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Community-Based Forest Management in Karnataka: A Participatory Model for Sustainable Forest Conservation

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ABSTRACT

Abstract: Community-Based Forest Management (CBFM) has emerged as a key strategy for promoting sustainable forest governance while improving the livelihoods of forest-dependent communities. In India, participatory forest governance is implemented mainly through Joint Forest Management (JFM), which encourages collaboration between local communities and forest departments. Karnataka is among the states that actively adopted participatory forest management through Village Forest Committees (VFCs). This study evaluates the ecological and socioeconomic outcomes of community forestry programs in Karnataka. Secondary data from government reports, forest surveys, and academic literature were analyzed. The results indicate that community participation improves forest regeneration, biodiversity conservation, and rural livelihoods through the sustainable use of non-timber forest products. However, challenges such as institutional limitations, social inequalities, and policy constraints affect the effectiveness of community forestry programs. Strengthening local institutions and improving policy frameworks are essential for long-term sustainability.

1. Introduction

Forests provide critical ecological services such as biodiversity conservation, carbon sequestration, soil protection, and water regulation. In India, forests also serve as a major source of livelihood for rural and tribal communities.

The state of Karnataka contains diverse forest ecosystems ranging from tropical evergreen forests in the Western Ghats to dry deciduous forests in the eastern plains. However, deforestation, agricultural expansion, and illegal logging have led to significant forest degradation.

To address these issues, participatory forest management programs such as Joint Forest Management were introduced in India in the early 1990s. Karnataka implemented this program through community institutions known as Village Forest Committees (VFCs).

These committees enable local communities to participate in forest protection, plantation activities, and sustainable harvesting of forest resources.

2. Review of Literature

Community forestry has evolved as a key approach to sustainable natural resource management. Early work by David C. Korten (1986) emphasized that community participation improves both conservation and rural development.

According to the Food and Agriculture Organization (2018), participatory forest management enhances forest protection by decentralizing governance. In India, JFM has covered millions of hectares, demonstrating its effectiveness (Singh, 2019).

In Karnataka, studies show that community participation improves forest regeneration and reduces illegal activities (Ravindranath & Sudha, 2007). Research in the Western Ghats highlights improved ecosystem services such as biodiversity conservation and carbon storage (Balasubramanian, 2021).

Traditional systems like sacred groves, studied by Madhav Gadgil and Chandran (1992), show that indigenous practices effectively conserve biodiversity.

However, challenges exist. Jewitt (2016) found that social inequality limits participation. Nagaraja et al. (2011) observed that improper resource use can degrade biodiversity.

Karnataka state is situated between 11^{o} 40' and 18^{o} 27' north latitudes and 74^{o} 5' and 78^{o} 33' east longitudes. It occupies an area of 1,91,791 sq km, with a forest area of 38,724 sq km. Abundant rainfall (ranging from 2000 to 6000 mm a year) has promoted the growth of luxuriant tropical forests in Karnataka, which despite heavy pressures still cover almost 17 per cent of the state. Evergreen to semi-evergreen forests form natural climax vegetation in the

western parts of the state, while deciduous forests as natural climax are observed merging with the drier forests of the Deccan Plateau in the east. The evergreen forests are richer in species, having 30–50 species of trees per hectare. The deciduous forests have been important sources of teak, rosewood and several other timbers. As of the India State of Forest Report (ISFR) 2021, Karnataka has a total forest cover of 38,730 square kilometers. This accounts for roughly 20.19% of the state's total geographical area. The state also has a recorded forest area of 43,382 sq km, with a significant network of protected areas. (Karnataka State Forest Department). It has protected area network that includes 5 Tiger Reserves, 30 Wildlife Sanctuaries, 15 Conservation Reserves, and 1 Community Reserve. Forest types include evergreen, deciduous, and scrub forests, heavily concentrated in the Western Ghats (e.g., Uttara Kannada, Kodagu).

3. Objectives of the Study

1. To analyze the framework of community-based forest management in Karnataka.
2. To evaluate ecological benefits such as forest regeneration and biodiversity conservation.
3. To assess socioeconomic benefits for forest-dependent communities.
4. To identify challenges and policy limitations in community forestry programs.

4. Materials and Methodology

Study Area

The study focuses on forest regions within Karnataka, including districts located in the Western Ghats biodiversity hotspot.

Table 1
Forest Types in Karnataka

Forest Type	Major Districts	Dominant Vegetation
Tropical Evergreen	Uttara Kannada, Kodagu	Teak, Rosewood
Moist Deciduous	Shivamogga, Chikkamagaluru	Bamboo, Terminalia
Dry Deciduous	Ballari, Chitradurga	Acacia, Hardwickia

Data Sources : Data were collected from Government forest reports, Research journals, Environmental databases, Case studies of community forestry programs.

5. Results

5.1 Forest Cover Trend in Karnataka

Table 2
Forest Cover Change (Approximate)

Year	Forest Cover (sq km)
2001	36,000
2005	36,500
2009	36,900
2013	37,200
2017	37,600
2021	38,000

The data indicate a gradual increase in forest cover due to afforestation and community participation programs.

Table 3
Forest Cover of Karnataka

Class	Area (sq km)	% of GA
VDF	4.501.15	2.35
MDF	21,048.09	10.97
OF	13,026.24	6.79
Total	**38,575.48**	**20.11**

Scrub	4.484.07	2.34

5.2 Role of Village Forest Committees

Table 4
Functions of Village Forest Committees

Activity	Community Role
Forest protection	Monitoring illegal activities
Afforestation	Tree planting programs
Fire management	Fire control measures
Resource regulation	Sustainable harvesting

5.3 Livelihood Benefits

Community forestry provides livelihood opportunities through **Non-Timber Forest Products (NTFPs)** such as: Honey, Bamboo, Medicinal plants, Amla and soapnuts. These resources contribute significantly to rural income.

6. Case Studies

Case Study 1: Uttara Kannada JFM Program

A case study of Siddapur taluka in Uttara Kannada district shows that even today 1906.66 ha area is under kan forest (Table 5). Siddapur Forest Range case study also shows that there is lot of potential available to protect and nurture.

Table 5
Kan forest in Siddapur taluka, Uttara Kannada district

Range	Kan original area (ha)	Kan area still available (ha)	Percentage available	No. of kans	Range area (ha)	Kan area percentage in Range area
Siddapur	1450.62	963.47	66.42	83	67542.8	1.43
Kyadagi	970.12	943.19	97.22	29	20880.8	4.52
Total area	2420.74	1906.66	78.76	112	884243.6	2.16

Source : Gokhale,Y. 2002 unpublished.

Considering the close relationship of people and forest resources in kans, there could be possibilities of restoring institutional responsibilities, such as in the matrix below:

WAYS TASKS	Decentalised performers	Joint performers	Local level performers	Open bidding performers
NTFP Collection	VFC			
Controlled Harvest		VFC ,FD		
Quality Control			VFC	
Market Channels				FD ,LAMPS, Industry
Benefit sharing		VFC, FD		
Forest Protection		VFC, FD		
Overall Monitoring		VFC, FD		
FD Linking research upto field		FD, Scientists		

FD- Forest Department, VFC- Village Forest Committee, LAMP- Local Area Minor Forest Product Co-operative society)

The first Village Forest Committee in Karnataka was established in the Uttara Kannada region in 1993. Local communities participated in forest protection activities and benefited from revenue sharing from forest products.

Case Study 2: Sacred Groves of Kodagu

Sacred groves known as **Devarakadus** are protected forest patches maintained by local communities for religious purposes. These areas preserve biodiversity and act as natural gene banks.

Case Study 3: Community Participation near Bandipur National Park

Villages surrounding Bandipur participate in eco-development programs that promote sustainable livelihoods and reduce human-wildlife conflicts.

Discussion

Community-based forest management has demonstrated positive ecological and socioeconomic outcomes. Participatory governance strengthens forest monitoring and encourages responsible resource use.

However, challenges such as policy constraints, limited financial resources, and unequal participation remain significant barriers.

Conclusion

Community forestry programs in Karnataka have significantly contributed to forest conservation and rural development. Strengthening community institutions and integrating traditional ecological knowledge with modern forest management strategies will be essential for achieving sustainable forest governance.

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