced in 1995 for improved implementation of the Master Plan. The Forest Act of 1993 categorised national forests into five sub-categories, namely community forest, leasehold forest, government-managed forest, religious forest, and protected forest. Community forestry was given the highest priority over other types of forest management. A community forest is the forest collectively managed by local villagers who have organised themselves into a FUG according to negotiated and approved management agreements with a local district forest office. The Act identified a community FUG as a self-governed autonomous entity with authority to independently manage and use the forest according to an agreed management plan. An amendment to the Act in 1999, however, made it mandatory for a FUG to invest at least 25% of its income in the development and conservation of the community forest.

The effect of this policy and legislative changes has been positive. The community forestry program has dramatically expanded in terms of both spatial coverage and number of forests handed over to local communities after the enforcement of the new legislation (i.e. HMGN 1993; 1995). Forest Department records show that a total of 12,924 registered FUGs, including 1,450,527 households, already existed in the country (as of 9 December 2003) managing 1,042,385 ha of community forestland (about 18% of the country's forested area). Most of these community forests were in the middle hills. Many community FUGs have now moved into intensive forest management for the purpose of producing surplus for sales (JTRCF 2001).

The evidence from limited past studies, however, shows that there are wide variations in the success of community-based forest management programs across the country. For example, the community forestry program has been far less successful in the *terai* when compared with the middle hills (JTRCF 2001). This is in terms of number of FUGs organised for forest management as well as spatial coverage of community forests. The most recent FUG database record (9 December 2003) of the forest department shows that only 4.4% of the total registered FUGs in the country are in the *terai* (including inner-*terai*, and *churia*) managing 6.3% of the total community forestlands. This was despite the fact that more than 48% of the country's population lives in this region and the region includes 31.5% of the total forested lands.

Several factors might have contributed to the lower success of the community forestry program in the *terai*. The conservative approach adopted by the forest department in the handing over of forests to the local communities has been believed to be one of the most important factors. Unlike the hills and mountains, it seems that the forest department is not willing to relinquish its authority from the *terai* forests to the local communities. Various forms of anomalies and misconduct by community FUGs, the socio-economic context of the *terai* (greater ethnic heterogeneity, better accessibility, high migration into the region, and better access to markets) and characteristics of the forest resource (high value) have often been presented by researchers as the major underlying factors responsible for both government scepticism in handing over forests to local communities and mismanagement by FUGs (e.g. Baral and Subedi 2000; Chakraborty 2001).

Recent policy initiatives

There have been some recent changes in Nepal's forest policy. According to a recent (2001) policy amendment, a FUG is required to share 40% of its income generated from the sell of surplus forest products for commercial use with the national, and local governments (i.e. the Village Development Committee and District Development Committee). Earlier (September 2000), the Forest Department issued a Circular prohibiting the extraction of any forest product from a community forest, even for meeting subsistence needs, unless a forest resource inventory and assessment of annual increment has been made. The government has also adopted a separate policy for the *terai*, inner-*terai*, and *churia* forests since 2000. According to this policy contiguous large blocks of forests in the *terai* and inner-*terai* are to be managed as national forest under a collaborative management arrangement while setting aside barren lands, shrublands, and isolated forest patches for handing over as community forests (HMGN 2000).

The above changes in the government forest policy have met with strong opposition from the civil society, particularly the Federation of Community Forest Users in Nepal (FECOFUN). The FECOFUN considers the above provisions in the new policy to be against the principles of decentralised forest management as envisaged by the Forest Act of 1993 (pers. comm. with FECOFUN leaders). The FECOFUN is arguing that the new policy would discourage the FUGs in their effort to conserve the country's forests and is pleading with the government to withdraw the policy. Many researchers also have criticised the new policy (e.g. Ambus and Shrestha 2001; Mahapatra 2001; Malla 2001).

FORESTRY INSTITUTIONS

Government organisations

Since it was first established as *Ban Janch Adda* (forest inspection office) around 1880, the forestry administration

in Nepal has undergone a series of fundamental changes and has been substantially expanded over the years. The *Kathmahal* (timber office) was established in 1927 with the purpose of supplying railway sleepers to India. The Department of Forest (DoF) was established in 1942 with a primary objective of carrying out forest exploitation under a series of working plans, following the format originally established in British India (Hobley 1996). Initially, the department had three regional and 12 divisional forest offices under it as recommended by a British forestry advisor E.A. Smithies, who spend several years with the Indian Forest Service.

There have been considerable changes in the organisational structure of the DoF since its establishment. Significant among those were the changes of 1976, 1983, 1988, and 1993 (see DoF 1994). The department now has 74 district forest offices, 92 *ilaka* (sub-district) forest offices and 698 range posts under it. Along with the structural changes, there have been substantial changes in the number of employees working for the DoF. For example, in 1961 there were about 2,000 staff; this figure increased to around 6,000 by 1987, and over 7,000 in 1995 (Pokharel 1997). Historically, the main role of the district forestry staff was to protect forests through policing. In recent years, particularly after the government adopted community forestry as its main forestry strategy, there has been a gradual shift in their role from policing towards facilitation and extension.

The Ministry of Forest and Soil Conservation (MFSC), in coordination with the National Planning Commission, is responsible for formulating forest policies and administering the country's forest resources. Since its establishment in 1959 as the Ministry of Forestry, the Ministry has undergone several structural changes. The present organisational structure of the Ministry consists of five divisions under the secretary to look after the functions of planning and human resources, foreign aid, environment, monitoring and evaluation, and administration. In addition, there are five departments, five regional forest offices and three semi-government corporate agencies under the Ministry. The DoF is the largest and oldest organisation among the five departments within the MFSC.

The five regional forest directors are responsible for coordinating, planning and monitoring district forestry activities within the region. However, because of insufficient resources and executive authority, the regional forest offices are not capable of functioning as intended (Pokharel 1997). The five regional forest training centres, which are positioned under the DoF and work under the general supervision of the concerned regional director, conduct in-service refresher training for the lower-level technicians, organise forest management training for the FUG members, and facilitate networking among FUGs through seminars and workshops. The district forest offices are the carriers of government policy in the field and are responsible for the planning and implementation of district level forestry programs. The districts are divided into three

ilaka forest offices and 4 to 15 range posts. Range post and *ilaka* staffs are often the contact points for the local people and act as the interface between the local people and government bureaucracy.

Some other government departments such as the Department of Soil Conservation and Watershed Management and the Department of Wildlife and National Parks also implement some forestry programs through local user groups or directly by the departments. The Department of Forest Research and Survey is the only government agency that carries out forestry research and is responsible for providing forestry information required by other departments including the Department of Forest.

Despite several changes in the organisational structure and the substantial increase in the number of employees, the success of the government forestry agencies in achieving the objectives of sustainable forest management has been debated over the years. Joshi (1993) argued that contradictory forest policies and frequent changes in legislation were primarily responsible for creating an unstable and counterproductive government forest administration.

Community-based institutions

Community-based management of forest, in the form of traditional or indigenous systems, has a long history in Nepal, particularly in the hills (Arnold and Campbell 1986; Fisher 1989; Gilmour 1990; Messerschmidt 1993). These systems were operational under different types of institutional arrangements at different times and locations. During the period when the country was ruled by the *Ranas*, many hill forests were under the responsibility of *talukdars*. *Kipat* was another form of land tenure in which land was regarded as the common property of the local ethnic group and was managed from within the ethnic group's organisation (Fisher 1989). Some of the rules adopted by these indigenous systems of forest management included, (i) only harvesting selected products and species, (ii) harvesting according to the condition of the product, (iii) limiting the amount of product, and (iv) using social means of monitoring (Arnold and Campbell 1986). Some forms of indigenous systems continue to exist in many places despite a general belief that the nationalisation of forests in 1957 destroyed these systems and forests under indigenous management are usually of higher quality compared to other forests in the same area. The continuous survival of indigenous forest management systems in many locations despite the nationalisation of forests in 1957 was probably because of informal cooperation between communities and local officials that allowed successful forest conservation practices to continue against the national policy.

The FUGs formed under the state-sponsored community forestry program are important local forestry organisations at present. Each FUG is authorised to make rules related to the governance of the community forest and the FUG itself. Rules crafted by the FUGs become

operational after receiving approval from the concerned district forest officer. The establishment of FUGs and handing over forests into their care and supervision has vastly improved the level of contact and cooperation between the forest department and the local people in recent years (Collett *et al.* 1996). Lease groups formed under the leasehold forestry program for the poor are another type community-based forestry organisation. Each lease group is composed of a small group (5–10) of local people living below the poverty line who have organised themselves into a group to manage and use degraded forestland handed over to them by the district forest office (Sterk 1998).

Federation of Community Forest Users in Nepal

The Federation of Community Forest Users in Nepal (FECOFUN) is a non-government organisation established in 1995 to complement government initiatives related to the development of community forestry. Over the years, there has been a considerable expansion in the organisational structure as well as the objective of the FECOFUN. It is now working as an advocacy and lobbying organisation to protect the rights of community forest users and contribute to the development of community forestry (Shrestha 2000). The organisation has a multi-tiered structure with FUGs organised in VDC level networks, range post networks, district networks, regional networks and the central FECOFUN. By the end of 2001, more than 65 districts (out of a total of 75) had FECOFUN organisations that included more than 6,100 member FUGs (Ambus and Shrestha 2001). FECOFUN has become an influential player at the national level and is probably the only national federation of forest users in Asia.

Other agencies

Several bilateral and multilateral donor agencies have contributed in the development of the forestry sector in Nepal by providing financial and technical assistance, primarily for the implementation of the community forestry program. The history of such assistance dates back to the early 1970s.

FOREST COVER CHANGES

The first scientific measurement of Nepal's forest resources was carried out by the Forest Resources Survey Office of His Majesty's Government of Nepal (HMGN) with the assistance of the United States Agency for International Development. The survey, which began in 1963, was based on aerial photographs taken during 1953–67 and complemented by strip photographs covering 10% of the surveyed area. Based on this survey, the total forest area of the country in 1964 was estimated to be 6.4 million (m) ha (Wallace 1981). As the survey did not cover the high Himalayan region and there were considerable gaps in the coverage of the hill region, these results give only a rough estimate of the country's forested area. No information was available for shrublands, which are mostly degraded forests. For about the same period (1964–65), the Water and Energy Commission Secretariat (WECS) of HMGN estimated the total area under forest and shrub cover as 6.5 m ha, including 3.9 m ha in the hills and mountains, 1.7 m ha in the *siwaliks* and 0.8 m ha in the *terai* (Figure 1). Detailed information regarding the methodology used by WECS is not available, except that the estimates were based on aerial

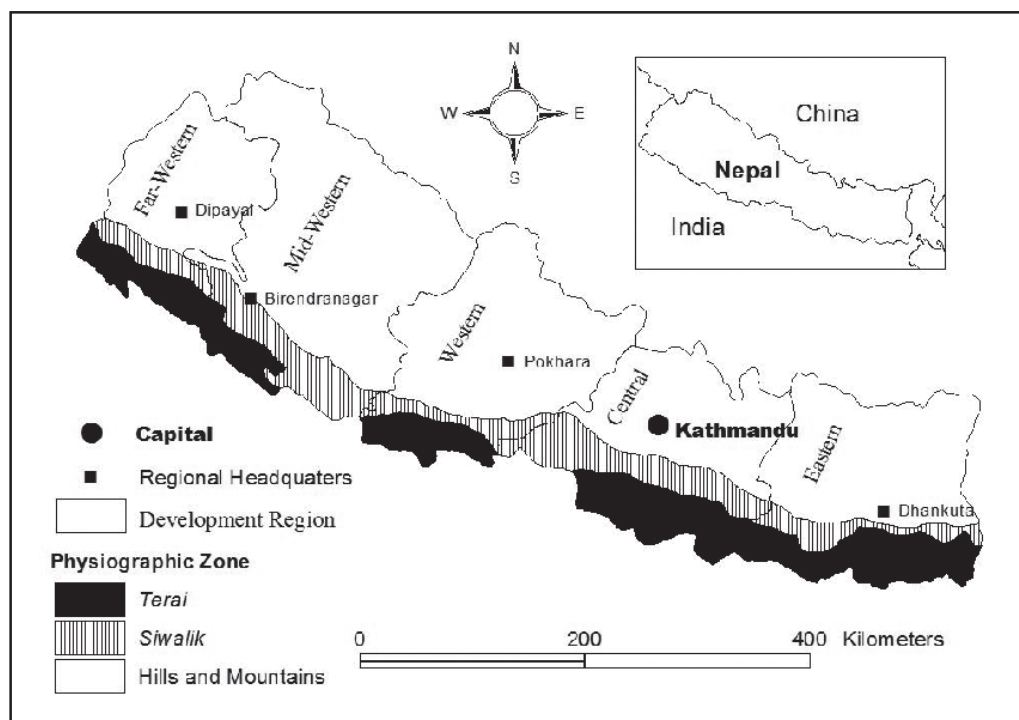


FIGURE 1 *Physiographic zones and development regions of Nepal*

photographs taken in 1964–65 (HMG/ADB/FINIDA, 1988).

A detailed mapping of land resources for the entire country was carried out by the Land Resources Mapping Project (LRMP), a joint venture between HMG/ADB and Kenting Earth Sciences Limited of Ottawa, Canada. The survey was based on aerial photography flown in 1978–79, supplemented by extensive field checking and sampling. The LRMP estimated the total area covered by forests and shrubs as 6.3 m ha, including 4.0 m ha in the mountains, 1.7 m ha in the *siwaliks*, and 0.6 m ha in the *terai* (LRMP 1986). Eight years later, the Master Plan for Forestry Sector Project updated the LRMP results by taking into account the loss of *terai* and *siwalik* forests to settlements, overharvest of forests to meet fuelwood needs, and plantation establishments during the period (HMG/ADB/FINIDA, 1988). The results show a small increase in forest area in the hills and mountains and decrease in the *terai* and the *siwaliks*.

An analysis of the changes in forest area between 1965 and 1986, based on the estimates of forest cover by the WECS, LRMP, and the Master Plan, shows that the highest rate of deforestation during the period was in the *terai* followed by the *siwaliks*. The deforestation rate in the *siwaliks* increased substantially after 1979. The forest area in the mountains remained largely stable during the period (Table 1).

The latest national level forest survey was conducted by the Department of Forest Research and Survey (DoFRS) of HMG/ADB between 1987 and 1998, with assistance from the Forest Resource Information System Project (FRISP) funded by the government of Finland.

The survey, named the National Forest Inventory (NFI), took 1994 as the reference year. The survey used different methods for different areas. Landsat Thematic Mapper satellite images taken in November–December 1990 and 1991 were used to map the forest cover of 14 *terai* and inner-*terai* districts. Forest cover data for another 10 *terai* and inner-*terai* districts was obtained from aerial photo interpretation supplemented by field checking. The forest cover for the rest of the 51 hill districts was analysed by interpreting a systematic grid of air photo points (DoFRS/FRISP 1999). The inventory results of NFI, which were published in 1999, show a 4.3 m ha (29%) area under forest cover and an additional 1.6 m ha (10.6%) under shrubs.

A comparison of NFI results with LRMP – the two most comprehensive forest surveys – shows that the forest area in the country decreased by 24% over a period of 15 years (1979–1994), by an annual rate of 1.6%, and the area under shrubs increased by 126% during the same period (Table 2). The high increase of shrubland while the forest area was decreasing gives clear evidence of high rates of forest degradation over the period, although the total loss of forested area was not substantial.

The statistics presented above are the official estimates of forest cover changes in Nepal. There are a number of other studies conducted on various scales that explain or estimate the deforestation rates in the country. Eckholm (1975) and Blaikie (1985) were among the early researchers who presented deforestation in Nepal as a classical example of environmental crisis in developing countries. Wallace (1981) compared the 1964 official estimates with a study conducted by an integrated watershed management project

TABLE 1 Changes in forest plus shrub cover over time by physiographic zones. Area in '000 ha; shown within parenthesis is the data source

Zone	1964–1965 (WECS)		1978–1979 (LRMP)		1985–1986 (Master Plan)		Annual rate of change (%)	
	Area	%	Area	%	Area	%	1965–1979	1979–1986
Hills and Mountains	3,944	36.7	4,016	37.4	4,252	39.5	+0.1	+0.8
<i>Siwaliks</i>	1,739	92.2	1,698	90.0	1,467	77.8	-0.2	-1.9
<i>Terai</i>	784	37.2	593	28.1	505	23.9	-1.7	-2.1
Total	6,467	43.9	6,307	42.7	6,224	42.2	-0.2	-0.2

TABLE 2 Changes in forest and shrub cover of Nepal over time. Area in '000 ha; shown within parenthesis is the source

Category	1978–1979 (LRMP)		1985–1986 (Master Plan)		1994 (NFI)		% change 1979–1994	
	Area	%	Area	%	Area	%	Total	Annual
Forest	5,617	38.0	5,518	37.4	4,269	29.0	-24.0	-1.6
Shrub	690	4.7	706	4.8	1,560	10.6	+126.0	+8.4
Total	6,307	42.7	6,224	42.2	5,829	39.6	-7.6	-0.5

Note: The total land area of the country used in NFI (147,181 km²) differs from the area used in earlier studies (147,484 km²). The percentages in this paper are calculated accordingly for respective periods.

in 1975 and found that a total of 2.3 million ha of forest was lost over this period; “a decrease of over one-third in just over a decade” (Wallace 1981). Thapa and Weber (1990) found the deforestation rate (4.1%) of Nepal between 1950 and 1975 to be among the highest of selected tropical countries of south and South East Asia, with more than 25% of the total forest cover lost during this time. Mahat *et al.* (1987), in a study conducted in parts of two hilly districts in Central Nepal (south-east Sindhupalchok and north-east Kabhrepalanchok) found no significant changes in forest area for at least a century, although forests were found to have degenerated in quality, particularly between 1951 and 1963.

The national forest survey reports produced by the government agencies did not discuss the factors causing deforestation and there is considerable disagreement among researchers on this issue. The nationalisation of forests in 1957 and high rates of population growth have been identified as some of the major underlying causes (e.g. Hobley 1985; Mahat *et al.* 1986; Shrestha 1996), while increased extraction of fuelwood and fodder and subsequent expansions of agriculture for subsistence were the major proximate causes (e.g. Bajracharya 1983; Griffin *et al.* 1988). Wallace (1981) reported that “under-investment in the replenishment of the forest is likely to be a much greater problem than overuse” when considering deforestation in Nepal. Illicit felling of timber trees for smuggling across the border and government settlement programs were other main causes identified for high rates of deforestation in the *terai*.

While most of the past studies presented a gloomy picture of deforestation in the country, a few recent studies conducted in relatively small areas in the middle hills show improving forest conditions after the implementation of the community forestry program (e.g. Schreier *et al.* 1994; Virgo and Subba 1994; Jackson, *et al.* 1998; Gautam *et al.* 2002b). The findings of a remote sensing and GIS based study conducted recently by the authors in a mountain watershed in central Nepal corroborate these findings and show that forest cover in the watershed increased by about 15% between 1976 and 2000, mainly by the regeneration of shrublands and grasslands into high forests (Gautam *et al.* 2003). However, the high rates of deforestation continue in the *terai* because of low success of the community forestry program and lack of scientific management of government-controlled forests.

DISCUSSION AND POLICY IMPLICATIONS

The review of Nepal's forest policy, institutions, and the trends of changes in forest condition presented in the preceding sections provides several important insights into the historical context in which the forest resources of the country were governed, how policies were formulated and institutions designed to solve the perceived problems. Through this parallel analysis of policies, institutions, and forest cover changes, we attempted to illustrate how these

three major elements of forest governance influence one another.

Our attempt to establish direct relationships among forest policy, institutions, and forest cover change, however, was limited by the available information on each of these three elements. Changes in forest policy and institutional developments were more closely related but the available statistics on forest cover change do not exactly match with changes in policy and institutional arrangements. Because of this limitation, the trends of forest cover changes can only be indirectly compared with the policy and institutional changes. Despite this limitation, the study has been successful in showing the broad association among policy, institutions, and forest cover changes in Nepal over the last century. Moreover, the study has drawn evidence from several empirical studies conducted at smaller spatial scales that more clearly show the influence of policy and institutional arrangements on forest cover changes (e.g. Schreier *et al.* 1994; Virgo and Subba 1994; Schweik *et al.* 1997; Branney and Yadav 1998; Jackson *et al.* 1998; Gautam *et al.* 2002b; Gautam *et al.* 2003; Schweik *et al.* 2003).

The review led to the following four main conclusions and associated implications for designing or improving future forest governance in Nepal and other developing countries having similar socioeconomic and ecological settings.

Forest policy reform was a complex process

The review shows that the changes in the government forest policy of Nepal were influenced by several factors and actors. One of the important factors guiding the policy changes was the perception of the government on forestry-related problems in different periods. For example, before 1976 the people were seen as part of the problem causing deforestation and legislation permitting centralised control of forests and strong bureaucracy were considered the appropriate solution. The nationalisation of forests in 1957, creation of stringent forest acts including the Forest Act of 1961 and Forest Protection (Special Provision) Act of 1967, and substantial expansion of the forest bureaucracy are evidence of changing perceptions of the government.

After about two decades of unsuccessful attempts of managing forests through bureaucratic machinery alone, the government realised the necessity of involving local people in forest management to control the rapid loss of forest occurring across the vast inaccessible areas. The National Forestry Plan of 1976 and following amendments in forestry legislation (e.g. the *Panchayat* Forest and *Panchayat* Protected Forest Rules of 1978) were the result of the realisation on the part of the government that the forests cannot be managed without the cooperation of local communities. The long-existing traditional or indigenous forest management systems that were operational under different types of institutional arrangements at different times and locations, provided a strong foundation for the change in forest policy. International influence was another important factor contributing to the changes in forest

policy. For example, perception of the so-called “ecological crisis” in the Himalayas during the mid-1970s prompted the international community, particularly the World Bank, to take an interest in Nepal’s forest management, and supported changes to forest policy.

Despite poor outcomes from the implementation of the *Panchayat* Forest and *Panchayat* Protected Forest rules, the government forest policy continued to evolve in the favour of community-based management after 1978. Preparation and implementation of the 25-year Master Plan in 1989 and the enactment of progressive forestry legislation (HMGN 1993, 1995) to support the Master Plan policy could be taken as evidence of the government’s clear commitment towards community-based forest management. The donor community supporting the community forestry program also played an important role in bringing about those major policy changes. In recent years, the civil society, particularly the FECOFUN, has also been actively involved in the development of the community forestry program. Some environmental NGOs, such as the Nepal Forum of Environmental Journalists, as well as academic institutions and independent researchers, have also contributed to the development process.

It is not quite clear why the government, after having met with certain degree of successes from the community forestry program, came up with a new policy provision that demands a community forest user group to allocate 40% of its income obtained from the commercial sale of forest products to the national coffer. This change in policy has led to a conflict between the civil society, particularly the FECOFUN, and the government forest bureaucracy. The FECOFUN is arguing that the new policy would discourage the FUGs in their effort to conserve the country’s forests and wants the to government withdraw this policy. The policy makers, on the other hand, argue that the proposed taxing system will help reduce the disparity in the distribution of forest benefits among the country’s citizens as the tax money can be used to fulfil the forestry requirements of the people who have no community forest. The conflict over this new policy change is further complicating the issue, and acting against a smooth implementation of the community forestry program in future.

Similarly, there has been no comprehensive study to investigate the possible reasons that prompted the government to adopt a separate forest management policy (HMGN 2000) for the *terai*, inner-*terai* and *churia* regions. We speculate that the past experiences of mismanagement of community forests by some FUGs might have been one of the major bases for this new policy. The socio-economic context of the *terai* (greater ethnic heterogeneity, better accessibility, high migration into the region, and better access to markets) and characteristics of the forest resource (high value) could be some major underlying factors responsible for the government scepticism in handing over block forests in the *terai* and inner-*terai* to local communities. The government may also be concerned about the possibility of inter-community conflicts arising from

the changing ownership of the unevenly distributed *terai* forests. Most of the *terai* forests are confined along the foothills while the settlements extend to a vast area in the south. Because of this, there is a possibility that a vast majority of the villagers, who are currently accessing the forests, may lose their *de facto* rights over these forests if the forests are handed over to nearby communities.

It may also be relevant to link the recent policy changes with the evolution, organisational set up and orientation of the Nepalese forest bureaucracy. The initial structure of the government forestry organisation in Nepal was heavily influenced by the forestry system once used in British India and established for traditional timber production and related silvicultural objectives. Despite changes in policy and experience of implementing various forms of community-based forestry programs, the basic structure and functioning style of the forest bureaucracy remains the same. The Department of Forest, the main implementing agency, still operates within a quasi-feudal culture and possesses many characteristics that are incompatible to the requirements of the community-based forest management policy. For example, decision-making is based on top-down process of command and instruction, rather than interaction and exchange of information. Informal institutions and personal social networks also have a strong influence on decision-making process (Pokharel 1997). These factors might have played role in the policy change process.

The above discussion indicates that forest policy reform in Nepal was a complicated process that was influenced by several factors and actors including the traditional practices, perceived knowledge of the resource condition and problems among participants involved in the policy reform process, the nature of the resource, the socio-economic context, and the institutional as well as individual interests of the stakeholders.

Policy could not bring about the desired outcomes when forest-dependent people were alienated

The failure of the forest nationalisation policy of the Nepalese government, despite substantial expansion of the forest bureaucracy and creation of stringent forest acts, provides clear evidence that alienation of the people through coercive measures is not the appropriate solution to control overexploitation of forests. In fact, the nationalisation of forests in 1957 and the following legislative arrangements (that were oriented to centralised control of the resource) proved to be counterproductive as evidenced by widespread deforestation and forest degradation following those events.

Although it took more than two decades after its implementation, the community-based forest management policy of the government has started producing some positive results. Several studies have reported that forest cover and biophysical conditions have improved in many places under the protection and care of community forest user groups thereby providing economic benefits to the local

people and contributing to environmental conservation (e.g. Jackson *et al.* 1998; Sterk 1998; Webb and Gautam 2001; Acharya 2002; Gautam *et al.* 2002a, Gautam *et al.* 2003). Another important achievement associated with the community forestry program is that the concept of the forest user group as a responsible local organisation entrusted to manage and use forests has been strongly embedded within the institutional structure of the national forest governance system (Collett *et al.* 1996). These findings show that peoples' involvement is essential for achieving the desired outcomes from a forest management effort.

The recent changes in the government forest policy, particularly the proposed sharing of income obtained from the commercial sell of forest products from community forests among the forest user group, the national government, and local governments, and the provision that limits the community forestry in the *terai* and inner-*terai* to barren lands, shrublands, and isolated forest patches, is likely to destroy the mutual trust and collaboration between communities and the forest bureaucracy that has been built up after more than two decades of the implementation of the community forestry program. The government adopted this policy at a time when the community forestry program was being smoothly implemented, at least in the middle hills. The policy changes may result in re-alienation of the local people from forest management, similar the effects of the nationalisation policy in 1957 (although arguably to a lesser extent since use rights would still be legal).

We argue that instead of adopting the blanket approach to community forestry, it may be wise to adopt a broad decentralised forest governance policy and flexible community forestry implementation strategy that can accommodate variations in biophysical, socioeconomic and demographic conditions across space. In fact, the current forestry legislation of Nepal has given the concerned district forest officer the authority of judging the suitability of a forest for community management. The few instances of misuse of authority by some district forest officers and mismanagement of community forest by some FUGs should not be the basis for a change in forest policy, as the reported few cases are outliers and do not represent the general situation. Such problems can be solved through continuous personal as well as organisational changes in forest bureaucracy and the institutional strengthening of FUGs through appropriate training and technical support. Based on our analysis, we conclude that a flexible policy allowing local solutions to variable community forestry situations across space would be far superior to an inflexible blanket policy requiring a complete policy restructuring to confront emerging (or special interest) needs.

Government should be willing to relinquish its authority for the benefits of the local people

The current standing of Nepal as one of the most progressive countries in the world in terms of community-

based forest management can mainly be attributed to the Forest Act of 1993. Although the Master Plan for the Forestry Sector of 1989 provided the clear policy directives in favour of the community forestry program, it was only after the enforcement of the 1993 forest act that the program gained momentum and dramatically expanded in terms of both spatial coverage and the number of forests handed over to local communities. This was because of the government's commitment, through this Act, to relinquish its authority to the local communities by recognising a community FUG as a self-governed autonomous entity with authority to independently manage and use the forest according to an agreed management plan.

It is not yet clear whether the recent adoption of a separate forest policy for the *terai*, inner-*terai*, and *churia* by the government is aimed at undermining the progressive history of community forestry in the country as perceived by the FECOFUN. One of the major factors contributing to this confusion is a lack of reliable information to verify the arguments put forward by each of the two parties (those supporting and opposing the new forest policy). There is no comprehensive research to investigate and understand the position of the government and the FECOFUN on this issue. The biased attitudes of some of the researchers have in fact helped to widen the dispute instead of solving it. For example, Mahapatra (2001:1) stated "...the bill appears to be a strategic legislation to snatch control over the densely forested and highly valued *terai* (plain) forests from an aggressive community that wants to protect it from timber smugglers backed by politicians". The blame of "snatching" control of the *terai* forests by the government is baseless because more than 95% of the *terai* forests have always remained under government control and only a very small proportion (<5%) of the total forested area has been handed over to the local communities in recent years.

There is, however, a general belief that the forest department has remained reluctant to hand over forests to local communities in the *terai*. The new policy limiting the expansion of community forests in the *terai* and inner-*terai* to barren lands, shrublands, and isolated forest patches, provides evidence of the unwillingness of the forest bureaucracy to relinquish its authority from the *terai* forests for the benefits of the local people. One of the arguments of senior forest bureaucrats behind this reluctance is that the communities do not have capacity to manage the more diverse and high value forests of the *terai*. There is, however, not enough evidence to support this argument. There are cases where community forests are better managed than government forests, even in the *terai* (Chakraborty 2001). Moreover, there is a general concern about whether the forest department, which does not have experience with the successful implementation of any forest management plan in the past, will successfully do so in the near future and commence with scientific management of block forests in the *terai*, inner-*terai* and *churia*, as envisaged by the new policy. In this context, the rationale for the new policy seems to be unconvincing.

Policy reform can be successful when traditional practices and institutions are included in the reform process

The evidence from limited past studies shows that there are wide variations in the success of community forestry programs across the country. Such variations have been reported not only among the physiographic regions but also in different locations of the same region (Varughese 1999; Chakraborty 2001) and even within a sub-watershed (Schweik *et al.* 1997; Gautam 2002b). The difference in local institutional arrangements that define rights and responsibilities of the local people towards a forest has been reported to be the major factor leading to those variations. The findings of a recent research conducted in a watershed in the middle hills corroborate the above findings and indicate that formal handover of forest ownership is not a major factor determining successful forest conservation at the local level when the rights to organise and manage forests for the community benefits have been recognised (even informally) by concerned authorities (Gautam *et al.* in press).

The success of the community forestry program in the hills can partly be attributed to many successful indigenous systems of forest management that were in existence before the forests were nationalised in 1957. These local forestry institutions, in many cases, were built upon established systems of authority and responsibility in the villages, including monitoring and enforcement mechanisms. Some of these traditional institutions were formalised by the forest user groups after the implementation of the community forestry program while others provided a basis for the development of new institutions (Gilmour and Fisher 1991).

In contrast to the hills, the *terai* hardly had any indigenous systems of forest management (except for patches of religious forests at some locations). This was probably because of better accessibility, more favourable market condition and high value of the *terai* forests that provided incentives for illegal harvesting and opportunistic behaviour by individuals, thereby weakening the possibilities of local institutional development for collective action. Indeed, illegal logging activities in the *terai* are a serious concern and not infrequent occurrences. The low success of the community forestry program in the *terai* can thus also be linked with the development of local institutions. The above evidence suggests that identification, recognition, and incorporation of local institutions, including indigenous systems of resource management, in the policy reform process are of crucial importance for designing or improving future forest governance and management.

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