1. Introduction

During 1980s, concerns about degradation and deforestation rose to prominence in academia, popular press and in international and national policy discussions on development and environmental sustainability. As evidence of continuing deforestation and degradation mounted, the search for causes and possible solutions gathered momentum. Although, the explanation of various scholars and practitioners differed in terms of the underlying and proximate causes, they all broadly agreed that both objectives of and approaches to forest management required a radical rethinking.

It is in this global climate that India adopted a new forest policy in 1988. It was the first official recognition that the centralized, bureaucratic management had not been able to protect India's forests. It declared that the task of halting degradation of forests and regenerating them could not be attained without people's involvement and that meeting local people's livelihood requirement should be an integral part of forest management objectives. In the year 1990, Joint Forest Management (JFM), which provided the policy framework for involvement of people in the management of forests, came into existence. Since then, it has been implemented in 23 states and according to the Ministry of Environment and Forests nearly 10 million hectares from a total forest area of nearly 64 million hectares have been brought under Joint Forest Management (State of India's Forests, 1999). The new forest policy also recognized that forests are the habitat of a variety of life form s and provide valuable environmental services to the local and global community. Forest management, thus, should appropriately integrate conservation and environmental objectives across time and space.

Several factors have contributed towards the emergence and acceptance of local people's involvement in a search for alternative system of regeneration, maintenance and management of forests. A global move towards greater decentralized governance at all levels, greater awareness about contributions from forests in local people's livelihoods and the possible role that a meaningfully designed system of forest management can play in poverty alleviation have all contributed in generating a global and national consensus towards community management of forests. A

burgeoning literature on common property resource management has provided empirical evidences of the feasibility of community management of forests.

The JFM, however, tries to establish a system of community management of forests on a network of administrative and forest divisions that had evolved to suit the requirement of previous system of centralized management of forests. Building a system of community management would not only require appropriate transfer of power to the communities, it would also entail a significant rethinking about the location of primary management unit. A key criterion, which should be used to redefine the primary unit, is the appropriate balance amongst a community, its requirements and the corresponding size and capacity of the resource. In this paper I shall suggest a simple, yet practical conceptual scheme, which can be used to reformulate the JFM framework and the programme support therein. An analysis of community management of forests vis. a vis. other systems (state control, private management, joint management etc.) is beyond the scope of this paper. My purpose in this paper is to analyze JFM with respect to its stated objectives and suggest some changes that can improve its chances of attaining those objectives.

Many people argue (see Ashish Kothari) that JFM (or a variant of JFM, which essentially is same so far as the fundamental) should also form the core strategy in the management of National Parks and Sanctuaries, which together constitute nearly 15 million hectares of forestland. However, we now have adequate evidence that the conservation objectives and the livelihood requirement and aspirations of local people may be in conflict with each other, at least in places. Thus, the discussion and analysis in this paper does not apply to areas under national parks and sanctuaries. Moreover, an analysis of community management of forests vis. a vis. other systems (state control or private ownership) is also beyond the scope of this paper. My purpose in this paper is to analyze JFM with respect to its stated objectives and suggest some changes that can improve its chances of attaining those objectives.

The paper has been organized according to the following scheme. In the first chapter I shall briefly summarize how the JFM framework defines community and given this definition what outcomes may be expected. I shall then draw attention to some

insights that Common Property Resource literature provides us. Subsequently, I shall suggest a simple scheme to categorize the existing forest use. Having done that, an attempt will be made to assess as to where JFM in its current form can produce better results and where changes would be required.

2. The Current JFM Framework

Although there are some differences in the JFM framework across different states (provinces), an administrative unit is considered as the primary unit of establishing community management system in all the states. The Joint Forest Management resolution of the Ministry of Environment and Forests, Government of India, uses the term 'village community' throughout the document. It defines the village community as

> It could be the *panchayat* or a co-operative in the village, with no restriction on membership. It could also be a Village Forest Committee.

It clearly stipulates that there must be some corporate body, which should be responsible for the management and protection of forests. And that this corporate body is best located at village level. Moreover, the forest, which this corporate body is supposed to protect and manage should also be within the physical boundary of village (or panchayat). Thus, village is both a social as well as a physical unit. Subsequently, there has been an amendment, which clarifies that village community could also be a corporate body at hamlet level or be congruent with a socially coherent group. In practice, however, the JFM remains a village-centered model. Even if other possibilities are allowed at ground level, it is clear that except one – a coherent social group, whose precise definition remains highly ambiguous - the other criteria still consider some administrative unit to be the unit where the relevant community should be defined.[1] The resolution also tries to strike a balance between the larger eco-system services of forests and local livelihood requirements. It clarifies that the village community will have to manage the forest as an indivisible unit so that various biological and chemical linkages within the system are not broken. Thus, rights to manage the forest, as one unit, are given to the collectivity. Other tenurial arrangements such as those under which individuals may own individual plots that can be pooled to make a common bigger patch, or individual ownership to trees

within a common forest patch are ruled out (Branching Out: Joint Forest Management in India, Nandini Sundar, Roger Jeffery and Neil Thin). A village might devise operational rules, which may contain these characteristics. But, they will have no legal sanctity. Moreover, internal operational mechanisms and their application should not result in the change of land use.

JFM is now more than ten years old. According to a recent estimate nearly 10 million hectares of forests are now under joint forest management.[2] It may be a little early to judge a programme like JFM as regeneration of forests and emergence of community management are slow processes and take time. Nonetheless, the results so far are, at best, mixed and at worst close, to 'not encouraging', except in some instances of successful JFM stories.

Of the total 5,87,274 villages in India, total 1,70,379 villages have forests within their demarcated geographical area. The actual number of villages using forests is likely to be more, although we do not have exact information about it. The actual number of villages, however, does not impinge on the subsequent analysis and hence would not affect it.

The number of villages having less than 100 hectares, between 100 and 500 hectares and more than 500 hectares of forest-land is respectively 67%, 25% and 8% of the total 1,70,379 villages having recorded forest land. Most of the villages in the second and third categories – 100 to 500 hectares and more than 500 hectares- are in tribal areas (State of India's Forests Report, 1999). No precise data is available regarding the human and animal population in these three categories of villages. Nonetheless, a comparison of the Report with the Census data at state level clearly shows that most of the villages in the second and third categories lie in the most thinly populated provinces of India where human and animal population per unit area of land is also low. On the other hand, a significant number of villages in the first category are in more mainstream areas, where both human and animal population density is greater than the first two categories. Also, the forests in these 67% percent villages are likely to be more degraded. A straightforward application of JFM framework has meant promotion of community management of forests with village as the primary management unit, irrespective of the availability of lands,

pressure on it, existence or lack of a community therein and the community's perceived advantage and motivation in collective management of forests. Moreover, the financial and technical support offered under JFM have also followed a universal pattern irrespective of a community's requirement and capacity in establishing a system of collective management. A village in the first category can have claims to more than 500 hectares of land and can receive program support under JFM, which is identical to the program support a village in the third category gets. The result is that in one case it may be more than what would be adequate for the purpose, while in another case it may be insufficient to take a firm step towards meeting the stated objectives. Such a thoughtless investment, irrespective of the specific requirements, leads to inefficient and non-optimal use of public money.

3. The Prevailing Criticism of JFM

In both JFM related literature and NGO forums, there has been an overemphasis on the structural issues. Largely, the focus has been on the following points:

(a) A greater autonomy to village institution and no involvement of field level forest bureaucracy in the structure and functioning of these institutions. A greater autonomy is expected to provide greater flexibility to institutions and is expected to let them develop rules and mechanisms suitable to their own micro specificity.

(b) A secure, long term legal tenure over produce to communities protecting forests. This would let the community have a secured assurance of returns from the forests and would encourage them to plan accordingly. A secure legal right would also mean that forest department would not be able to arbitrarily dissolve community's rights over forests. Nor would it be able to divert the land to any other purpose e.g. industrial plantations.

(c) A scheme of produces sharing between the forest department and local community that increases the community's share.[3] This is seen as a legitimate right of the community, since it is the community, which is investing in the protection and management of the resource. Moreover, a greater share from produce is also expected to provide higher incentives to community for careful protection and management of forests.

Lately a demand has been picking up to convert JFM to an act of Parliament, as, in its current form, it is only an executive order, and hence, is on weak legal footing. All of these demands certainly have their relevance and logic. A secure tenure, structural and functional autonomy to local community and greater benefits to them are certainly required to support and establish a successful system of community management of forests. However, a simplistic emphasis on them is also founded on romantic and static notions of nature-society relationship in Indian village society. (Which, ironically could be one of the most oppressive societies for the people of lower and "untouchable" caste, though in matters related with their access to forests, a 'cultural neutrality' may prevail.) Though, a criticism of village based model is also gaining momentum, this also slides down to the other extreme and asserts that socially coherent groups exist all across India, and left to themselves, or with the support of non-government organizations, "people" would choose the most appropriate unit themselves. This unexamined emphasis on people's management and exclusive emphasis on structural issues in the JFM framework itself have stifled any serious attempt to critically examine the management issues at local level. This is despite the fact that during the same period, various practitioners and common property researchers have provided some useful insights about institutional and management issues and their dependence on several internal and external factors. Decentralized governance and people's management of forest, though important, cannot be an end in itself. A more careful attention to the instrumentality of community management of forests in fulfilling the management objectives would lead us to pay equal attention to the local level management aspects also. Contrary to an overwhelming assertion that left to themselves, in a conducive, JFM policy framework, the communities will manage their forests well, a more decisive intervention and support of the government may be required in many areas. In the next section, I pick up some of the relevant learning from literature. The specific focus would be on the relevant insights that can be applied to assess and redesign JFM.

4. Insights from the Common Property Resource (CPR) Literature

The common property literature provides some important insights in understanding factors, both internal and external, that can have a bearing on successful common

property governance. In most examples that we have from CPR management literature, either a community (and a system of collective management) exists and successfully protects its common resources (see Elinor Ostrom 1990). Or a system of management emerges due to a common perception of risks felt across the community (see Robert Wade 1994). Thus, the literature itself lacks analysis and evaluation of a large-scale institutionalized effort to *promote* and *facilitate* systems of collective management of forests. It still offers useful insights that can be drawn into JFM to improve its chances of success.

Before going ahead, I provide an explanation of my continuation of use of the term 'common property resource' over 'common pool resource'. Daniel Bromley has explained that the term 'property' introduces an unwarranted confusion in the conceptualization and discussion about resources, which have specific characteristics. The term common property signifies a management arrangement created by the society. It defines a society's preference for a certain type of property regime to manage a resource. Thus, grazing lands may be managed under different property regimes ranging from state control to common management to private ownership in different societies. He emphasizes that on the other hand, many resources have characteristics that make it difficult (or costly) to exclude users (who are many) and where one person's use reduces what is available to others. Problems of congestion and free riding are likely to be present in this case. He suggests that a more appropriate term for such resource is "common pool" resources. Though, there is certainly a great deal of merit in the argument, I have preferred to retain the phrase common property, primarily because I shall be using the phrase to refer to the published literature, which is still overwhelmingly referred to as the common property literature.

One important lesson, with an appeal for wider application, from the CPR literature is design principles. Some of these principles actually correspond to the demands for improvements in JFM that were explained in the section 3. Three other important principles, we shall be using in the next chapter to categorize existing situation of forest use. In order to go further and delineate other relevant learning from CPR literature, for suggesting improvements in JFM, we have to again remind ourselves that the JFM not just aims to strengthen the collective management of forests,

wherever it exists. It also aims to actively *promote* and *facilitate* collective management of forests. Thus, we not only have to identify as to what should be done in order to support the surviving systems of community management of forests, but would also have to isolate learning, which could be employed to probe two intersecting questions simultaneously. One, to assess whether a system of collective management of forests is likely to emerge in a situation, and two, what type of support will help in this process or what type of support can make it happen. Thus, we shall be concerned with the policy and programmatic application of CPR theory. The most useful question to ask for this purpose is what are the benefits and costs of collective management and which variables affect these. The program support can then be designed to increase the benefits and reduce the costs of collective management. Various scholars have identified several factors, which can affect the likelihood that a community will collectively manage its resource (Baland and Platteau, 1996; Ostrom, 1990; McKean, 2000; Bardhan, 2000). The most crucial ones are listed below:

(1) The initial cost of establishing collective management is not very high.
(2) Gains from switching to collective management are sufficiently higher.
(3) The community has a significant dependence on the resource. In other words, forests play an important role in the livelihoods of community.
(4) Majority members of the community apply a sufficiently low discount rate on the future benefits to be achieved from the forests.
(5) The members of community trust one another.
(6) The change in the resource quality, due to collective effort, is predictable.

Having listed down the six most crucial variables that can influence the cost-benefit assessment and realization, we can now move on to develop a conceptual scheme, which can be used to divide the existing use of forests in meaningful categories.

5. A Suggested Conceptual Scheme and Its Application

The two most crucial elements in establishing a successful system of community management of forests are a viable community and its ability to regulate the use of forest resource. Community here cannot be assumed to be a unit situated at an administrative unit of village or *panchayat*. The required characteristics may exist at

some administrative unit or at some other unit, which does not coincide with the village or *panchayat*, or worse even, it may not exist at all. The identification and location of a community should not be approached from administrative units. There is no apparent rationale behind it, except perhaps a procedural ease to the forest department.

Similarly, 'social coherence' in itself also does not provide any meaningful lead to identify the relevant community. Any casual observer of the Indian village society knows that a socially coherent unit may be a sub-group (such as a caste) within a village or it may be across villages (such as a tribe) depending on what is the underlying criterion for locating coherence.

In defining and locating the relevant community, the most important criteria to be kept in mind is that it has to be defined vis a vis a forest patch. Of the various social and cultural ties that exist in a society in a geographical location, we must identify and isolate the characteristic that links a set of people with a given resource in such a way that a system of collective management may possibly be established. In situations where this link clearly exists the relevant community should be located at that level. Therefore the traditional user group of a given patch of forest resource, wherever it exists, should be recognized as the relevant community. This community may or may not coincide with any administrative unit. This situation still exists in many remote and marginal areas where in spite of years of state control, traditional systems of resource use have survived. It also exists in many mainstream areas with respect to the patch of forests that has been legally long recognized as community forests e.g. gramya jungle in Orissa. A programme like JFM, however, cannot assume to have 'communities' as given. In many situations, no clearly defined traditional user group exists. In these situations JFM will have to produce appropriate community, if possible.

Presence, or lack, of a user group is but one of the many conditions, which are required for a system of collective management of forest to exist. We can identify three basic principles to define a system of purposeful common property resource management: (1) a clearly defined user group, (2) a resource with clearly defined boundaries, and (3) regulated use of this resource by the user group. Since the

regulation of use, by the user community itself, is not practically possible unless boundaries of the resource are clearly defined, we can assume that the condition two is implicit in the condition three. We can now use these two conditions together to categorize the existing situation of forest use by the local people.

But before we go ahead, let us develop an operational definition of community. The community is a set of people who together use a clearly defined patch of forest. Thus, there are two following important criteria, both of which should be simultaneously fulfilled, in order for a user community to exist.

(i) Every member of the group can use the given patch of forest.
(ii) Anyone else who is not a member of the group cannot use the given patch of forest.

The second important condition, regulated use, can also have two variations. A given patch of forests may be under regulated use or its use may be unregulated. A combination of these two variables would give us the following three conditions:

1. A well-defined user group exists for a given patch of forest and also regulates the use. We shall denote this situation as A.
2. A well-defined user group exists for a given patch of forest but the use is not regulated. We shall denote this situation as B.
3. A well-defined user group does not exist and the use is also not regulated. We shall use C to denote this situation.

We can also assume a situation where though a well-defined user group does not exist the use is still regulated. Empirically this situation corresponds to many forest areas, which receive migrant herders from arid areas. The complexities in this case are very different from the rest of the forested areas and hence I shall not consider this possibility in this paper.

Since one of the primary objectives of JFM is the maintenance, regeneration and management of forests, there is an important criterion that we shall now employ to further classify the above mentioned three situations: the rate of extraction vis a vis

the rate of regeneration. There are only two possible, mutually exclusive, situations that we shall consider: (a) when the rate of extraction is less than (or equal to) the rate of regeneration (or increment), and (b) when the rate of extraction is more than the rate of regeneration (or increment). It would be important to highlight here that if any given patch of forest is in condition (b) then it is undergoing a process of degradation. And any meaningful system of forest management would ideally try and take it to condition (a).

Having delineated these categories, we can now see that the forest area, which can be included in JFM would fall under one of the six categories: using the above mentioned two with each of the A, B and C. We shall use the two letters together, with the small letter in bracket, to signify an area that has simultaneous presence of the two conditions. Thus symbol A(a) would denote a situation where 'A' occurs along with 'a', i.e. where the following three conditions are all simultaneously satisfied:

(i) A well-defined user group exists for a given patch of forest.

(ii) The user group regulates its use of the forest, and

(iii) The rate of extraction is less that the rate of regeneration in the patch of forest, which the user group uses.

The other symbols A(b), B(a) etc. will have the similar meaning. It should be obvious that there is no overlap in the six possibilities at a given point in time although over a period of time a member of K(p) may shift to K(q) where p and q are not same and can take any of the three values – a, b, c. While K can take any of the three values A, B or C.

Having delineated these six situations we can now analyze each one by one and see as to what could be there specific features. And, given these specific features, how the programme support could be redesigned more meaningfully and with possibility of better result.

SET A(a): User group is well defined, it regulates the use and the rate of extraction is less than the rate of regeneration.

This is the classical case from where most of the common property resource literature has developed. The prevailing demands briefly described in section 3 have the highest application here. Since a community already exists in relation to a piece of forest, it should be so recognized and given a legal tenure. Moreover, as it regulates the use its management systems should also be recognized. As the rate of extraction is less than the rate of regeneration, the forests are not under any threat of degradation. The principle of designing support under JFM in this case should be based on both minimum interference and minimum support. Occasionally, JFM could also stipulate some conditions, which can improve the community's stakes in the successful management of commons. A key question here is can community's linkages with market be promoted, since there is a surplus. This might increase community's gain and stake in the continuation of successful protection and management. However, commerce can also alter the set of incentives and can generate dynamics, which may disrupt the system of collective management. Thus, a general prescription could be that the areas where users have strong common understanding and trust and quantum of surplus is high, the programme may provide support to increase market linkages.

SET A(b): User group is well defined and regulates the use but the rate of extraction is more that the rate of regeneration.

Here the key principle of support should be to help move the members of this set to set A(a). The returns in this case from regulation and cooperation are high enough to motivate the user group to have a regulated system of use. The focus of support here should be to improve the productivity and bridge the deficit. An ideal path to follow is to reduce the extraction rate, for a certain period of time, and provide more favorable conditions to increase the regeneration. Reduction in extraction however may affect the different users differentially and program support may need to be sensitive to it. In most cases where the deficit is not large, the forests' regenerative capacity can be increased within a short period of time with a little technical support to increase the productivity, and by altering the time and method of extraction without actually reducing the quantum of extraction. This is the category where results are likely to be the best with minimum efforts. Like A(a) demands spelt out under section 3 have high validity here also.

SET B(a): User group is well defined, but does not regulate the use and the rate of extraction is less that the rate of regeneration.

This can be conceptually compared with restricted open access property without unfavorable ecological consequences. This is likely to be the case in areas where forests are dense, both human and animal population densities are relatively less and a traditional system of user demarcation has survived. The key question here is do users see a sufficiently high benefits in regulating their use of forests. The regulation required in this case would be a qualitative one rather than a quantitative one as the rate of extraction is less that the rate of regeneration. Where resource is abundant and the users do not have any common perception of scarcity and or any other threat they, are unlikely to regulate the use. An external agency will have to take the task and JFM is unlikely to serve any meaningful purpose here. However, in cases where the surplus is small and a common perception of possible degradation in near future is building up amongst user group, regulation can be facilitated and JFM may serve a useful purpose.

SET B(b): User group is well defined, but does not regulate the use and the rate of extraction is more than the rate of regeneration.

This can be conceptually compared with restricted open access property with unfavorable ecological consequences. When the deficit is small, productivity may be raised with or without introducing regulation. Preference should be given to the strategy, which has a higher chance of producing desired results. If the land condition is promising, technical support should be given priority. On the other hand, if social coherence, trust amongst members and an expectation of reciprocity are high, facilitating regulation could be a more promising strategy. In this case non-government organizations should be involved. While in the first case, forest department may be a better agency to provide technical support with its years of experience in productive management of forests.

When the deficit is higher, the case becomes difficult to resolve within the JFM framework without relaxing the land use condition. In this case pressure on the land is high, degradation has already set in and the recovery would take time. Added to it is a possibility that forests perhaps do not play a significant role in the local livelihoods. Moreover, introduction of regulation and rise in productivity, even if it

results in a significant jump in the rate of regeneration, may not result in any significant gain to individual user as per capita gains may be small. In such areas the predominant use of forests is for fuelwood and fodder. A change in land use must be considered here from forests to plantation or silvi-pastural systems. Without considering an intensive use of land under more restricted vegetation regime, the possibility of halting degradation appears low. The programme design must have two components: technical, to regenerate the land, and support to user group so that at least for a few years they can reduce the extraction to provide conducive conditions for regeneration. In many of these villages the immediate requirement of poor (e.g. landless, who maintain few livestock, which for a large part survive on commons) might be very crucial for them and their discount rate for future benefits may be very high.

Thus, two important considerations here are initial cost and differential impacts of regulation. The preference should be given to such places where the adverse impacts of regulation, especially on the poor are minimum, and where initial cost of establishing more productive vegetation is also the minimum.

SET C(a): A well defined user group does not exist, the use is unregulated and the rate of extraction is lower than the rate of regeneration.

This is conceptually an open access property but without adverse ecological impact due to human use. A key requirement in this case, so as to resolve it within the framework of community management of forests, is to determine a set of criteria by which a community can be delineated. This requires creativity and flexibility. If the situation involves only local resident communities (and no seasonal migrant users) some external agency, along with local people, will have to delineate community at a level where cooperation may prevail. Usually in this case a sub-group consisting of people living close to resource (and perhaps have the highest dependence) may be more willing to invest in resource management and protection. However, establishing exclusive management by a sub-group may lead to conflict. A win-win situation may occur when this delineation does not result in loss to any set of people.

SET C(b): A well defined user group does not exist, the use is unregulated and the rate of extraction is higher than the rate of regeneration.

This is open access resource at its worst. One needs to be realistic in assessing the possibility of establishing community management here. The pressure here is likely to be the highest and the most-degraded areas would fall in this category. The returns are uncertain and can come only if the land is allowed to regenerate for a sufficiently long time, which may be very difficult given the amount of pressure. And even this is made possible; the regenerated forest may slide back to the earlier degraded conditions quickly once the use is allowed, as the pressure is likely to be enormously more than the carrying capacity. There is little possibility of improving the situation of these lands under JFM given the current rate of investments and gestation period available under various programmes. In this case encroachments on forests land is also likely to be the highest. This is clearly a case where promotion of supply side alternatives, higher availability of investments, a creative crafting of user group need to be built-in in the approach.

6. CONCLUSION

JFM makes a beginning to provide communities an access to forest resources and attempts to involve people in protecting and managing forests. Criticisms of JFM however have remained confined to issues of decentralization of power to people. While decentralization is an important component and would facilitate community's involvement in forest management, several other factors also need to be examined to realistically assess the possibility of successful management of forests by community. Moreover, the program support within JFM should also be modified to suit the specificity of various situations. A successful promotion of community management of forests should be based on a careful examination of the presence of factors that can support or impede community management. This understanding can be used to allocate the limited resources under JFM for maximum returns. Moreover, it should also be recognized that JFM might not lead to any better result in certain situations. And in such situations other possibilities, in combination with JFM or separately should also be considered.

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[1] Hamlet is a sub-unit of a village, and panchayat, the smallest unit of local governance, may consist of more than one village and several halmets.

[2] This information however has little useful significance. The only conclusion that one can draw from it is that forest department records show that 10 million hectares have been registered under JFM. It does not mean that community, whichever way it is defined, has established systems of management and use on these 10 million hectares of forests. Large-scale implementation of JFM under a bureaucratic system of 'target achievement' is the primary reason why official records show such inflated figures. The actual area under a functional, community management system is unlikely to be more than one 30-40 % of this figure.

[3] This in practice means sharing in timber. Community usually has greater rights over other goods, fuelwood, fodder etc. that it draws from forests under JFM.