

REVIEW ARTICLE

ROLE OF GOVERNMENT POLICIES FOR SUSTAINABLE FOREST RESOURCE MANAGEMENT: A REVIEW

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ABSTRACT

Nepal, which lies between 260 and 300°N and 800 and 880°E longitude, consists of various climatic zones ranging from southern terai, whose annual rainfall ranges from 8 to 535 mm, to high Himalayan, where annual rainfall is maximum up to 2,185 mm. As a 10% canopy cover, the forest is one of the essential resources on which millions of urban people depend. Hence, the government must promote sustainable use of forest resources through scientific principles and policies to meet the needs of the increasing population. Nepal conducted various activities like the first national forestry plan in 1976 A.D. and in 1988, master plan of forestry sector got started. Also, it conducted various other national workshops in 2015, which consisted of silviculture - based sustainable forest management. Ministry of Forest and Soil Conservation and the National Planning Commission collaboratively changed the policies and improved forest resources. Changing from traditional practices to modern strategies, Nepal emphasizes frequent changes in its policies on community-based forests, and various donor organizations support the forest industry through financial and technical support. The forest department, established in 1942, generated the National Forest policy 2017, emphasizing equitable forest resource allocation. A focus on good governance should be placed, including making current strategies for environmentally friendly forest management practices at the local level more efficient and goal oriented.

KEYWORDS

Biodiversity, Forest, Livelihood, Government, Policies

1. INTRODUCTION

Nepal has a covered land area of 1,47,516 square kilometers, with the border of China to the north, India to the south, and Tibet to the east and West (The Kathmandu Post, n.d.). Nepal lies within between 260° and 300° N latitude and 800° and 880° E longitude. Based on geology and geomorphology, Nepal has got divided into five physiographic zones (Brian et al., 1986).

According to temperature regimes based on altitudinal ranges, Nepal's climatic zones can be divided into sub-tropical (below 1,000 m), temperate (between 1,000 and 2,000 m), cool temperate/alpine (between 2,000 and 3,000 m), alpine (between 3,000 and 4,000 m), and tundra/nival/trans-Himalayan/arctic (above 4,500 m). These climate zones also stretch from the southern Terai plain, the northern high, and trans-Himalayan areas (Nayava, 1975).

Around the Terai region, which lies in the subtropical climate zone, the mean monthly precipitation ranges from 8 to 535 mm, and the annual total rainfall ranges from 1,138 to 2,680 mm. The region is known for its hot and humid summers, heavy monsoon rain, and dry winters. The Churia region, which is sub-tropical to warm-temperate and characterized by hot, sub-humid summers, severe monsoon rain, and cold, dry winters, has an annual rainfall range of 1,138 to 2,671 mm.

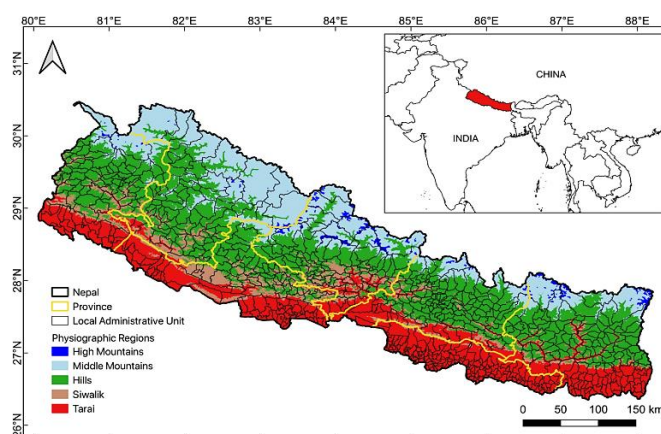


Figure 1: Map of Nepal displaying physiographic regions and local administrative units (Chapagain et al., 2022)

In the Middle Mountains, the weather can be subtropical and sub-humid in river valleys, warm and temperate in valleys, chilly and temperate in high hills, and Precipitation changes each year from (1,898 mm). The High Mountains and High mountainous regions have a total annual precipitation of 2,185 mm, with the climate varying from warm-temperate

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in the valleys to cool-temperate in the higher elevations, and arctic in the uppermost elevations (DFRS, 2015). The paper's main goal is to provide an understanding of the governmental policies regarding forest resources.

2. METHODOLOGY

We conducted a literature review of peer-reviewed articles published to understand about the governmental policies made by the Government for sustainable forest management. Only secondary sources are used as the information's sources. In addition to using reports from the Ministry of Forests and Soil Conservation of the Government of Nepal, WWF Nepal, ICIMOD, news articles, and other pertinent publications on forest resources and policies were used as additional sources for the collection and analysis of pertinent reports.

3. RESULT AND DISCUSSION

3.1 Status of Forest Resource

Of Nepal's total land area, it is estimated that forests cover 40% (5.83 million hectares). The percentage of Nepal's land area covered by intact forest ecosystems is 29.4% based on this estimate, which also accounts for 10.6% of shrub land (degraded forest). When a piece of land has a canopy cover of more than 10% and gets predominantly utilized for forestry, the area is considered a forest (DFRS, 2015).

In Nepal, everyone can see detailed and long-standing human reliance on trees. Since private woods are scarce, most of the demands related to forests in Nepal gets met by state-owned forests. Approximately 80% of Nepalese people or farmers own less than one acre of land (Ramshahpath and Kathmandu, 2011). The majority of tiny landholdings under one hectare get used for growing crops; they are too small to support the growth of trees. Agroforestry is typically used on the property more significantly than one hectare rather than just being used for the forest. This small landholding can only provide some of the forest goods they require. Forests and farming methods in Nepal are closely related. In addition to providing leaf litter for bedding, forests are significant animal feed suppliers.

The primary source of farmyard manure fertilizer and traction (such as plowing) for farmers cultivating crops is domesticated livestock like goats and cattle such as cows, oxen, and buffaloes (Dhakal et al., 2005). Economic circumstances, ethnicity, gender, and geography affect Nepalese people's dependence on forest resources. Small landowners and members of poorer communities—including immigrants, landless people, and refugees from the environment and politics—may seek refuge in woods or close to them while gathering their firewood, fodder, leaves, wild fruits, tubers, herbs, and thatch. Research has shown that disadvantaged families, indigenous people, and women depend more heavily and frequently on forest resources (Agarwal, 2010).

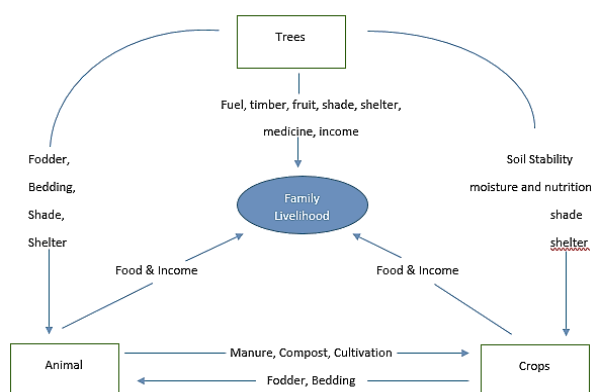


Figure 1: Nepal's tree/animal/crop farming system (Tamrakar, 2003)

The expanding urban population of Nepal is likewise dependent on forest resources like lumber and fuel despite being far from forested areas. For firewood, urban and suburban towns historically relied mainly on trees. Although this dependency has been decreased, at least temporarily, by the introduction of government-subsidized liquefied petroleum gas for home consumption in the 1990s, there is still a significant reliance on timber (Pokharel and Chandrashekar, 1994).

3.2 Policies of Forest Management in Nepal

Nepal's forestry sector has clear legislative guidelines and rules. Fundamental laws and regulations include the Nationalization of Private Forest Act, 1957; National Parks and Wildlife Conservation Act, 1972; National Forest Plan, 1976; Master Plan for Forestry Sector, 1989; Forest

Act, 1993; Revised Forestry Sector Policy, 2000; Leasehold Forestry Policy, 2002; Herbs and NTFP Development Policy, 2004; Terai Arc Landscape Strategy, 2004–2014; Gender and Social Inclusion Strategy in the Forestry Sector, 2004–19; Sacred Himalayan Landscape Strategy; 6 STATE OF NEPAL'S FORESTS 2006–16; National Wetland Policy, 2012; National Biodiversity Strategy and Action Plan, 2014 and Forest Policy, 2015 (Government of Nepal Ministry of Forests and Soil Conservation, 2015).

The Department of Forests (DOF) has created the "National Forest Policy-2017" in response to the uneven distribution of forest cover at newly constituted local levels. The proposed policy intends to maintain a fair allocation of forest land at all municipal levels. Of the 766 local levels in the nation, 132 have no forest cover concerning their total land area, while 283 have a range of 50–75 percent forest cover. A combined five-year survey carried out by the DFRS and National Forest Products Survey Project between 2067 and 2071 BS indicates that Nepal's entire land area is currently 44.74 percent covered by forests.

The new policy gets created to maintain the nation's forest cover. It serves as a template for creating the necessary local, provincial, and federal policies and plans for protecting forests, watersheds, biodiversity, wildlife, flora, and fauna (The Kathmandu Post, 2017). As part of the "Year of Plantation" initiative, the government has launched an ambitious strategy to plant more than 50 million trees in the 2019–20 fiscal year (The Kathmandu Post, 2019).

3.3 Importance of Sustainable Use of Forest Resource

Table 1: Nepal's Timeline for Forest Management		
1.	1970s	Nepal's first national forestry plan, created in 1976 (2033 BS), included sustainable forest management.
2.	1980s	A 20-year Master Plan for the Forestry Sector was created in 1988 (2045 BS) and places a strong emphasis on sustainable forest management across a range of forest management regimes.
3.	1990s	The preparation of strategic actions for the implementation of forest management interventions is mandated by the Forest Act of 1993 (2049 BS).
4.	2000s	Sustainable forest management is a key component of the Terai and Siwaliks block forests' management plans under the 2000 Forest Policy (2057 BS). During the fifth national workshop on community forestry in 2009, the implementation of sustainable forest management was started and backed by policy decisions (2065 BS)
5.	2010s	- The sustainable management of all types of forests is prioritized in Nepal's twelfth and thirteenth three-year plans, which run from 2011 to 2013 (2067/68–2069/70 BS) and 2014–2016 (2070–71–2072–73 BS), respectively. - Prioritizing and implementing the recommendations from the District Forest Officers' fifth national workshop in 2014 (2071 BS) and the first national workshop on collaborative forestry in 2015 were silviculture-based sustainable forest management (2071 BS). - By 2025, the Terai, Siwalik, and 25% of the mid-hills forests are expected to be managed sustainably, according to the Forestry Sector Strategy 2016. - To implement silviculture-based sustainable forest management in all varieties of forests in Nepal, the first national silviculture workshop of 2017 (2073 BS) came to a conclusion. - The development in forest productivity and the production of forest goods through participatory and sustainable forest management is given priority in the fourteenth three-year plan, which runs from 2017 to 2019 (2073/74–2075/76 BS). - The goal of the 2019 forest policy (2075 BS) is to boost forest productivity and create more forest products through sustainable forest management.
6.	2020s	The fifteenth five-year plan, 2020–2024 (2076/77–2080/81 BS), places a high priority on the forestry sector's substantial growth in contribution to national wealth through optimal use of forest resources, sustainable forest management, and proactivity.

Source: (WWF Nepal, 2020)

Sustainable forest management entails using and maintaining forests to meet present-day demands and safeguard the forests' long-term health. Scientific forest management implementation on the road to sustainable forest management started in 2011 (2067 BS) in a few cooperative and community forests of the Kapilvastu and Rupandehi districts.

According to the scientific forest management protocol from 2014, 121,852 hectares of community forests, cooperative forests, and government-managed forests in 52 districts of the nation have been subject to scientific forest management as of 2020 (WWF Nepal, 2020). The biodiversity of natural environments gets conserved through the preservation of forests, including all animal and insect species. Notably, these creatures and the local flora impact conservation beyond deforestation and local weather patterns, even affecting the neighborhood's well-being.

3.4 Approaches for Forest Management in Nepal

The establishment of the Department of Forest as Ban Janch Adda (forest inspection office) around 1880 underwent significant changes as the Kathmahal (timber office) in 1927. It underwent additional changes as the Department of Forest (DOF). There are currently 74 district forest offices, 92 ilaka (sub-district) forest offices, and 698 range posts under the Department of Forest (DOF), established in 1942. In collaboration with the National Planning Commission, the Ministry of Forest and Soil Conservation (MFSC), established in 1959 after several structural changes from the Department of Forest (DOF), is in charge of developing the nation's forest policies and managing its forest resources (Gautam et al., 2004).

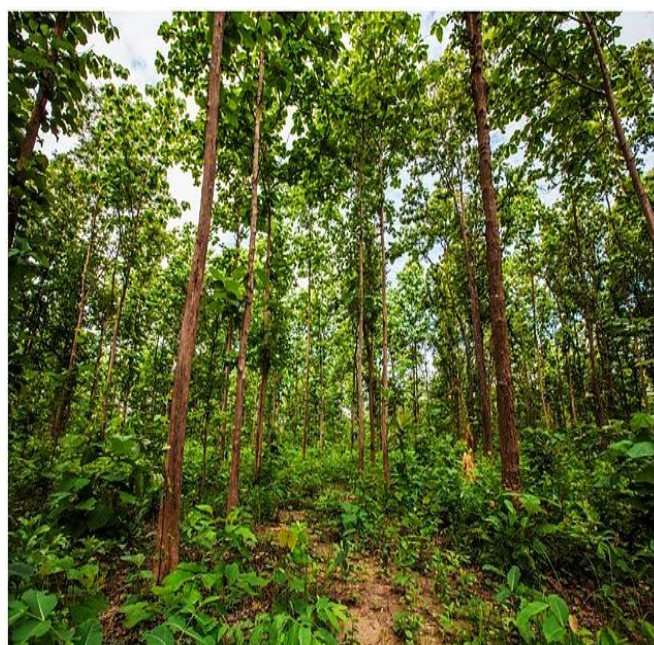


Figure 3: Tarai Forest Landscape of Nepal (Photo credit: Jitendra Raj Bajracharya/ICIMOD)

Table 2: Present status of the Community based forest management models in Nepal

S. N	Forest Management Models	User Group Number	Management area (Hectare)	No. of Households Involved	Percentage (%) of the total CBFM area
1	Community forest	22,266	2,237,670	2,907,871	79.02
2	Leasehold forest (pro-poor)	7,484	43,317	71,753	1.53
3	Collaborative Forest Management	30	76,012	864,015	2.68
4	Protected forest	10	190,809	275,124	11.61
	Proposed	6	137,833		
5	Religious forest	36	2,056		0.07
6	Buffer zone community forest	608	144,010	101,461	5.09
	Total	30,440	2,831,707	4,220,224	100

Source: (DoF, 2017)

Over an extended period, traditional and indigenous rituals and practices like birta, jagir, and kipat have existed and contributed to forest management. While more modern strategies like community and leasehold forestry have evolved, these traditional management practices have become less prevalent. In a brief period between the 1950s and the 1990s, Nepal underwent frequent and significant changes in its environmental policies (Gautam et al., 2004). The process of reforming Nepal's forest policy has got aided by the effect of British colonial forestry on the country's neighbor, India, as well as adaptations to internal political upheavals and the interests of various international donor organizations (Springate-Baginski and Blaikie, 2007).

Community-based forestry institutions come in four different forms: Collaborative Forest Management User Groups (CFMUGs), Leasehold Forest User Groups (LFUGs), Religious Forest Users Groups (RFUGs), and Community Forestry User Groups (CFUGs). The first three get produced under the Forest Act of 1993 and the Forest Regulation Act of 1995. Collaborative Forest User Groups are institutional partnerships of national and local government leaders, stakeholders, and community members from the area, whom all work together to manage the forests (Radha et al., 2020).

According to the Revised Forest Policy, 2000, the Nepalese government launched a program for collaborative forest management. The 1989 Master Plan for Forestry Sector was replaced by this one to actively manage the Terai and Siwalik forests with the help of regional stakeholders. By including local stakeholders in forestry governance, the government attempts to decentralize and devolve forest management control in the Terai and Siwalik regions.

The Federation of Community Forest Users in Nepal (FECOFUN) is an organization that works as a legislative and advocacy group to protect the rights of community forest users and advance the development of

community forestry. It was founded in 1995 to complement government initiatives related to the development of community forestry (Shrestha, 2000). Nepal's forestry industry got aided by several regional and global donor organizations, notably through the provision of financial and technical support for forest management strategies.

4. DISCUSSION

Forest goods are vital for people's livelihood because they produce timber and agricultural inputs, including grass, herbs, fibers, and wild fruits and berries. A wide variety of economic and ecological products and services, such as water for irrigation and hydroelectricity, pollination, climate management, soil conservation, and raw materials for industry, are also provided by forests (Hassan, R.; Scholes, R.; Ash, 2005).

Since the community forestry program and other forms of participatory forest management have received such strong public support, Nepal is well renowned for its effectiveness in developing and executing successful community-based natural resource management programs (Buchy, 2012). There should be a focus on good governance, including making present strategies for sustainable forest management practices at the local level more efficient and goal-oriented.

Problems that get identified during implementation should be solved. The CFUG development process is crucial to the success of community forestry. To ensure their proper representation and assist them in realizing their authority, responsibility, and accountability, a strategic method, such as the mandatory participation of poor and disadvantaged groups in planning and decision-making, needs to get designed and supported (Kanel and Kandel, 2004).

5. CONCLUSION

Reviewing Nepal's forest policy, institutions, and trends of condition changes in the forest offers several significant insights into the historical

setting. Also, it demonstrates how country's forest resources got managed, how policies got created, and how institutions got designed to address perceived issues. In Nepal, forests are as reliant on people as they are on the country's woods, which are a significant energy source. In addition to planting trees, safeguarding trees, and recovering forests, people have made countless other contributions to the safeguard forests.

Traditional management techniques, including birta, jagir, and kipta, have decreased, while more modern strategies like community forestry and leasehold forestry have grown in popularity. Currently, the Forest Policy 2015 serves as the primary policy document that directs sub-sectoral programs about forests, plant resources, animals, biodiversity, medicinal plants, and soil and watershed protection. The policies and existing methods of Nepal's sustainable management of its forest resources get demonstrated in this case study.

Education provides people with more sophisticated understanding about ecosystem services, new opportunities and risks associated with the forest and abilities to actively engage in sustainable management of forest resources. In that scenario, people should get provision of various awareness programmers and trainings associated with forests from either governmental side or any organizations. More significant effort also get required to make policy and practice of sustainable management of forest resources fairer and more inclusive.

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