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Community Involvement in Forest Management: A Social Analysis of Joint Forest Management in Maharashtra, India

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ABSTRACT With the formulation of Joint Forest Management Programme in India, the involvement of communities in forest management has been recognised as a sustainable way of forest resource management. Nevertheless, research conducted on the experiences of Joint Forest Management reveals that there are lots of inherent factors that determine the success or failure of such forestry programmes. The present article is the outcome of a research project conducted in the Thane and Raigad districts of Maharashtra state among some Joint Forest Management Committees. Using primary and secondary sources of information, the study investigates the characteristics of the resources, the characteristic of community, the characteristics of rules, the context of the socio-economic environment and the extent of participation of JFMC members in forest management activities and hereby tries to find out the reasons for success and failure of forest management programmes.

INTRODUCTION

Joint Forest Management as a Strategy for Resource Enhancement

Forest management as a strategy and also as a requirement for both state and the communities, has come across various stages with experiments and experiences over a period of time. By the time the state recognised the interface and importance of the relation between forest and communities, the ever decreasing forest resources had, in most cases, depleted to such an extent that regenerating them needed a full cycle. It has been evident from numerous literatures and reports that the plans and policies on forest management and benefits sharing between state and the communities have remained very much technical and procedural. The responsibility of protection of forest had to be assigned on certain groups of people like Forest Protection Committee and Village Forest Committee etc. on selective basis. In state system, the protection and regeneration of forest have never come up as people's moral and emotional duties.

Contrary to all those previous forest management policies, Joint Forest Management (JFM) came up as a ray of hope both for state as well as for forest-fringe communities. There has been a good deal of instances of successful JFM programmes where the interest of both state and the communities has been served to a great extent. But many other cases show relatively and sometimes entirely unsuccessful results. Researchers have primarily put the blame on the policy planners for such failure. The Ministry of Environment and Forest (MoEF) has come up with a new scheme, the "National Afforastation Programme" (NAP), which has clubbed several other previous programmes in to one new programme aiming at larger coverage and activities of forestry work. JFM has been revamped under Forest Development Authority (FDA) with more decentralization of planning and implementation of forestry activities enhancing community participation. There again emerged two conflicting situations – the interest of the forest department and the interest of the forest fringe communities.

Joint Forest Management and Its Evolution through Time

JFM is a process developed by the forest department to enhance forest development and for-

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est protection in partnership with forest fringe communities. In this process, mutual trust between the forest department and the communities involved remains the central focus and roles and responsibilities are set jointly by the forest department and the communities.

In JFM, the local communities are defined as users of forest and the government is defined as the owner of forest. Both this user and the owner of forest work together to manage the forest resources, and in this process they share the cost of management and the benefits of outcomes. Nevertheless, due to diverse geographical, socio-cultural and resource base in India, it is quite difficult to generalize the concept of JFM and its approaches. During the first decade of inception of the programme various researchers have deliberated the relations between communities and forest. For instance, Raju (1999) sees JFM as "a mechanism to manage the forest that is owned by the state but appropriated by local communities". Dutta (1997) identified it as "an approach involving the evolution of a very complex property rights regime to generate a sustainable interface between the Forest Department (FD) and the local community". According to Saxena (1999), it is "a possible way through which the interests of people and of long term sustainability are harmonized in a mutually supporting manner". According to Roy Burman (1999), "JFM does not have the scope for genuine participation of the people and is a means of ensuring protection of the forests at a very low cost". Hobley (1996) reports that "the JFM programme has focused more attention on initiating community protection rather than making the shift to active co-operation and to address the technical, social and economical issues, which accompany such transitions". Saxena (1997) views that "JFM has not made any major change in the prevailing position of relations between the state and the people nor has it heralded the beginning of a new era of people's power". He further added that the State governments look upon JFM as a cost effective method of forest protection and economically rewarding activity for the people. The aim is neither to empower people nor to make committees autonomous.

The Relation between Forest and Forest-fringe Communities

It has been very often stated by social scientists that there has been a symbiotic relationship between forest and forest-fringe communities. It is symbiotic in the sense that when the forest provides a lot of resources used by the communities as their means of livelihood, in turn the communities also help the forest regenerate in its natural way making it a renewable resource. The relation between forest and the forest-fringe communities, especially the tribal people have been discussed in detail by social scientist mostly by the last quarter of last century. The study of Fuchs (1992), Adhikari (1989), Dutta (1989) and many others show that forest dweller communities depend on forest not only for food but also for housing, health care, fuel wood, fodder and recreational purposes. Hoffman (1950), Elwin (1954), and Basu (1987) Roy Burman (1988), Fernandes (1988), Fernandes and Menon (1987) and Hembram (1988) has opined that that there is a good deal of interrelationship between the social system of these communities and the forests. The traditional practices of these communities help protect and regenerate forest around them, such traditional practices may include like imposing of taboo in cutting down or venturing through certain parts of the forest or in certain period in a year, planting certain varieties of plants, restriction in hunting and grazing etc. Nadeem Hasnain (1991) noted that the primary factor of violent incidence of tribal struggle was the harshness of the forest laws and regulations and the lack of sympathy and understanding in administering them. In such backdrop, the Forest Rights Act, 2006 (Government of India) has emerged as epoch making Act to provide forest rights to traditional forest dwellers in various states in India.

Primary Issues Related to JFM

It has already been stated that the inherent idea of JFM is to motivate people at involving in resource generation activities, and utilize their participation in forest management and sharing benefits regularized through adequate institutional arrangements and rules. Following the launch of the JFM programme in India, several issues of importance have emerged which have certain impact on the success and failure of JFM. Some of those issues may be listed as - Fund Allocation at various level of administrative and interactive domains, involvement of women in JFM institutions, sharing of benefits and institutional power,

legal and statutory provisions in forest management, the issue of awareness regarding the programme, membership norms in JFMC, rules and composition of the JFM committees, role of the Forest Department in the JFMC, status of JFM committees and village funds etc. A lot of these issues are administrative and technical in nature, while other issues are related to the communities and the resources as well. Some relatively recent studies have highlighted the potential benefits of JFM as well as the inherent shortcomings as follows:

Sinha and Suar's (2003) study in Jharkhand reveal that where choices of communities were given importance, participation was higher for resource conservation. People participated in a half-hearted manner when external intervention undermined local choices. In JFM, too much state interference worked against people's choices and decreased participation. At the backdrop of finding that JFM programmes are mostly outsider's concept introduced with little understanding and consensus of local communities, Ghazala (2003) has rightly emphasised the importance of a pre-existing societal consensus and understanding among various stake-holders regarding the use of the forest before any claimed scientific study takes a shape of programme in a community. Thus he recommended that "an open and wide-ranging consultative process be initiated amongst the various stakeholders in forest resources at many different levels: local, landscape and national."

Giving detailed overviews on the outcomes and shortcomings of JFM in India, Saigal (2003) reiterates the promising positive results of the programme in improving forest governance. The author shows with evidence that the successful and sustainable regeneration and protection of forest through community-based forest management have proved the forest dwellers or forest fringe communities as the friends of forest, and not the enemies as previously held by the forest departments. Amidst the phenomenal growth of JFM activities in the country, the author also reminds the fact that there are significant challenges remain within the institutional efficacy and economic viability of JFM. The most significant aspect of JFM the author highlights is that of the rights. He maintains that a secure right of access to and control over forests resources, genuine decision-making powers and an adequate share in the benefits may make a huge positive change in JFM. Sarkar and Das (2006) have emphasized the importance of planning the JFM programme on the livelihood requirement of the local and poorer communities for their immediate need and survival. More emphasis must be given on production of NTFPs instead of commercial production of timber which are not the means for fulfillment of immediate and non-commercial needs of poorer stakeholders. For sustainability of JFM programme, it is quite essential that it should primarily be oriented towards local level poorer stakeholders. Reddy and Bandi (2006) have rightly opined that unless the local level institutions like JFMCs and FPCs are recognised as the sole authority for the overall development of resources and people, a sustainable JFM programme cannot be guaranteed. Recognised merely as an instrument for development of degraded forests, such institutions cannot settle the issue like benefit sharing, selection of plant species, gender equity, grazing land demarcation etc. While planning JFM, these issues were not deliberated as to be under the jurisdiction of local institutions.

Study conducted by Das and Sarkar (2009) in West Bengal reveals that the poorer and landless families are more involved in JFM activities due to relatively higher wage structure compared to the wage they get in other works. Further, poorer condition of family leads to greater involvement in forestry work and greater dependence on forest resources for both consumption as well as income generation. Sarap and Sarangi (2009) have highlighted the inherent loopholes in JFM structural arrangement by pointing out to the issues encountered by the poorer section of JFMC member families in Odisha. Highlighting the incentives and disincentive mechanism of the programme, the authors say that the JFMs and FDAs are characterised by inefficiency and inequality in access and exclusion of certain groups in the state. There is gender gap in JFM participation. There is lack of democratic mechanism in decision making and resource distribution as well. Villagers hardly enjoy any secure rights over the forest resources. There have been conflicts of various nature hampering the activities and outcome of JFM. The immediate needs of the poorer people are hardly taken in to consideration making them disinterested in forestry work. Sahu and Rath (2010) find that in Odisha, JFM activities

have great potential in providing immediate financial benefits to the poverty ridden population and thereby arrest stress migration to a great extent. The authors have attributed this positive outcome to the devolution and decentralization of forest resources management policies.

The importance of community level local institutions and rules in place has been highlighted by Rout (2010). Considering the fact that JFM brings together diverse interest group, there needs to present local level community institutions to manage and regulate the JFM activities and outcomes etc. To do so, there must be rules set in place and these rules must be functional. The institutional analysis of the ten studied villages reveals that institutions must be equipped with strong and functional rules and there must be a monitoring mechanism in place.

That the objective of JFM must not be limited to the regeneration of degraded forest land has been reiterated by the findings of Das (2011) on the basis of his study in Odisha. Rather, such programme must address the basic problem of livelihood of local poor and poverty stricken people within its jurisdiction. Due to such shortcomings, the poor and needy people are seen engaged in activities that degrade open access forests. Contrary to the claim of being decentralized and community centered programme, JFM still has inherent characters of a top–down initiative with a rigid framework and unbreakable structural constraints as elucidates by Shylendra (2015). Specifically, the limited resource allocation and donor dependence character of JFM are two major macro level constraints, whereas the dominance state bureaucracy and its dictation over the local institutions and community has made the JFM participation by local communities just mechanical in nature. The author also reveals that where the relative importance of forest and livelihood concerns for the poor and poverty ridden people are recognised and addressed, the JFM shows significant success. That meaningful decentralization of power and authority in JFM programme is an important factor has been reiterated by Lavanya Suresh (2017). The author finds that engagement of local government with community oriented institutions in JFM makes the stakeholder more comfortable in functioning because, in such situation the local communities find space for greater interaction among authorities, civil societies and resource users. Nevertheless, the issue of inter-institutional conflicts, elite capture and patriarchy still persist in the system.

Theoretical Perspective on JFM

The theoretical perspective of the article is based heavily on the discussion made by Thomson and Schoonmaker Freudenberger (1997) and Ostrom and Ostrom (1977). The argument of the discussion centers round the idea that various incentives plays major roles in community involvement in forest management which ultimately make forestry programme a success or a failure. The basic components of the argument may briefly be described as follows:

Roles of Incentives in JFM

Since the forest resources have become a state property and the authority of forest dependent communities over such resources have been undone or curtailed, such communities have lost their interests in regeneration and protection of forest resources to a great extent. People lost the sense of belongingness once attached to forest resources. In such situation, to get people involved in forest management, there needs certain incentives which can neutralize the repulsive forces. Such incentives may be material, socio-cultural or emotional aspects people deal with.

Incentives Related to Characteristics of the Resource Base

The characters of forest resources may be varied. For instance, if resources are naturally grown and value is limited, people will not be interested to put their investment in protection and regenerating such resources. On the other hand, if the resources are valuable and are planted with individual or common effort, people will try to protect and regenerate them at certain cost to get benefit of their investment. In terms of protection of such invested resources, communities may be benefitted by already existing and newly laid down beliefs and practices, moral obligations that deter unauthorized extract of benefits from such investment or deter people from destruction of such investment. Besides such cultural/ moral aspects, institutional and socio-cultural

rules may be framed to keep away unauthorized entity from extracting benefits from such resources. Importantly, if the cost of protection of such resources is high enough making the output from such resources non-beneficial (non-feasible), people may get disincentified towards such resource generation.

Further, the absence of dependency on forest resources results in lukewarm response to forestry work where people with higher dependency on forest resources are seen more involvement in forestry work under JFM schemes. Thus, the nature of involvement of people in forestry activities is directly related to people's long terms and short term needs fulfilled by forest products. The priority need of people thus is important to be taken care of to make such forestry programme successful. On the basis of these concerns, there may be two primary characteristics of output from resources in creating incentives for how resources are managed:

(a) Feasibility of Exclusion

It implies how easy or difficult to keep others away from the access to one's valued resources. This easy or difficulty may imply in terms of keeping vigil, cost of vigil in terms of cost and physical prevention etc. Depending upon the output and seasonality, the feasibility of exclusion may be different at different point of time. It is learnt that the higher feasibility of exclusion leads to more participation or involvement in forestry works because people feel that they will gain secure and sure benefits from resources.

(b) Nature of Consumption

There may be basically two types of consumptions, subtractive and joint. When the consumption of certain goods by a person results in to the unavailability of the same goods to other consumer, the consumption is termed as subtractive. For instance, consumption of many forest goods is subtractive in nature. Contrarily, in case of joint consumption, consumption may be shared or sustainable to be used by others as well after one's use. Ostrom and Ostrom (1977) conceive that when it is easy to keep others away from the access to one's valued resources (easy feasibility of exclusion) and when the valued resource can be consumed by any one consumer (subtractive consumption), the output of such resources may be described as a "private good or service". When the "feasibility of exclusion" is relatively easy (as with a private good) but consumption of benefits is "joint" rather than "subtractive", then the output is known as a toll good or service. When the consumption of benefits is "subtractive" (as with private goods) but the "feasibility of exclusion" is difficult, then the output is known as a "common pool good or service". Public goods and services are those that have low "feasibility of exclusion" and are consumed jointly. In JFM programme where the voluntary involvement of communities is crucial, it is very essential to understand and make distinction between these different types of resources. The issue of sustainability, risk of losing access to and benefit from resources depends on these characters of resources and they ultimately influence the nature and extent of people's voluntary involvement in JFM activities.

Incentives Related to the Characteristics of the Community

The community characteristics may be divergent in terms of utilization of forest resources depending upon the social categories like caste, tribes and socio-economic condition etc. For instance, tribal people's involvement in forest activities is mainly subsistence in nature and lots of socio-cultural rules are imposed to regulate their interaction with forest and forest resources, whereas the non-tribal populations usually use forest beyond their subsistence need base, mainly for commercial purpose or for benefit making. The interest and dependence of poorer people on forest resources may be different from the richer ones. In such a situation, the rules made, moral codes of conduct laid down by the communities may differ and come into conflict with each other making the running of JFM programme a difficult one. It is perceived that while a congenial condition among the communities creates positive incentives, a problematic condition among the communities may attract negative incentive for JFM programme.

The Characteristics of the Rules and Resource Management Incentives

Once a community decides to engage in a JFM (or any collective activity), creation of rules or

enforcement of rules is inevitable for the governance of trees and forest resources. These rules help keep management of forest resources so created in order and create incentives for people engage in it – by protecting valued resources from unauthorized persons etc. Nevertheless, making rules merely does not assure protection of resources and order of the programme. Rules become meaningful only on the basis of their being working and non-working. Rules become "working rules" as and when people follow them and show impact on the practice of people. It should also be mentioned here that rules may not be official or written or coded ones. There may be locally framed rules, contemporary or traditional in nature set and implemented keeping in view the local contexts. When rules are context specific and implemented properly, they may serve as incentive to the community members to participate in forestry work — forest protection, management and regeneration.

The Interactive Factors of Incentives

As mentioned earlier, incentives can be categorized in terms of characteristics of resources produced, the social, cultural, and religious characters of the community and finally the characteristics of the rules existed in that domain. These spontaneous or institutionally created incentives lead people to make a choice in terms of involving in a particular way in forestry activities and they develop a particular behaviour towards resources available to them. Thomson and Schoonmaker Freudenberger (1997) has discussed the interactive factors between incentives and people's choice in involveing in forestry work as follows:

Incentives may be positive as well as negative. While positive incentives increase the chance of people getting involved in forest management, negative incentives make people abstain from such involvement. In case of a positive incentive, the impact or the outcome is characterized by sustainable, equitable, efficient and biologically diversified generation of natural or forest resources. Finally, Biological diversity of resource base remains important because services needed by human society from natural resources are diverse in nature.

It is imperative to point out that the positivity and negativity of resource base, the right or wrong choices and constructive or destructive behaviour towards resources by a stakeholder is contextual, not absolute at any point. For example, highly equitable and easily accessible resources may, in some cases, lead to unsustainable use of such resources. More control in use of resources eying at sustainability may lead to negative incentives to a certain group of people leading to lesser participation. The relationship is not unidirectional. This can be seen from both ways. That is, by observing outcomes one can assess why certain kind of behaviour is present towards resources whereby their characteristics of incentives can be seen. Once, it is identified, institutional rules, norms and other related aspects may be changed to the desired outcomes.

Objective

The primary objective of the study is to find out the factors responsible for success or failure of JFM programme in Maharashtra state using the theoretical framework based on the idea of incentive for local communities in forest management.

METHODOLOGY

The paper is a partial presentation of a study conducted in the state of Maharashtra on the issues related to Joint Forest Management under the NAP. The study was conducted within the Thane Forest Division (Territorial) of Maharashtra state. Two districts come under Thane Forest Circle – Thane and Raigad. Under this circle, there are 2409 forest-fringed villages and there are 1035 Joint Forest Management Committees created under the Forest management scheme. On the basis of available secondary data with the concerned Forest Department, 10 suitable villages, having JFMC were selected, taking 5 from each of these two districts. While selecting the villages, the social composition like tribal and non-tribal majority villages were selected. A minimum 10 and maximum 20 households were selected from these villages taking a total of 148 households. A questionnaire and open ended interview schedule were used to collect data related to JFM activities.

RESULTS

Analysing the JFM Activities and the Outcomes

Plantation and Entry Point Activities

It has been found that a variety of works have been undertaken under the JFM programme in the selected districts. Mostly, the activities are similar in nature because those activities have been planned centrally at the behest of the forest department. The first and the foremost among them is the 'Entry Point Activity' (EPA) under which varied nature of works were performed aiming at asset building or for other common purposes in the selected villages. Next, preparation for nursery and plantation sites has been developed. Medicinal plants, Goose berry plants, Indian lilac (*Neem*) and some other valuable wood varieties have been planted. Grass varieties, reeds, plants and shrubs utilized for fuel wood and fodder etc. have also been planted. Among the valuable woods Teak, Ain, Bamboo, Karanja (Millettia pinnata) etc. have been planted in plenty.

Utilization or Extraction of JFM Products

The survey had revealed that only two JFMCs could harvest products like grass/reeds and sold in auction to local villagers. The growth of plantation was not encouraging at all. The survival rate is always below 1 percent. So far no other Non Timber Forest Products (NTFP) has suitably come up for auction or earning. The valuable woods like teak etc. had a very long gestation period for which immediate benefits could not be assessed.

Forest Dependency and Related Issues

The nature and extent of dependency on forest resources of the forest fringe communities have been viewed as one of the important factors that can draw people to participate in JFM activities. Thus details of forest dependency among the selected households in 10 selected villages have been examined. Based on the extent of utilization of forest resources the level of dependency of selected households on forest resources has been classified as high, moderate, and low and no dependency. High dependency consist of households who extract forest resources and/or utilize forest land for utilities like household consumption, fodders, cash earning and use forest land for grazing etc. Moderately dependent household are the households which sparingly extract forest goods for cash earning and extraction of fuel and fodder is lesser. Low dependency indicates only grazing and infrequent collection of woods for construction of house etc. Further, the forest dependency criteria have been used to examine its relations with some other aspects like forest cover, nature of benefit seeking from forest, land holding of the people, extent of participation in forestry work by member families, and the social category of the JFMC members, It has been found that out of total 148 member household selected for the study, 21 percent have been highly dependent on forest, 26 percent have been moderately dependent, 32 percent have been identified as low dependent whereas 20 percent were non-dependent on forest resources.

Forest Cover and Forest Dependency across the Villages

Table 1 shows that percentages of forest cover to the total village areas of respective villages differ a lot. It ranges from 80 percent in case of Pendhargol to as low as 17 percent in Shedsai village. Table 1 shows that higher percentage of forest cover mostly indicates higher dependency on forest resources. Nevertheless, it has also been found that only higher forest cover may not be the factor for higher forest dependency, because lesser forest cover also shows at least higher number of moderately dependent households. It has been found that being rural areas, livelihood of people are invariably attached with forest. Thus if we see the overall dependency, 80 percent of households in the selected group are dependent on forest at varied intensity, if not highly.

Forest Dependency and Preferred Benefits from Forest Resources

Table 2 shows the relation between forest dependency and the most preferred benefit the member households expect among forest resources. Table 2 indicates that out of total 148 households, 21 percent households are highly dependent on forest resources and among them 45 per-

Table 1: Forest cover vs. Forest dependency across the villages (n=148)

Villages	*Forest Dependency (% within the village households selected)*				*Forest cover %*	*(%) households*
	High dependency	*Moderate dependency*	*Low dependency*	*No dependency*		
Pendhargol	40	40	20	0	80	10
Jamset	100	0	0	0	68	10
Shene	30	35	15	20	50	20
Apate	10	30	40	20	48	20
Tamsai	40	50	10	0	47	10
Dhamani	23	15	31	31	37	13
Chande	0	20	50	30	34	10
Mule	0	20	50	30	32	19
Sudkoli	10	40	35	15	30	20
Shedsai	0	6	50	44	17	16
Total	22	26	32	20		100

Table 2: Forest dependency vs. Preferred benefits from forest (n=148)

Preferred/primary benefits expected from JFM activity vs. extent of forest dependency

Preferred/primary benefits expected	*% of households within the extent of forest dependency*				*% Total households*
	High	*Moderate*	*Low*	*No*	
More wage	45	23	15	4	21
Fuel and fodder	32	30	29	20	28
NTFP	16	21	37	23	26
Valuable woods	7	26	19	53	25
Total	21	26	32	20	100

cent expect wage earning as immediate and primary benefits from JFM. This is followed by 32 percent households within this group who expect fuel and fodder as preferred benefits to be extracted from JFM followed by 16 percent households interested in NTFP and 7 percent in valuable woods. Likewise, among the total 32 percent low dependents households, majority (37%) percent households want NTFP as benefits from JFM. Among the non-dependents on forest, 53 percent households want valuable woods as JFM product. This clearly suggests that high dependency on forest is directly related to livelihood activities and in contemporary time, cash earning is the primary needs for living. Thus high dependency on forest resources is quite often strongly attached to wage opportunity and income generation with immediate effect. Non-dependent households on forest hardly expect immediate return from forest and therefore, most of them expect valuable woods as product of JFM, a long term and higher benefits in terms of cash earning.

Land Holding and the Extent of Forest Dependency

Table 3 shows the relation between extent of forest dependency and land holding pattern among the selected households. It is found that among the 148 selected households, 59 percent has either no cultivable land or has less than one hectare land. Another 30 percent households have cultivable land between 1 and 2 hectares. Only 11 percent selected households have more than 2 hectares of cultivable land. The relation between lack of adequate land resources and extent of forest shows that the lack of land resources is not the absolute determining factor for higher forest dependency. In the first category of land holding, 15 percent households are non-dependent on forest and as many as 25 percent of the house-

Table 3: Land holding vs. Forest dependency among the villagers (n=148)

Land holding in hectare	*Forest dependency (% within the respective land holding categories)*				*% households*
	High	*Moderate*	*Low*	*None*	
0- <1	29	31	25	15	59
1 - <2	9	20	47	24	30
2 and more	13	19	31	38	11
Total	21	26	32	20	100

holds are very lowly dependent on forest. Nevertheless, high and moderate dependency is more in this category compared to any other categories of land holding. It is evident from Table 3 that increase in land holding has a trend in non-dependency on forest resources. This clearly shows that more land for cultivation decreases forest dependency at least for livelihood purposes.

The Issue of Participation

Forest Dependency and Extent of Participation in JFM Activities

The extent of participation in JFM activities has been classified as high participation and low participation on the basis of presence of JFMC members in forestry activities and meetings and discussions etc. Less than 30 percent involvement is categorized as low participation for the purpose of present investigation. It has been assumed that nature and extent of forest dependency of household is intimately related to the extent of participation in JFM activities. Table 4 reveals that out of 31 highly dependent households on forest resources, 55 percent highly participate in JFM activities. Nevertheless, low participant households are also considerable in number (36%) among the high dependent households on forest resources. It is evident that the number of high participant households also decreases among the lower dependent households on forest resources. As expected, among the category of 'no dependency on forest resources' resulted into 70 percent non-participants in JFM activities. Further, among the households having moderate and low dependency on forest resources, nearly half of them are low participants.

Social Categories and Participation in JFM Activities

It was assumed that different social categories were differently related to forest resources in terms of utilization of the same. Traditionally, scheduled tribe populations have been found more dependent on natural resources like forest, especially for their basic livelihood requirements. Higher caste population mostly tends to utilize valuable timber either for cash or construction and business etc. Thus, when forest resources get depleted and restrictions are put on valuable woods etc, the dependency of higher caste people on forest decreases.

Table 5 shows that out total 148 household selected for interview, 57 (39%) households are Scheduled tribes and 91 (61%) are non-Scheduled Tribe households. It also reveals that among

Table 4: Forest dependency vs. JFM participation (n=148)

Extent of forest dependency	*Extent of JFM participation (% out of forest dependency categories)*			*% households*
	High	*Low*	*No participation*	
High	55	36	9	21
Moderate	33	49	8	26
Low	4	46	50	32
None	3	27	70	20
Total	22	41	37	100

Table 5: JFM participation vs. Social categories of respondents (n=148)

Social group	*Extent of JFM participation(% out of participation categories)*			*Total*
	High	*Low*	*None*	
Scheduled Tribe	79	28	26	39
Non-Scheduled Tribe	21	72	75	61
Total	22	41	37	100

the 22 high participant households, 79 percent are tribal households. Likewise, in low participant category, out of 60 households 47 percent are non-ST households. Finally, among the non-participants group 75 percent are non-ST households. This clearly shows that compared to non-ST population, the ST population shows higher participation rate. This is to be noted that in ST dominated villages the forest cover is relatively larger as well, which is happened to be a favourable condition for participation.

Extent of Participation in JFM Activities and Nature of Preferred Benefits from Forest

Nature of preferred JFM benefits by the respondents has been examined by the extent of participants. Table 6 shows that among the total 22 percent respondent households having high participants, more than half look for more wage from JFM activities; another 30 percent of high participants look for good supply of fodder and fuel, while 12 percent expect valuable woods and only 6 percent is interested in NTFP. Among the low participant households, only 15 percent households look for more wages, whereas majority (40%) of them look for fuel and fodder. Non-participants mostly look for NTFP and valuable woods. This indicates that high participation is also positively related to immediate benefits like wage earning and fuel and fodder.

Incentives and People's Involvement in JFM Activities

Incentives Related to the Characteristics of the Resource Base

A total of seven characters of the resources have been examined across the selected 10 JFMCs and responses have been recorded as either positive (+) or negative (-) signs:

1. Forest Resources in JFM are naturally grown (Yes +, No -)
2. Value of forest Resources to different people (Same +, Different -)
3. Resources may be accessed or harvested by unauthorized entity (difficult +, Easily -)
4. Resources are Subtractive (Yes -, No +)
5. Resources may be well protected (Yes +, No -)
6. Invested Resources need protection (Yes -, No +)
7. Cost of Protection very high (Yes -, N0 +)

After converting all these information to quantitative values, it is found that the strength of positive incentive is only 21 percent as against 79 percent negative incentives. As the Table 7 shows, three villages namely, Tamsai, Pendhargol and Jamset shows 57 percent positive incentives on the basis of the characteristics of resource base followed by Shene village (43%).

Table 6: Preferred benefits from JFM vs. Extent of JFM participation (n=148)

Extent of forest dependency	*Extent of JFM participation (% out of each participation categories)*			*% households*
	High	*Low*	*No participation*	
More wage	52	15	9	21
Fuel and fodder	30	40	15	28
NTFP	6	28	35	26
Valuable woods	12	17	41	25
Total	22	41	37	100

Table 7: Incentives profile on the characteristics of the resource base

Resource characters	*Villages*										*Total*		*Positive trends %*
	Shedsai	*Sudkoli*	*Mule*	*Tamsai*	*Shene*	*Dhamani*	*Apate*	*Pendhar-gol*	*Chande*	*Jamset*	+	-	
Forest resources in JFM are naturally grown (Yes +, No -)	-	-	-	-	-	-	-	-	-	-	0	10	0.0
Value of forest resources to different people: (Same +, Different -)	-	-	-	+	+	-	-	+	-	+	4	6	40.0
Resources may be accessed or harvested by unauthorized entity: (difficult +, Easily -)	-	-	-	+	+	-	-	+	-	+	4	6	40.0
Resources are subtractive: (Yes -, No +)	-	-	-	-	-	-	-	-	-	-	0	10	0.0
Resources may be well protected: (Yes +, No -)	-	-	-	+	+	-	-	+	-	+	4	6	40.0
Invested resources n eed protection: (Yes -, No +)	-	-	-	-	-	-	-	-	-	-	0	10	0.0
Cost of protection very high: (Yes -, N0 +)	-	-	-	+	-	-	-	+	-	+	3	7	30.0
Total +/-	0/7	0/7	0/7	4/3	3/4	0/7	0/7	4/3	0/7	4/3	15	55	21.0

Other 6 six villages do not show any positive incentives in terms of the characteristics of resource base. It is seen that villages inhabited by tribal people and villages having more forest cover (incidentally they are the villages inhabited predominantly by tribal people) have almost all the available positive incentives.

Incentives Related to the Characteristics of the Community

A total of five characters of the community have been examined to assess the positive and the negative incentive in terms of JFM activities in the studied villages. The characters are as under:

1. Have religious beliefs that debar Plucking of immature fruits (Yes +, No -)
2. Have religious beliefs that debar Collection of fodder at individual will (Yes +, No -)
3. Have Social sanction against entering community resource base before collective ceremonial observances (Yes +, No -)
4. Have Moral Obligation against destroying or harvesting community resources (Yes +, No -)
5. People fear of bad influence of supernatural beings in case of unauthorized harvest

Table 8 shows that the overall positive incentives across the selected JFMC villages are 54 percent leading by three tribal dominated villages namely, Tamsai, Shene, Pendhargol and Jamset. Beside these villages, village Mule has the highest number of positive incentives (60%) among non-tribal dominated villages followed by Apate (40%). This shows that among the non-tribal dominated villages negative incentives are prominent whereas, the tribal people impose lots of moral and traditional restrictions to protect and manage forest resources even in JFM operations.

Incentives Related to the Characteristic of Rules in Place

The following 10 'Characteristics of Rules in Place' have been identified to assess the incentive profile by examining whether these are positive (+) incentives or negative (-) one.

1. Institutional Rules are explained in case of JFM activities (Yes +, No -),
2. Disadvantaged groups find places in the defined functional Rules (yes +, No -)
3. Rules gives special advantages to the disadvantaged groups (Yes +, No -)
4. Rules are followed in Selecting plant varieties (Yes +, No -)
5. Rules are followed in convening meetings (Yes +, No -)
6. Rules are followed in fund allocation issues (Yes +, No -)
7. Rules are followed in allotting jobs and benefits (Yes +, No -)
8. Rules are functional in terms of breach of rules (yes +, No-)
9. Decision taken in presence of majority members (Yes +, No -)
10. Accounts and other financial matters are kept transparent (Yes +, No -)

Table 9 shows that the maximum positive incentive count is 50 percent represented by Jamset village followed by Pendhargol village with 40 percent positive incentives. These two villages are followed by 6 other villages namely, Shedsai, Mule, Tamsai, Shene, Apate and Chande with 30 percent positive incentive each. The remaining two villages have only 10 percent positive incentives each. The overall positive count among the villages is 29 percent. The figure clearly indicates that the characteristics of rules in place are unable to offer positive incentives to the JFMC members for a better forest management environment.

Overall Incentive Profile in JFM in the Villages

Table 10 shows the overall picture of incentives available by clubbing all three previously discussed incentive profiles. The figure shows that the average positive incentive in all villages is 32 percent as against 68 percent negative characters of incentives. The figure also shows that village Jamset and village Pendhargol has the highest parentage of positive incentive (56%) characters followed by Tamsai (52%) and Shene village (48%). Baring the tribal dominated villages the overall incentive profiles are very discouraging which is also reflected in the unsuccessful JFM programmes of these JFMCs.

Entry Point Activities as Incentives to People in JFM

Entry Point Activities have been framed as an incentive to the JFMC members. There is a provi-

Table 8: Incentive profile on the characteristics of the community

Characteristics of the community	*Villages*										*Total*		*Positive trends %*
	Shedsai.Sudkoli		*Mule*	*Tamsai*	*Shene*	*Dhamani*	*Apate*	*Pendhar-gol*	*Chande*	*Jamset*	+	-	
Have religious beliefs that debar :Plucking of immature fruits (Yes +, No -)	-	-	-	+	+	-	-	+	-	+	4	6	40
Have religious beliefs that debar :Collection of fodder at individual will (Yes +, No -)	-	-	-	+	+	-	-	+	-	-	3	7	30
Have Social sanction against entering community resource base before collective ceremonial observances (Yes +, No -)	-	-	+	+	+	-	+	+	-	+	6	4	60
Have Moral Obligation against destroying or harvesting community resources (Yes +, No -)	+	+	+	+	+	+	+	+	-	+	9	1	90

Table 9:Incentives profile on the characteristic of rules in place

Characteristics of the community	*Villages*										*Total*		*Positive trends %*
	Shedsai	*Sudkoli*	*Mule*	*Tamsai*	*Shene*	*Dhamani*	*Apate*	*Pendhar-gol*	*Chande*	*Jamset*	+	-	
Institutional rules are explained in case of JFM activities: (Yes +, No -)	+	+	+	+	-	+	+	+	+	-	8	2	80
Disadvantaged groups find places in the defined functional Rules:(yes +, No -)	-	-	-	+	+	-	+	+	-	+	5	5	50
Rules gives special advantages to the disadvantaged groups (Yes +, No -)	-	-	+	+	+	-	-	-	-	+	4	6	40
Rules are followed in Selecting plant varieties (Yes +, No -)	-	-	-	-	-	-	-	+	-	+	2	8	20
Rules are followed in convening meetings (Yes +, No -)	+	-	+	-	-	-	-	+	+	-	4	6	40
Rules are followed in fund allocation issues (Yes +, No -)	-	-	-	-	-	-	-	-	-	-	0	10	0
Rules are followed in allotting jobs and benefits (Yes +, No -)	-	-	-	-	-	-	-	-	-	-	0	10	0
Rules are functional in terms of breach of rules (yes +, No-)	-	-	-	-	+	-	-	-	+	+	3	7	30
Decision taken in presence of majority members (Yes +, No -)	-	-	-	-	-	-	-	-	-	+	1	9	10

Table 10: Overall incentive profile in JFM in the villages

Villages	*Resources characters*		*Community characters*		*Rules characters*		*Total*		*Positive trend %*
	(+)	*(-)*	*(+)*	*(-)*	*(+)*	*(-)*	*(+)*	*(-)*	
Sudkoli	1	9	1	4	1	9	3	22	12
Dhamani	1	9	1	4	1	9	3	22	12
Chande	1	9	0	5	3	7	4	21	16
Shedsai	1	9	1	4	3	7	5	20	20
Apate	1	9	2	3	3	7	6	19	24
Mule	1	9	3	2	3	7	7	18	28
Shene	4	6	5	0	3	7	12	13	48
Tamsai	5	5	5	0	3	7	13	12	52
Pendhargol	5	5	5	0	4	6	14	11	56
Jamset	5	5	4	1	5	5	14	11	56
Total	25	75	27	23	29	71	81	169	32

sion of grants of Rs 4000 per hectares of forestry work every JFMC initiates. Thus, many villages received grants under EPA scheme. This was basically planned to compensate the loss incurred by the villagers as a result of their involvement in JFM activities and their land blocked for forestry work, in which people otherwise would utilize for their other needs.

It was found that out of 45 JFMC entry point activities surveyed, 13 (29%) purchased tent materials and utensils for public use from the entry point grants. These materials are used in case there is any public gathering, marriage or any other social events. The materials are given on rent and the money thus earned are deposited in the JFMC's account. Rendering physical labour, the JFMC members of 11 (24%) JFMCs have constructed physical assets for common use like village approaching roads and assembly house etc. Another 12 (27%) JFMCs have either constructed drinking water facility or repaired and renovated such facilities. Others have utilised the EPA grants for miscellaneous activities. Looking at the utilities of these assets, the assets created or procured under the EPA grants have been classified on the basis of whether they have made any financial or other important contribution to the common people of the concerned villages. It was found that out of total 45 assets created under the EPA grants, 51 percent has shown positive impact on common village people while 49 percent have no such impact. This implies that the basic aim of EPA in new JFM programme has not been fully effective in terms of long lasting incentive generation among its stakeholders.

Other Contextual Issues in JFM Programme

The Issue of Institutional Overlapping

It has been highlighted by various researchers that there may be overlapping of jurisdiction of various institutions present in the area while JFM activities are carried out. There may be Panchayat, Community development Blocks, SHGs, Watershed Management, Forest Protection Committee etc. whose work areas may collide with JFM jurisdiction. A field investigation reveals that the each of the JFM activity is usually limited to a single village jurisdiction and its programmes are very much specific – like forest regeneration in specific locality, plantation is selected in depleted forest land etc. Thus, the JFMC's jurisdiction of operation in terms of physical assets, locality, labour involvement, and rules imposed are hardly in contrast to any other existing social institution as mentioned above. Moreover, it has been found that the benefits received from JFM programmes are all based on service rendered by people, and thus the forest officials are not seen as representatives of any welfare organization like that of the Panchayat and Community Development Blocks. Rather, in most of the cases, it has been revealed that people bear a negative attitude towards such Forest Officials and JFMC office bearers for misappropriation and mismanagement of allocated fund for JFM activities.

Risk and Risk Mitigation Issue

The study also tries to find out the probable risks related to following issues and the risk mitigation process involved:

i) Loss of Labour Investment

It has been found that all JFM activities, especially rendering physical labour etc, are always a paid work. Thus, for any unsuccessful programme, there is no total loss of investment for the part of the people involved in it.

ii) Loss of Physical Property (Land)

The plots of land used by the people for JFM activity are the forest land provided by the forest department. Thus, there is no question of blocking of private land from other productive purposes. In case people are restricted from using plantation sites for grazing and collection of fuel wood and fodder, there are alternative options provided where necessary for the affected people

iii) Inter or Intra Community Conflict Leading to Mass Destruction

There has been no inter-village or inter community tussle regarding JFM operation. Thus, mass destruction under such possible circumstances was not there at all. But protection of plantation site from stray cattle and from some individual miscreants was a major concern. The initial appointment of watchmen to protect the plantation site was terminated for the want of money, and sometimes due to the non-productive condition of the plantation. Fencing has been a costly option and also ineffective one. Thus lost of plantation and care remained a major risk factor and it actually damaged most of the plantation sites at various extents.

Gender Perspective in JFM

There is a provision for induction of women members in JFM executive body under NAP. But the survey among the JFMCs in the selected districts has revealed that these members hardly take part in meetings and decision making processes. Mostly their husbands, on their behalf, take part in meetings and JFMC activities. Besides, women are found uncomfortable with forestry work. Daily wage earner women usually work along with their family members together. Contrarily, forestry work does not give guarantee to provide works for family members at a time.

DISCUSSION

The results derived from the study clearly indicate that the JFM programmes in the selected districts have not turned out to be a success. It has been evident that the plans and policies on forest management and benefits sharing between state and the communities have remained very much technical and procedural. It has been observed that the objective of the Forest Department rests on two principles – fulfilled the set target to bring a definite area under plantation map and to increase forest cover. In doing so, the Forest Department very often has undermined the necessity of identifying genuine requirement of the selected communities in terms of forest resources and also their interest in forestry work. It is found that to fulfill their set target; the Forest Department imposes the programme on certain village communities to initiate JFM. This amounts to an involvement of certain section of the selected community with definite interest – mostly the interest of meeting their immediate need for wage earning and for some, to grab the opportunities coming to their doorsteps. In this entire process, there has hardly been any preliminary study on nature and extent of people's dependency on forest, nature and extent of utilization of forest resources and probable positive impact of such activities on people concern, and people's interest, genuinely, to get benefit from forest products in a changing socio-economic situation. This certainly puts the issue of participation of forest fringe communities in JFM activities at the front of all issues.

The findings clearly indicate that the nature and extent of participation of people in JFM depends on various factors like incentives based on resources, community characters, and rules in place along with the requirement and opportunity cost of participation of people involving in JFM. The study has tried to cover as much as possible, the related factors influencing the people's meaningful participation in JFM activities. This observation supports the findings of Sinha and Suar's (2003) who observe a higher participa-

tion of community members in JFM programme where the choices of communities are given importance. Half-hearted participation or negative participation has been reported in Jharkhand where external or state intervention was higher in JFM undermining the local importance. In the similar note, Ghazala (2003) also finds that JFM programmes are mostly outsider's concept introduced with little understanding and consensus of local communities, and has, therefore, suggests for a preexisting societal consensus and understanding among various stake-holders regarding the forest use and forest management.

The study indicates that the poorer and landless people participate more in JFM activities and their expectation from JFM output is different from relatively richer and landed families. Poorer families look for immediate gain from forestry work like wage and fuel and fodder contrary to the richer ones who look for long term gain like timbers, fruits etc. Similar observation were also made by Das and Sarkar (2009) in West Bengal, Sarap and Sarangi (2009) and Sahu and Rath (2010) in Odisha. The authors have also pointed out that uniform rules and planning has shown negative impact on poor participants in that in most of the cases they are restricted from using or extracting benefits from the JFM programme where gestation period is longer whereas the poor need immediate benefits.

The study reveals that people's culture in terms of their relation with forest makes some determining impact on forestry work participation and forest management. But, it is also a fact that the resourcefulness or the quality of the forest also influences as to what way people get attached traditionally to forest. Changing requirement of people in contemporary period has a great deal of influence on people's behaviour towards forest management and forest protection. Importantly, such relationship has hardly been discussed by researchers working on forest management issues among the communities. This implies that the objective of JFM must not be limited to the regeneration of degraded forest land. Rather, such programme must address the basic problem of livelihood of local poor and poverty stricken people within its jurisdiction. Such observation has also been made by Das (2011) on the basis of his study in Odisha who finds that due to such shortcomings in programme planning, the poor and needy people are restricted from extracting benefits from forest where JFM programmes are operational and due to their immediate need they are seen often engaged in activities that degrade open access forests. In this regard Saigal (2003) points out that significant success in various JFM programme across the states is the proof that forest dwellers and forest fringe communities are not enemy to forest. The author finds out that a secure right of access to and control over forests resources, genuine decision-making powers and an adequate share in the benefits may make a huge positive change in JFM.

There is always a gap between official report and ground reality. The ground reality shows that schemes come and schemes go. Larger the number of schemes heavier is the top down administration system. The JFM under NAP is also not an exception. Contrary to the much hyped decentralization process, at the grass roots level the communities hardly know what amount of money actually have been allotted, who has planned the requirement of the programme at various stages and so on. State interference has always been there up-to the bottom level where the member secretary of the JFMCs is the Forester of that particular beat. Follow-up activities are hardly seemed to be in place to look after the post–plantation issues.

Such situations are inherent in JFM across the states as reveal by the studies discussed here. For instance, the pseudo-decentralization of JFM programmes and the existence of its top-down approach has also been revealed by Shylendra (2015) by saying that the dominance state bureaucracy and its dictation over the local institutions and community has made the JFM participation by local communities just mechanical in nature. The author sees success in those JFMs where the relative importance of forest and livelihood concerns for the poor and poverty ridden people are recognised and addressed. Similarly, Lavanya Suresh (2017) reveals the persistent inter-institutional conflicts, elite capture and patriarchy in JFM process and thereby she opines that engagement of local government with community oriented institutions in JFM makes the stakeholder more comfortable in functioning. Nevertheless, the issue of still persists in the system.

Very importantly, mere recognition of local level institutions as an instrument for the development of degraded forests will not ensure people's participation and benefits in the JFM programmes. The study has revealed that most of the JFMCs and other local level institutions have no decision making power in planning, implementation, and benefit sharing and also in rule making specific to their requirement. It has always been the forest department which dictates these terms leading to lack of all-out participation and expected success. Such observation supports the findings of Reddy and Bandi (2006) who sees similar issues in success of JFMs in India and thus opines that for a better forest management outcome, the JFMCs and FPCs must be recognised as the sole authority for the overall development of resources and people.

There have been reports of some very successful JFM programmes in the state as per the record of the Forest Department of Government of Maharashtra. The present study also reveals the presence of relatively successful JFM programmes in some villages under the study. Nevertheless, overall picture in the state in terms of forest regeneration and fulfillment of people's requirement is not that satisfactory.

CONCLUSION

The delineation made above reveals that JFM is a process that involves diverse stakeholders along with rules, roles, responsibilities and interests. It is simply not a programme; rather it is a continuous process of interaction, understanding, experience and implementation of the same in to action. It is also a context specific process where heterogeneous decisions and actions are required to be taken. As far as the information derived from the study is concerned, it may be safe to say that the JFM has not achieved its desired goal due to the lack of understanding and consideration of the inherent characteristics discussed in the paper. Thus it attracts a need for further deliberation on conceiving the programme and implementing the same considering these factors. It can also be said that there are very limited number of studies conducted on JFM programmes encompassing suitable theoretical perspectives and analytical expertise. Thus, despite the fact that the paper is based on a study conducted a few years back, the findings and the analytical perspectives do carry a substantial value in terms of methodological and evaluation perspectives for further study and programme implementation.

RECOMMENDATIONS

Based on the methodology used and the findings generated from the study, the following lines may be forwarded as recommendations:

i) It is strongly felt that there is a need to assess the incentive profile before planning any JFM programme in a particular locality.

ii) It should also be mandatory to conduct a field based study to assess the population profile among whom the JFM is planned to initiate. Issue like nature and extent of forest dependency, people's economic pursuits and work profile, reason for people's interest on forest management (if any) must be assessed prior to launching such programme.

iii) Decentralization of power, both in decision making in work and financial power should be in place in a proper way. Awareness and interest building must precede the launch of JFM programme in the villages.

iv) The JFM activities at village/community level must not be solely dependent on government grants. There must be sustainability in one or the other way. Stakeholders must be made aware of their responsibility to carry forward the programme till it reaches its final stage.

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