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Community Resources Management for Sustainable Forest Development: Evidence from Goa

Rajesh V. Shetgaokar

Abstract:

The paper examines the issue related to the community management of resources in Goa. The main objective is to highlight the deforestation problem in Goa by analyzing the qualitative and quantitative data. The paper also explores the role of community in resource management for the sustainable development of forest area in the Goa. The analysis was done by gleaning the data from the Economic Survey of Goa, Statistical Handbook of Goa and also from the Department of Forest, Government of Goa. Analysis reveals that Goa has been losing its green cover continuously in recent years. The study found massive tree-felling for developmental projects such as building infrastructure, industrial projects and housing projects. Also, the result reveals that the various regulations are not effective in reducing the destruction of the forest. The study suggests that the community management of forest is need of the hour to the sustainable development of forest area due to the failure of government and local bodies to protect the forest area.

Keywords: Community Resources Management, Deforestation, Forest Area, Goa.

Introduction:

In the context of the ongoing discussion of environmental issues, the stress on community development is gaining importance in policy framework and implementations of programs for a sustainable environment. The evidence has demonstrated that neither the market nor the government can do revelations of economic development without the effective involvement of the community in the development process. The literature provides evidence of market failures and government

failures largely emanating due to imperfect information. Also, the success of the States in enforcing the legal procedures in sustaining environmental has not achieved the coveted result in the recent past. Since there is an inverse relationship between urbanization and environmental preservation, the question emerges as to how to deal with the issue of maintaining the balance in ecology and sustainable development process.

Since the land is inelastic, its supply cannot be increase with an increase in demand. At the same time, the development process will halt without trespassing on the additional land and exploiting the natural resources. Three reasons can be attributed to a greater demand for land with a rise in development. First, the process of development expands the industrial and service sector in the economy. The expansion of both these sectors directly affects the agriculture land as the required infrastructure is built at the cost of agriculture land. Secondly, the rising income of the people creates a higher demand for housing projects, again developed mainly on agricultural land and forest land. Thirdly, the large agriculture and forest land is acquired for government infrastructure projects such as dams, airports, highways, canals, railway routes, etc.

However, the question arises, can we sustain the pace of growth in the long run by destructing the environment. The answer to this is no. Efforts are made at the international, national and state level to solve the problem of environmental degradation. The success of such policies is debatable, but the historical evidence shows that the community plays a significant role in maintaining and sustaining the environment. This paper attempted to understand the significance of community in economic development by considering the examples of management of common property resources in the Goa Forest area.

Meaning and Economic Function of Community:

In the present study, the community is defined as a group of people knotted by mutual trust based on intense personal interactions (Hayami, 2008). Theoretically, communities range from the family to the national community and national to the global (or international) community (ibid).

The nature of community might have differed in developing and developed countries, but significantly community did exist in both types of countries. The community is constituted at the village level or among tribes mostly bonded by location or affinities. The significant aspect of the community organization is that the people in the community developed a common goal. To achieve this common goal, they contribute their voluntary corporation based upon close personal ties and mutual trust (Hayami,2008). On the other hand, the government allocates the resources through coercive power while the market allocates the resources through the price in the economy. Thus, the community has important advantages in managing the common property resources, particularly, when the market and government failure exist in the economy. It is therefore rightly described as the ‘Third Pillar of Economic System’.

Review of Literature:

Koure (2017) analyzed the management of common property resources in the Kinnaur district of Himachal Pradesh. He found a significant and positive relationship between livestock, population, social participation and family size. The study found a non-significant and negative relationship between caste, education and non-farm income. Marikkani (2012) provided evidence of common property resource adoption in Virudhunagar district, Tamil Nadu. The result of the study shows that land put to use and land cultivated under tree crops was a significant factor in the success of the management of common property resources. Further, cultivable land, barren land and uncultivable land were found insignificant. Katar (1996) studied the common property resources in Haryana. He discovered that people's participation is a significant factor contributing to the management of common property resources. Kumar (2015) affirms that the common property resource management is a superior way of sustainable village development in Hiware Bazar in Maharashtra. Using descriptive and analytical research methodologies, study provided evidence of increased employment and income due to the management of common property. The study found the social, economic and environmental transformations were the key to the increased standard of living in the village.

Data and Methodology:

The study focuses on managing the forest land for sustainable development in Goa. We have collected the data from various sources such as an Annual Survey of Goa, Statistical Handbook of Goa published by the Government of Goa and from the Department of Forest, Government of Goa. Data is classified to attain accuracy, consistency and robust result. The results were interpreted with the help of tables and figures. The reliability and normality of data were checked before the estimation of the result. The questionnaire, interview and observation methods were used to collect the data. Random stratified sampling was employed in our study.

Brief Description of Forest Land in Goa:

Goa has a forest area 2219Km² which is almost 50 percent of the total geographical of the state (State Forest Report, 2017). At the same time, the state has a tree cover area of 286Km², which is estimated to be the total geographical area of the state (ibid). Goa has two districts, namely, North Goa and South Goa. The important feature of Goa is that both the district has the presence of forest areas. We have shown the classification of forest area district-wise in Table No 1.

Table 1. District Wise Classification of the Forest Area

Districts	Geographical Area	Very Dense Forest	Moderately Dense Forest	Open Forest	Total Area	% of Geographical Area
North Goa	1736	128	236	559	923	53.17
South Goa	1966	415	349	532	1296	65.92
Total	3702	543	583	1091	2219	59.94
Tree cover					286	7.73
Total forest and tree cover					2505	67.67

Source: Goa Forest Department, Government of Goa

Clearly, from Table No 1, we can conclude that South Goa has more coverage of the forest area when compared to

North Goa. North Goa has around 923 Km² while South Goa covers 1296 Km².

The interesting point of the Goa Forest cover area is that it is expanding over the years. The year-wise forest cover area has been presented in Table No 2.

Table 2. Year Wise Growth in Forest Cover Area in Km²

Years	Forest cover in Km.
2001	2095
2003	2156
2005	2164
2009	2151
2011	2219
2017	2237

Source: Department of Forest, Government of Goa

The data presented in Table No 2 shows that the forest cover area has increased continuously in recent years. The forest area increased from 2095Km² in 2001 to 2237Km² in 2017. According to the India State Forest Report 2017, the main reason for such expansion is the success of the various measures undertaken by the state government such as plantation and conservation activities implemented by the forest department. Several measures such as rehabilitation of degraded forests, Western Ghats development program, development of gardens, parks and fountains, social and urban forestry, etc., have been implementing by the Government of Goa.

However, on the other hand, the India State Forest Report 2017 states that the tree cover area has been constantly decreasing over the years. For instance, tree cover has dropped to 59 percent in 2019 (TOI, 2019). These suggest that there is massive deforestation is taking place in Goa. Several reasons could be attributed to declining the tree cover which stood at around 272Km² in 2019. The possible explanations are massive tree-felling for developmental projects such as building infrastructure, industrial projects, and housing projects.

Present Status of Community Management of Resources in Goa:

Goa was under Portuguese rule for a long period and till liberalization in 1969, it had a strong influence of Portuguese in the management of the common property resources. The data on common property resources management is not available in Goa. However, historical pieces of evidence show that common property resources were managed by the Comunidade. Comunidade is still has a presence in Goa, however, with the establishment of gram panchayat, its role in community management of resources has been significantly reduced. Before the gram panchayat was established, community development work like maintenance of village infrastructure, desalination of the Khazan land, construction and maintenance of village roads, canals, wells etc were managed by Comunidade. However, presently it is handled by the panchayats. Further, the 73rd Amendment Act (1992) recognizes the gram sabha's as the basic institution in the three-tier structure of local self-government where the panchayat must call the meeting at the gram sabha. National Government implemented the XI Schedule (Extension Act) by which it was obligatory for every panchayat to have a gram sabha so that "the people could ensure their control and rights over their natural resources and preserve their identity in a participatory manner".

Need For Common Property Resources Management in Goa:

- Goa has several regulations to protect forests, namely, Indian Forest Act (1927), Forest Conservation Act (1980), Goa Daman Diu Forest Code (1979), The Environment Protection Act (1980), etc. However, these regulations are ineffective due to a lack of knowledge of the local community and poor implementation due to insufficient staff
- The private forest area is generally cleared without obtaining approval. With the directive of the Supreme Court, Sawant Committee was appointed in 1997 by the Government of Goa. The committee found a 75 % forest species and 40 percent large tract of tree canopy in Goa.
- Goa has seen systematic destruction of trees, bypassing regulations of the Goa, Daman and Diu Preservation of Trees Act, 1984. Thousands of trees at the Mollem National

Park and the MOPA airport site were cut with hastily passed environment clearances.

- Due to the different criteria adopted by the Forest Department of Goa, large forest areas remained unidentified, which made it easier for town planning authorities to grant permissions for industrial and housing projects.
- Villages in the forest area, mostly inhabited by the Danger community, a nomadic herding tribe, have been facing an acute water shortage. Mostly, the river like Madhei flow through the forest. However, there has been a report of depleting water from river creating hardship for people depending on the river for their survival (Oishorjyo.,2020)
- Development projects have killed the natural springs. The illegal destruction of trees and forest ecosystems has severely impacted the water table in most areas.
- Linear infrastructure projects, expansion of highways, monoculture and overnight destruction of privately owned forested areas have led to massive deforestation.
- The 37,979 trees have been enumerated or are likely to be felled in the Bhagwan Mahaveer Wildlife Sanctuary & National Park to accommodate the three linear projects. Of these 37,979 trees, 20,758 trees will make way for the double-tracking of the railway line, while another 12,097 would be felled to facilitate the national highway expansion and 5,124 trees will need to be felled for the power transmission line. On the other hand, for the Mopa airport, 54,000 trees have been cut (Herald, 2021).

Effect of Deforestation:

- Within two decades about 900 sq km of forest stands denuded and the once lush green rolling hills are now barren and rocky. An estimated 1,030 sq km have been affected by severe soil erosion and need urgent soil conservation treatment, and uncultivable wastelands have gone up from 13,228 hectares to 28,736 hectares (India Today Report, 2013)
- Goa has already been experiencing peculiarly abnormal weather conditions, particularly since 1991, which include days with very high daily maximum temperature and minimum temperature, smoggy and hazy days with poor

visibility conditions, abnormally prolonged dry spells in June and July, frequent unseasonal rains, and several localized weather phenomena such as repeated lightning strikes (Herald, 2021)

- The Canacona flash floods that occurred in 2009 had claimed two lives in Poinguinim and over 2400 livestock, while 107 houses were collapsed, over 591 houses were damaged and over 1,000 houses were flooded. Over 4,000 farmers had also suffered losses to their crops and plantations. The estimated losses were placed at over Rs 100 crore.
- Deforestation has resulted in a massive conflict between the human and wild animals. Out of Five tigers present in Mahavir Wildlife sanctuary, four were killed creating a huge loss for tiger conservation efforts.

Effectiveness of Community Management of Resources:

To explore the possibility of community involvement in managing the common property resources, it is imperative to know the insight of people's awareness. For that purpose, the field study was conducted to understand the people's idea of community-based management of resources and how effective would be enhancing the prospect of managing the resources. The same has been presented below

Table 3. Use of Forest Resources by People

S.N.	Use of the Forest Resources	Percentage
1	Fuel wood	36
2	Grazing their livestock	26
3	Irrigating the cultivated land	18
4	Water resources form spring	18
5	Selling of wood for cash	2
6	Poaching of wild animals	0

Source: Primary Data

The table provided the details of forest resources used by the people. The result from the table reveals that 36 percent of the forest resources are used for fuel wood for meeting the

energy needs. A large number of rural households depend on biomass fuel for cooking and heating. It was followed by grazing their livestock where 26 percent of the people are dependent on it. The analysis also shows the forest resources are utilized for irrigation purposes and water resources for drinking. None of the people are using the forest area for poaching the wild animals.

Further, the response was recorded on the various indicators with respect to common property resources to understand the awareness of people residing in forest area.

Table 3. Indicator of People Awareness on Various Issues

S.N.	Indicators	Positive response (%)
1	Willingness to protect the plantations	96
2	Knowledge about the resources in forest	87
3	Boundaries of forest area	89
4	Various implementation scheme of the government	35
5	Knowledge about the regulation of Acts and Law	23
6	Awareness of various measures taken by the government for increasing the forest area.	12

Sources: Primary Data

The study shows that people are aware of the resources in the forest. Majority of the people living in forest area are willing to protect the tree plantation and forest. However, we can observe that the people are not much aware of the government policies and regulations.

Role of Common Property Resource Management:

The question arises of how to achieve the long-term sustainability of the Goa Forest. The theoretical background on common property resources does provide evidence of sustaining the resources by community participations. However, the

management of the common property resources by the community is regarded as effective due to several reasons

- The people who live in the forest area have their connection with nature. They have always developed a certain cultural system based on their traditional values. Instead of acting as the destroyer, the people have a close bond with the forest and act as a protector.
- Another reason for the success of community management of resources is due adaptive nature of the people living in the forest area. They have a lot of information and knowledge of the forest and natural resources, fauna and flora of the forest.
- Most of the communities are closely associated with each other, either through blood ties, cultural ethnic, or location ties. These again bring them together in managing the common property resourcing by providing strong resistance to outside encroachment in the forest.
- Community management of resources is also advantageous as people in the community have high self-control and are patronize towards nature. In community, everyone fears each other for any misconduct. Gossip about one's misconduct is circulated by word of mouth faster than modern communication means, sometimes culminating in social ostracism (Hayami, 2018).

Conclusion:

The study provided insight into the issue of deforestation of forests in Goa. By applying the qualitative and quantitative data, the study concluded that the role of the community in resource management will be more effective. The government should effectively coordinate with the community for the management of the resource by providing the financial and technical support. The community must be actively involved in planning and decision-making in forest resource management.

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