Regenerating Forests Through People's Participation: How Far Has the Joint Forest Management (JFM) Worked?

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Abstract

Given the severity of natural resources' degradation and the imminent threat to ecological security, various alternatives have been explored for the sustainable management of these resources. One such alternative includes involving communities through participatory ways to tap their agency for conserving resources like forests, water or land. Designed along participatory lines, the Joint Forest Management (JFM) happens to be the flagship programme for restoring degraded forests in India. Conceptually, only a tenuous relationship has been identified between participation and sustainable development. Participatory approaches manifest themselves either as the 'means' or 'goals' of development. In both types of participation, pitfalls are common for equity and efficiency outcomes of the intended programmes unless the process of participation is one of enabled nature. JFM, as a participatory intervention, emerges more as a top–down initiative with a rigid framework unable to break the inherent structural constraints for a more empowered process of forest regeneration. The available pieces of evidence, to a large extent, corroborate the theoretical contention that a participatory approach may not necessarily lead to improved outcomes for forest regeneration on a significant scale. This article, besides critically assessing the role of JFM, draws a few implications for its future strategies.

Keywords

Forests, JFM, Livehood, Partcipation, Policy, Regeneration

Introduction

Severe depletion of natural resources threatening ecological security has forced countries, speaking globally, to explore alternatives to past methods of governing and managing these resources. India, a country with relatively low per capita natural endowments, has been no exception to this trend; it has also been compelled to go beyond its conventional ways of conserving and regenerating natural resources including land, forests and water. As regards forests, a key resource both for environmental stability and people's livelihood, a new approach towards involving community was embarked upon when India adopted the National Forest Policy (NFP) in 1988 (GoI, 1988). The NFP considered a watershed mark in the evolution of forest policies, identified a clear need to associate tribal and village communities with restoring degraded forests. The NFP's strategy was, in a way, both the recognition of the failure of the exclusionary tendencies of past policies and the need to reverse the consequences through a more progressive people-centric approach. It resulted in the adoption of a programme called the Joint Forest Management (JFM) by the Government of India (GoI) in 1990, which envisioned a collaboration with village communities and voluntary agencies for the restoration of degraded forests. The programme and its approach got operationalized by the state governments that framed their own norms to accommodate people's participation in forest management. Since then JFM and other participatory models have taken considerable strides in the country.

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By 2010, there were about 1,12,816 JFM committees in place, managing nearly 24.65 million hectares of forest lands and constituting a little over one-third of the total recorded forest area (see Table A.1). JFM has a unique social dimension as it is spread mainly along forest-fringed villages and includes a large section of backward communities including the scheduled tribes, scheduled castes and other disadvantaged groups.

Joint Forest Management: Rationale and Strategies

Ever since the colonial rulers took control, forest management has been synonymous with 'scientific forestry'. Productivity and revenue enhancement being its primary goals, the forest department was given a pre-eminent role with regard to the governance and management of forests. Except for meeting some basic needs as per customary rights, the local communities' access to forests was curtailed for fear of forests suffering damages and encroachment. The forest policies of 1854, 1894 and 1927 legitimized the forest department's pre-eminent role in the exclusion of communities (Das, 2010). The post-independence state kept up a similar approach until a wake-up call was sounded by the counter revolutions of many communities whose access and rights over the forests had been infringed upon. It began to dawn on the state that 'scientific forestry' had neither helped increase forest cover and revenues significantly nor minimized the damage to bio-diversity. Well before the state's realization, several self-initiated efforts by communities had occurred in many parts of India to protect and preserve forests in view of their dependence for basic livelihood needs. Community efforts were also spurred by civil society agencies and social movements aimed at conserving forests. Given the state of forests and the clamour for involving communities in their protection, the Indian state decided to co-opt the community-based model of forest management by notifying JFM in 1990 (see GoI, 2001 for the JFM notification of 1990 and 2000).

Building its rationale on NFP, JFM called upon state forest departments (FDs) to seek the support of voluntary agencies and non-government organizations (NGOs) for a meaningful people's participation in the protection and development of degraded forests. While the community members were not to be given any ownership or lease rights over forests, they were entitled to a share of usufructory benefits provided by state governments. The usufructory benefits included the rights for the collection of various minor or non-timber forest products (NTFPs) and a share in the final harvest of the protected area. For ensuring protection, grazing rights were to be curtailed with a provision made for a cut-and-carry system. Tree species aligned with local needs and preferences were to be included in the regeneration plan. Only those members getting organized into a village institution to protect forests were to be given usufructory benefits, with the FD having the supervisory powers and discretion to withdraw benefits in cases of unsatisfactory performance. Thus, the JFM granted conditional rights leaving the pre-eminent position of the state intact. The state governments issued their own orders specifying usufructory rights in the local context, with most granting somewhat similar access to fodder, fuel and small timber, and a hugely varied share in the final harvest. In the final harvest, while some states did not specify any clear benefits, a few gave 100 per cent share in the net revenue with the rest falling in between. Although the 1990 order of GoI had suggested that a forest protection committee (FPC) could be formed out of a Panchayat or co-operative, no clear legal status was granted to the FPCs.

Based on the first decade of experience, new supplementary guidelines were issued in 2000 and 2002 by GoI to strengthen the stakeholders' participation in forest protection. The new guidelines suggested that legal backup be provided to FPCs by registering them as societies under the Societies Registration Act 1860. A memorandum of understanding (MoU) was to be signed between the State government and the FPC to clearly define the roles and responsibilities of different stakeholders. In order to bring women into focus, the guidelines stipulated women's memberships in the general body (50 per cent) and executive committee (up to one-third seats) of the FPCs. A suggestion was mooted to expand JFM, even to good forest areas. To bring a clear focus on local livelihood needs, priority was to be given to preparing micro-plans and their incorporation within the overall forest work plans. These micro-plans were supposed to reflect the traditional knowledge and needs of local markets with a multi-product and NTFP orientation. Apart from creating a conflict-resolution mechanism, a norm was suggested for ploughing the back part of the final harvest revenue of the community to the village development fund for regeneration purposes.

The JFM framework, thus, urged the FD to seek the community's support for protecting and regenerating both degraded and good forests by duly recognizing their access rights. Participation was to be enabled through an institutional arrangement of FPCs with a legal status in place involving all interested households as members. The FD and FPC were meant to jointly plan and carry out protection and regeneration. The community had to be incentivized via conditional rights for its contribution and participation to forest management.

The JFM intervention, initiated through GoI guidelines and adopted by all states, is implemented through the National Afforestation Programme (NAP) launched in 2002 by GoI and donor-supported projects as sought by the state governments. It is worth noting that while JFM is the main approach here, there are other ways by which community participation is being sought in the governance and management of forests and bio-diversity. These cover constitutionally or legally mandated mechanisms including the devolution of powers to Panchayats according to the 73rd Constitutional Amendment, the Panchayats Extension to Schedule Areas Act, 1996 (PESA), the Scheduled Tribes and other Traditional Forest Dweller (Recognition of Forest Rights) Act, 2006 (FRA), and the Biological-Diversity Act, 2002 (BDA).

Does JFM represent a real paradigm shift in governing and managing forests? Can participatory mechanisms help with the sustainable management of natural resources while taking care of the livelihood needs of communities? What have been the major lessons learnt, and in what way can the participatory approach be taken forward? These are some of the questions the article has tried addressing critically based on a review of the available literature related to JFM.

Can Participatory Approaches Help with the Sustainable Management of Forests?

Forest degradation is a part of the wider environmental crisis facing the globe. The nature of solutions mooted for averting an environmental crisis is underpinned by diverse strands in theoretical discourse and their ideological moorings (Foster, Clark, & York, 2010; Woodhouse, 2002). For those asserting the neo-classical economics approach, a dominant strand, an environmental crisis is largely an 'externality' to be addressed by way of a market-based regime aided by technological advancement. The assignment of clear private-property rights to natural resources and the adoption of the polluter-pay norm to internalize the cost and benefit of an externality are the basic strategies advocated. The neo-classical approach characterized as 'ecological modernization' has been criticized for its deterministic analysis and failure to address structural changes necessary for addressing environmental crises. Market failures are quite pervasive leading to rampant pollution, poverty and inequality (Amin, 2010; Foster et al., 2010). An attempt had been made to address the limitations of the 'ecological modernization' approach by the institutional economics school that advocates the creation of a suitable institutional mechanism for framing and enforcing rules to prevent a 'tragedy of commons'. One variant of the institutional economics school strongly advocates collective action within the local community with clearly defined rules as an instrument to address any excessive resource exploitation problem (Ostrom, 1990). Adaptive efficiency through suitable institutional arrangement is the way forward in terms of addressing the common failure to attain allocative efficiency of the market-based neo-classical approach. Collective action is supposed to generate the much-needed trust and reciprocation between players for the sustainable management of a resource. The argument gets complemented by the 'social capital' school that advocates an associational approach with the potential of generating trust and instilling the civic sense for such needs (Fukuyama, 2002). However, the vagueness of 'institutions' and their inability to break structural constraints that perpetuate inequalities and over-exploitation of resources are the major criticisms levelled against the institutional economics approach.

Countering ecological modernization is the radical ecology school that looks at environmental crisis as an outcome of the major rift between nature and human society needing a more fundamental solution (Foster et al., 2010). The root of the environmental crisis is the capitalist mode of production that induced the rift due to an alienated system of accumulation in which ecological destruction is a way of life. As far as the radical ecology school is concerned, the solution lies in an ecological revolution against the consequences of 'ecological modernization' leading to a just and sustainable society. The reversal of the rift requires the dedication of natural resources to social use as against private ownership while being rationally regulated by associated communities (Foster et al., 2010). While the nature of strategy is fundamentally at variance between the two broad approaches regarding the resolution of environmental crises, the role for community and collective action gets recognized in both.

Coming specifically to community participation vis-à-vis management of natural resources, the recent participatory approaches to forestry and other sectors may be seen as concomitant of the broader process of governance reforms underway, which are apparently aimed at reversing the limitations of state-led development (McGee, 2002). The reform process itself has got unfolded at one level owing to globally imposed reform agendas such as the structural adjustment programme and 'good governance' and, at another level, due to increased pressures of local groups/movements against top–down interventions. An essential component of these reforms is the collaborative efforts visualized by the state, market and civil society for synergistic outcomes in development (Shylendra, 2009). The pre-eminence of the state has to be reversed in favour of a pluralized approach.

Privatization and decentralization are some of the essential strategies enabling other agencies to participate in governance and developmental efforts. While the broader governance reform process itself is being assessed for its real nature and impact, specific strategies like decentralization and participation have also come under theoretical and policy interrogations.

There are two broad approaches, conceptually speaking, to understanding the role of decentralization/participation: the liberal interventionist approach and the radical populist approach (Gurukkal, 2006). The interventionist approach sees participation and decentralization as a means of achieving certain economic goals including growth and efficient resource allocation. Centralized systems involving agencies like the state and the bureaucracy, as compared to the market and civil society, are perceived to be inappropriate for such goals. Decentralization is, hence, necessary and may assume various forms like administrative devolution to local bureaucracy or encouraging the participation of beneficiaries in projects or privatization. In contrast, the radical populist approach sees participation more from the political prism of empowering the poor and excluded through participatory and democratic processes. The larger aim is to bring about a structural transformation in the hierarchical systems that tend to exclude the poor and the marginalized from developmental processes. However, it has been argued that any radical grassroots' decentralization process may not succeed if widespread social and economic inequalities prevent the poor from participating fully in any kind of governance system. Under such circumstances, attempts at decentralization may end up as mere administrative rearrangements for narrow gains (Gurukkal, 2006).

Even according to the interventionist approach, the relationship between participation and development is considered somewhat tenuous (Braun & Grote, 2002; Johnson, 2002). Interventionist decentralization may work through both the equity and efficiency angles. In terms of equity, decentralization promotes participation by the poor and marginalized, which leads to pro-poor choices in the decision-making process. Enabling participation of the poor is likely to increase transparency and predictability with the participating communities exercising better control and monitoring over the local bureaucracy. However, decentralization working through equity linkages may face constraints if capabilities required on the part of the poor with regard to participation are absent and discriminations based on gender and other social considerations are rampant. Participatory platforms may also suffer being subject to control by the elites who may not only capture the benefits of devolved resources but also lack enough incentives to promote participatory processes. As regards the efficiency linkage, it has been argued that decentralization could lead to better decision-making as local people have better information and higher incentives for taking decisions. The efficiency of interventions is likely to go up because of a heightened local-level accountability process. However, efficiency linkage could suffer as decentralization may not always lead to efficient outcomes. Decentralized units may not be able to raise enough resources and they may not be given adequate powers because of strong centralizing tendencies. Decentralized units may even become hotbeds of corruption due to rent-seeking tendencies at the local level. Hence, under both types of linkages, even with decentralization producing some positive results, results could run contrary to the principles of equity and efficiency. The safeguards for such failures include enabling broader participation by various sections and deeper economic and social transformation of the participating communities.

Overall, even as the debate over the right kind of systemic approach to the environmental crisis rages on, there is a strong argument in favour of promoting community participation for resource management. Theoretical arguments over the role of participation suggest that the perceived benefits of participation may not be realized under all circumstances. Drawbacks are likely to exist for equity and efficiency through participatory approaches. Transformational changes for development may, hence, be constrained.

Performance and Outcomes of JFM

In this section, we have attempted to look at the impact and outcomes of the participatory based JFM. Three broad areas have been identified for this exercise, namely policy and institutional aspects, forest protection and regeneration, and livelihood impact issues. As highlighted earlier, the assessment has been made on the basis of a review of available studies, both official and non-official, regarding the working and performance of JFM with a focus on the three areas identified. That not many comprehensive and representative studies are available on JFM is a matter of concern (Planning Commission, 2011). What is available largely includes findings of project evaluations or research studies focusing on specific examples or cases. Many of these studies have their own limitations in terms of the time period, coverage and the methodology used. The findings or insights presented here are, hence, to be treated only as indicative of the underlying broader impact of JFM.

Policy and Institutional Aspects

Nature of Policy

The nature of a policy, in terms of its ability to address complex sets of forces—political, social and economic—having a bearing on desirable outcomes and the soundness of institutional arrangements it creates for delivering on the goals, plays a crucial role in determining its success. The JFM based on NFP 1988 was acclaimed by many as a progressive step relevant to the need to break the colonial and state-centric legacy of alienating local communities and the need to ensure social justice (Springate-Baginski & Blaike, 2007). JFM was even equated with 'public land reforms' (Poffenberger & McGean, 1996) that is able to transform forest management into a more indigenous system. Many scholars have argued that the FD, appreciating the JFM spirit, has taken steps to redefine its role and relations with the community. Despite delays in its initial decade, JFM has been able to spread itself fairly widely over the subsequent period owing to leadership provided by the FD and the community (Poffenberger & McGean, 1996). The 12th Five Year Plan (GoI, 2013), in its chapter on sustainable development, has credited the participatory approach based multi-stakeholder platforms like JFM for having empowered women and for having introduced innovations in the management of natural resources. As a policy, JFM has been seen as a framework blessed with the potential of unleashing positive changes in the role of the FD capable of reversing injustices meted out to communities in the past. Its success has been attributed to a more holistic thrust provided by the NFP, the initiatives and leadership of the FD, and the catalyzing role of donor support to reverse state failures (Bahuguna & Hilaluddin, 2011b; Springate-Baginski & Blaike, 2007).

The positive assessment of the JFM policy has been countered by many who argue that JFM's success has been varying and limited (Jodha, 2000; Lele, 2011). JFM has been more a reactive policy in response to the rapid depletion of forests affecting livelihoods in the wake of the state's inability to address the situation lacking the proactiveness required for a more decentralized and flexible approach. It has been argued that JFM's performance may need to be seen more comprehensively with the diversity across states intact. At the same time, JFM has to become more proactive while addressing the institutional dimensions of devolution, equity and sustainability lest it loses out on the limited gains it has made so far (Jodha, 2000). Its tardy progress, especially in the first decade of its working, was evident in a state like Karnataka known for certain progressive measures in the field of political decentralization. According to a study (Rao, Murali, & Ravindranath, 2002), despite some good efforts in a few districts the reach of JFM in Karnataka after a decade of progress was well below par. The number of JFMCs formed was only about one-tenth of the estimated potential, besides a highly uneven spread across districts (see Table A.1 for more recent state-wise progress of JFM). Similarly, Dhanagare (2000) in his assessment of a World Bank supported programme in Uttar Pradesh observed that JFM was unable to reverse the conventional view held by the FD and the 'joint' effort visualized had remained only so on paper. The policy was unable to kindle the right attitude within the FD officials.

Those looking at JFM with a political ecology perspective attributed its varied performance to the largely ambivalent stand taken by the FDs, even though a small section of foresters had favoured proactive steps (Springate-Baginski & Blaike, 2007). Many within the FDs considered JFM as a betrayal of the FD's historic mission of protecting forests. The FDs' continued privileging of its perceived scientific knowledge over any alternate knowledge seems to have created inbuilt barriers for promoting participation. The nature of the Indian state too has been identified as a major factor responsible for influencing the overall performance of JFM. According to Narayanan (2008), state-led interventions for resolving natural resource related conflicts may not succeed in deepening real participation as the state in a capitalist economy fails to remain a neutral player during conflicting situations and tends to advance the interest of capital over the claims of the poor. Sengupta (2008), too, argued that given the pre-eminence of the state in a situation of legal plurality, the customary and informal rights of communities may not always have tenability. Under such circumstances, JFM can only create a limited niche for people who may show only a limited response, as has been the case. JFM, hence, tends to get reduced to a mere user-group-based intervention aimed at serving narrow productivity objectives of the FD.

More radical views have even been categorical about the intent of the state as far as protecting the rights of tribal communities (Prasad, 2010) is concerned. Capitalist advancement promoted by the state uses market and middlemen for extraction by gaining access to forest resources. The consequences are grave owing to the exploitation and dispossession of tribal communities with even their constitutionally granted rights curtailed. The state's withdrawal in forest management is more of a push by donor and multilateral agencies owing to institutional failures.

Thus, while JFM is claimed to be a progressive policy, it is constrained in terms of desirable outcomes by the political economy involving a state keen to promote a capitalist agenda, a centralizing forest bureaucracy,

market-forces with a tendency to extract from forests and forest-dependent communities unable to assert their rights.

JFM Institutions and Their Working

By institutions we mean here the network of community-based organizations (CBOs) created to partner with FDs to protect and regenerate forests and, in turn, to seek rights and livelihood support needs of their members. The success of programmes like JFM would, to a great extent, depend upon the nature of such institutions in terms of their autonomy and inclusiveness regarding implementing their primary task effectively for more sustainable outcomes given the diverse milieu. In order to examine this fact we looked at various dimensions of CBOs focusing on their legal status, area coverage and inclusion of communities, and their working and decision-making abilities.

1. *Legal status*. The NFP, while emphasizing the need to recognize the rights of forest-based communities, has suggested encouraging the co-operatives of tribal communities and labourers in order to control illicit felling. The JFM order of 1990 had visualizsed the mobilization of people by village institutions in the form of a Panchayat, co-operative, or committee. Such a mechanism was envisioned to foster collective action by way of a legal entity of the community. However, state governments, in general, in their wisdom did not ensure clear legal status to these collectives. The legal status was left vague or was not clearly specified. Even with specifications, the committees were left in a state of uncertainty for enforceability of the rights granted. To rectify the situation, the JFM order of 2000 suggested that state governments provide clear legal backup by registering the JFM committees under the Societies' Registration Act 1860. It has been felt, though, that the effort to streamline institutional arrangements did help JFM to progress faster since 2000, yet the need to provide clear legal backup to the FPCs along with devolution of powers still remains unrealized (Bahuguna & Hilaluddin, 2011b).

   The states, however, did attempt to provide legal backup to the FPCs but the efforts were more by way of an executive order having no legal or constitutional sanction. States, apparently, were not keen on providing a legally enforceable status as that would have meant compromising on the pre-eminent position held by the FD over forests. Furthermore, frequent changes in various provisions, including the rights granted, have created uncertainty and confusion in the tennurial status, which is a huge disincentive in terms of mobilizing communities (Sarap, 2007; Springate-Baginski & Blaike 2007). For instance, in Karnataka, despite the specification of a government resolution to provide a legally registered status to FPCs as societies, the latter are registered only with the FD (D'Souza, 2009). Not all FPCs have been able to sign the MoU leaving the contract vague and informal (Rao et al., 2002).
2. *Coverage and inclusion*. To extend the benefits of JFM to wider areas/communities, the JFM 2000 guidelines suggested allocating even good forests to the FPCs. However, evidence suggests that JFM has remained largely confined to degraded forests (ICFRE, 2008; Springate-Baginski & Blaike, 2007). JFM has been able to reach only about 60 per cent of the forest-fringed areas, curtailing the scope for wider participation and benefits (Bahuguna & Hilaluddin, 2011b).

   As regards coverage within a JFM project, the tendency has been to confine membership to 'users' only. Although there is a debate over the issue, some argue that user-groups have a narrow coverage leading to exclusion of many needy households in villages (Shylendra, 2002). Those in favour of user-group based FPCs defend the practice from the point of view of cohesiveness and viability of the FPCs and the scope it gives for ensuring role clarity within the CBOs (Lele, 2011; Ravi Shanker, 2009). However, arguments are gaining ground to link FPCs with gram sabhas, both to ensure inclusion and to instill compatibility with the current constitutional provisions where local governance institutions are supported having centrality (GoI, 2013).

   The initial phase of JFM had been highly insensitive to the needs and role of women, an important stakeholder group in forest management. Explicit provisions had not been made for women's participation. Genuine needs and growing pressures from various groups forced the inclusion of women, both in the general body and executive committee of FPCs. The JFM order of 2000 specified a minimum of 50 per cent and 33 per cent membership for women in the general body and executive committee of the FPCs respectively, besides fixing a minimum requirement even for the quorum and posts of office bearers. In some states attempts were made to organise exclusive women-based FPCs giving scope for enhancing women's economic security, especially among the poorer sections (Das & Sarker, 2011). While the states have specified certain norms for women memberships huge variations continue to

exist while the inclusion of women in JFM remains limited (Agarwal, 2010).

3. *Working of FPCs*. Are these institutions working effectively? Are they able to ensure participation, autonomy, and sustainability? Diverse evidence has emerged in this respect. In all states, wherever the NAP has been introduced, a three-tier structure has been created with inter-tier integration. The FPCs or JFMCs are the grassroots level institutions federated at a forest division level as the Forest Development Agency (FDA). The FDAs, in turn, are federated at the state level by way of a state FDA (SFDA) (GoI, 2009).

   The exercise of control over FPCs/FDAs by the FD and perpetuation of its dominance is one of the most common insights depicted across many studies. The forest-department officials hold ex-officio positions with full powers in all these institutions enabling them to dominate the working of all these institutions. D'Souza (2009) observed that the relationship between FD and the community is more of a vertical kind. The forest officials call the shots in all the major activities of FPCs besides ignoring the potential of traditional knowledge. The Planning Commission's Working Group (Planning Commission, 2011) clearly identified the fact that there is too much control for the FD leading to interference in the working of FPCs leading to divergence between the interests of the FD and the community. Reddy and Kumar (2009), based on their study in Andhra Pradesh (AP), argued that management committees are dominated by officers and the elite. The FD officials, besides conducting the general body and management committee meetings, take decisions at all stages. The abiding top–down attitude of the FD, inadequate devolution of powers, lack of transparency in the working, social backwardness of the communities, and low capacity building of the FPC members are some of the reasons behind perpetuating the control (Banerjee, 2007 & ICFRE, 2008).

   The consequences of such a top–down and bureaucratically driven approach to JFM, according to these studies, have been quite negative. There is a complete undermining of the people's participation in the entire process. The communities have been reduced to mere wage seekers and beneficiaries as opposed to empowered stakeholders as a result. Be it determination of the villages for FPCs or identification of forest land for the protection or sanctioning of loans to FPC members, everything gets determined by the FD officials. Women are unable to participate and exercise any control. In some cases, women have served as conduits for decisions imposed by FD officials. In certain cases, the FD officials prefer the elite for nominations to the exclusion of the tribal community and the poor paving the way for elite dominance within the FPCs.

   The preparation of micro-plans has been a major casualty of the top–down process (ICFRE, 2008) explained above. The preparation of micro-plans has been recognized as an important mechanism enabling local communities to participate in the planning process and express their needs and preferences for incorporation in the forest work plans. While, in most cases, FDs have prepared micro-plans on their own, in others the role of the micro-plan itself has been bypassed. Sarap (2007) reported that nearly 60 per cent of the FPCs in Orissa were unable to complete the micro-plans leading to a mismatch between the interests of FD and the local communities. Species selection in many FPCs has failed to reflect the local needs with long-run revenue yielding teak and sal dominating the species (Reddy & Kumar 2009; Shylendra, 2002). In the process, local knowledge on bio-diversity has been completely sidelined perpetuating the dominance of the 'scientific knowledge' of the FD held as responsible for many ills in the past.

   The impact of an autonomy deficit has, apparently, created challenges for institutional sustainability. The ICFRE study (2008) characterized the JFMCs/FDAs as nascent organizations which, while having accomplished initial awareness, are yet to develop systems for emerging as self-sustaining entities in the absence of outside support. Sarap (2007) observed that the FDAs in Orissa were not able to reach out to all the FPCs. With only 14 per cent FPCs covered by FDAs the rest were left to fend for themselves. The FDAs were also found guilty of concentrating only on FDA-assisted FPCs and neglecting the others. JFM, in the process, got reduced to an FD and donor-driven project model to the detriment of a process-driven approach. Devoid of funds, autonomy and stakes many FPCs registered a declining performance with the stoppage of project funds raising questions over their viability and sustainability (Bhattacharya et al., 2003). Incidentally, the story is not very different even for states like Andhra Pradesh that had opted under donar-support for community-based forest management (CFM) over JFM, which was considered to be more empowering for the communities.

Forest Regeneration

A key objective of JFM is to protect and regenerate forests with the community's help and, in turn, contribute to their livelihood enhancement. Given the nature of JFM in terms of its coverage it may not be easy to discern its impact on the country's macro-level forest cover. A Working Group of the 12th Five Year Plan (Planning Commission, 2011) has lamented over the lack of transparent monitoring of forest conservation in the country. Besides, there is a dearth of systematic data necessary for an effective assessment of forest conservation.

After a decade of JFM's working the forest cover almost remained the same without significant changes. The proportion of forest cover, which was 19.5 per cent in 1987, increased only marginally to 19.9 in 2001. Given the slow progress evinced by JFM during the initial decade it is obvious that the latter could not have made a significant macro-level difference. The 11th Five Year Plan (GoI, 2008), during its assessment, had expressed skepticism over the possibility of achieving the target set by the 10th Five Year Plan to increase forest and tree cover to 25 per cent. Concern had been expressed over the low number of dense forests, which were also declining. The enduring gap in the demand and supply of timber and fuel-wood is another major concern expressed in the 11th Plan. However, more recently, there has been some improvement in the country's forest cover. The total forest cover (excluding outside tree cover) went up to 21.23 per cent in 2013 (GoI, 2013a) (see Table 1). The Sub-Group-I on Forestry (Planning Commission, 2011a) identified an apparent increase in forest cover during the XIth Plan (2007–12), from 6.78 to 6.91 lakh km^2 and attributed the same, among other things, to protectionist efforts of the FD.

As per the 12th Five Year Plan (GoI, 2013b) the NAP and rural development programmes were able to add about 1 million hectares of forest cover, annually, during the 11th Plan. However, the said Sub-Group had clearly stated that achievements of India, both in terms of targets and accomplishments in forest cover, have been very modest and the net increase highly negligible (Planning Commission, 2011a). The main culprit, according to the Sub-Group, is the highly inadequate funding to the forestry sector, which is allocated less than 0.5 per cent of the plan funds. The NAP, deploying JFM as its main instrument, had suffered due to stagnation and decline in funding between 2001 and 2011 leading to greatly fluctuating results in the annual area coverage in the context of regeneration. Thus, at the macro-level, the overall impact of afforestation efforts pertinent to increased forest cover seems to have been only marginal at best.

Micro-level assessments indicate varied results of JFM with regard to regeneration. A somewhat comprehensive study (Springate-Baginski & Blaike, 2007) based on the performances of a few JFM major states point to the difficulty of judging whether the forest cover has actually improved or declined as a result of participatory forest management, despite an apparent improvement in the forest cover and condition. The ICFRE study (2008), based on the evaluation of NAP, came up with the following findings on forest regeneration:

1. NAP was able to reach about 28,181 villages covering over 10 million hectares of forests by 2008. The survival rate of plantations ranged from 68 to 82 per cent across different zones, especially in the initial years of protection. A vigorous regeneration had been observed owing to effective protection.
2. NAP was able to catalyze the development of rural production systems through soil and water conservation and enhanced bio-mass production.

A study on the impact of JFM during its early phase in Haryana (Dhar 1994) reveals that people's involvement in protection led to a significant increase in tree density (from 13 to 810 per ha). This, in turn, led to increased green cover, reduced soil erosion, and improved water conservation and fodder availability. A study by Shylendra (2002) reported that protection had left a positive impact on forest

Table 1. Forest Cover of India (Area in km^2; % to Total Geographical Area)

		1987		2013	
	Type	Area	%	Area	%
1.	Dense Forest:	361412	10.99	402,247	12.24
	Very dense	–	–	83,502	2.54
	Moderate dense	–	–	3,18,745	9.70
2.	Open Forest	276583	8.41	2,95,651	8.99
	Total Forest Cover	**6,42,041***	**19.52**	**6,97,898**	**21.23**

Source: The State of Forest Report, 1989; India State of Forest Report, 2013.
Note: *Includes mangrove forest.

regeneration and soil and water conservation in a tribal village of Gujarat. Similar results on regeneration were reported by studies in states like Orissa, Maharashtra, and Andhra Pradesh (Bahuguna & Hilaluddin, 2011a; Bhattacharya et al., 2003; Sarap, 2007). Sarap's study concluded that despite having been given degraded land the twelve FPCs studied experienced improved forest conditions; closure of forests on the part of these FPCs was identified as a sign of positive growth. Patrolling and social fencing were the main methods adopted by the community during forest protection, according to these studies. Diminished illicit felling, curtailed grazing, reduced forest-related offences, and appearance of wild life were some of the proxies identified as measures of forest regeneration in these micro studies.

A few studies have also captured instances of JFM either not having worked or having produced limited results. A study in Haryana observed that not all societies were able to take up successful forest protection due to limitations faced during the resolution of traditional rights and conflicts and also due to the inadequate inputs during regeneration efforts (Varalakshmi, Vijh, & Arora, 1993). Similarly, a silvicultural study covering JFM villages conducted in the Uttara Kannada district by Hegde, Murthy, and Bhat (2011) revealed that community protection had been only partially successful over a five-year period. Their study had analysed changes in species distribution, regeneration potential, stem-density and basal area, and bio-mass production. The villages had experienced a decreased number of stems of species while registering an increase in shrub density. The community was yet to realise the need for protection focusing on effective conservation and protection measures.

Achievement at the macro-level has been indicative of very modest gains in forest regeneration since the launch of JFM. The micro-level assessments, on the other hand, depict diverse scenarios of forest regeneration with a limited overall impact. The JFM effort has, apparently, produced results that are lower than expected.

Livelihood Impact

Forest conservation, aided by programmes like JFM, is expected to improve the socio-economic conditions of forest-fringe communities in various ways. Forests are expected to serve as a more secure source of meeting basic needs related to fodder, fuel wood, and other minor forest products. While regeneration efforts can increase wage-employment opportunities for the poor, bio-mass increase can enhance the scope for additional employment and income generation through the collection of NTFPs. Improved green cover serves to boost soil and water conditions in and around forests leading to greater farm productivity. At the same time, the restrictions accompanying protection measures can, potentially, curtail the access and customary rights of forest-dependent communities affecting their livelihoods negatively thereby.

Findings on forest regeneration prove that any significant livelihood impact of JFM is likely to have been constrained. The micro studies reviewed on livelihood impact by JFM confirm this by revealing a diverse scenario across the country. Positive and negative consequences of JFM have been observed, though, in varying degrees.

The ICFRE study (2008) by NAP highlights several positive features of the livelihood impact with782 FDAs covering 28,181 villages able to generate up to 0.44 million man days of annual employment directly and indirectly. Significant regeneration has enhanced the scope of NTFP collection and value-addition through processing leading to improved livelihood conditions. Entry-point activities of JFM have enhanced the social infrastructure of these villages. However, benefit-sharing in forest harvesting is yet to be realized in a significant way in these FDAs. Dhar (1994), in his study based on Haryana, observed that besides improved tree cover annual fodder yield had gone up from 0.04 ton/ha to 2.00 ton/ha. Also, combining watershed activities with forest rehabilitation had improved soil fertility and irrigation conditions, incentivizing people to participate in forest protection proactively.

The studies of Shylendra (2002) and Ravi Shanker (2009) revealed that JFM increased fodder production in the villages of Gujarat although no significant gains were observed in fuel wood. A major change observed as a result of JFM was the resolution of a contentious inequality issue concerning access to fodder. JFM increased the equity in fodder sharing between various sections through collective action. The JFMCs working through a user-group model were able to take up, through support gained by promoting NGOs, water-harvesting and other developmental activities benefiting the community significantly. Combining water-harvesting with JFM helped increase bio-mass outside the forest, reducing pressure on forest land thereby. However, factors including preference for teak while ignoring the people's current needs and uncertainty in the context of sharing the final harvest served to curtail potential impact.

Besides capturing general improvement in livelihood conditions, many studies have highlighted the predominant role of forests in the livelihoods of the very poor along with the role of JFM in augmenting the latter. Springate-Baginski and Blaike (2007), having synthesized their results from diverse case studies, concluded that despite varying impact across regions most groups had gained by

way of improved access due to JFM. The poor tend to derive a fairly significant proportion (10–35 per cent) of their income from forests. Sahu and Rath (2010) revealed that micro-plans based on strong community participation in Orissa created considerable employment and income opportunities that helped reverse stress migration, a resultant of environmental degradation, on the part of the poor. The study reported that the poor and landless gained maximum benefits with small and marginal farmers also benefitting from the protection. The poor and landless registered an income increase ranging between ₹4,000 and ₹9,700 and an employment increase between 94 and 192 days annually. Similarly, Behera and Sinha (2012) observed the economic impact of JFM to be positive in terms of income, employment, and NTFPs. Forest income constituted a significant share of the total income both before and after JFM with the latter stimulating an increase of up to 15 per cent. While NTFP availability increased, that of fuel wood declined post JFM. Another, almost similar kind of result, was observed with NTFP and fuel wood by Bhattacharya et al. (2003) in AP.

Sarker and Das (2008), studying FPCs in the Bankura district of West Bengal, concluded that JFM had created a beneficial impact both for the community and FD. There was a positive change with income from the forest going up by 40 to 89 per cent across various categories. As far as the poor are concerned, including the landless and marginal farmers, over 80 per cent of their net income comes from the forest with NTFP, forestry wage, and timber as the primary sources. Improved access caused the share of illegal sources in net return to decline overall within the FPCs, signifying the need to improve returns for the poor from sources like NTFP. The positive impact observed on the part of JFM, too, seems to have influenced the performance of FPCs. Deb (2009), during his assessment of FPCs in Bankura, concluded that direct economic incentives accruing to members from forest protection determined the performance of FPCs. Only those FPCs (accounting for 50 per cent of the total) that offered economic benefits were able to perform effectively.

A few studies have tried to capture the enhanced impact of JFM owed to integrative measures. In a JFMC located in the Ahmednagar district of Maharashtra (Bahuguna & Hilaludin, 2011a), besides the positive silvicultural impact that had been observed, a very significant increase in grass production helped promote dairying. Integration with rural development schemes led to the tapping of an increased water table for irrigation and crop diversification. Similar results were observed in a JFM project under a tiger reserve area of the Tirunelveli district in Tamil Nadu subsequent to the provision of soft loan facilities for agriculture and income generating activities; the promotion of alternative energy sources aided livelihood diversification while reducing dependence on fuel wood collection (Sankaravadaiammal & Paliwal, 2008). Having in place procurement and marketing linkages through co-operatives by NTFP federations in Madhya Pradesh and Chattisgarh seems to have helped reduce the exploitation of NTFP collectors in these states (Pandey, Bhargava, & Negi, 2011).

Evidence of negative impact or constraints evinced by JFM relevant to enhancing livelihood conditions has been highlighted by many studies. Springate-Baginski and Blaike (2007) have identified several negatives associated with participatory forest management schemes. These include the realization of limited benefits from the final harvest, restriction or ban on head loaders and grazers, deterioration in the condition of marginalized sections including shifting cultivators and declining NTFP production attributable to increased tree cover. Banerjee (2007) reports in his West Bengal case study that only 3 out of 10 FPCs shared the final harvest. The households studied realized, on average, a mere return of ₹78 per annum. Sarap's (2007) study in Orissa reveals that JFM displaced many shifting cultivation members without paying compensation. Despite JFM's positive impact on forest share vis-à-vis household income, the overall livelihood conditions remained poor because of low income. Increased NTFP access notwithstanding, the lack of marketing links forced many poor people to engage in debt and distress sales with private traders. The displacement of shifting cultivators in forests due to conservation efforts was reported by a study in Andhra Pradesh (Reddy & Kumar, 2009). The reclamation of shifting cultivation (*podu)* land caused incomes and food security to decline (by up to 20 per cent) as far as the dependent community is concerned. JFM in a protected area of Assam did not evoke a clear response from settlers who were more concerned with securing their rights over cultivable land, an earlier conservation effort having taken away their access from a land used for farming (Sharma & Sarma, 2014).

Cases concerning the negative or limited impact of JFM have been attributed to factors including the inbuilt bias of JFM against the poor and the application of top–down silvicultural models ignoring local needs. Kumar (2002) revealed that the low economic impact of JFM on the poor was due to the anti-poor design of the scheme itself. The JFM regime promotes meeting long-term timber needs (like Sal in Jharkhand forests) and eco-services valuable to the elite vis-à-vis the immediate livelihood needs of the poor. Some also attribute the anti-poor bias to adoption of the Assisted Natural Regeneration (ANR) as the major strategy for treating degraded forests under JFM (Bansal, Choudhury, & Gogate, 2011). ANR is considered

as incompatible with the basic JFM thrust of livelihood improvement and biodiversity conservation.

The livelihood impact assessment of JFM, thus, indicates mixed gains with some of the marginalized sections even losing out on their access and livelihood security. Where FD and communities have been able to come together despite persisting top–down tendencies economic conditions including income, employment, and NTFP availability seem to have improved, especially as far as the poor are concerned. The gains, wherever they have occurred, are relatively significant for the poor given their heavy dependence on forests for their livelihood. Livelihood improvement for the poor has been entirely dependent on the extent of gains. Significant improvements have been observed where absolute gains have occurred; otherwise the livelihood conditions have remained poor despite JFM. The gains have been constrained by failure in the context of incorporating the needs of the poor proactively. The impact of sidelining the decentralized micro-plan has been glaring in this context. In all cases of successful regeneration, those that were better-off gained both directly and indirectly. The impact of improved resource conditions and diversification has been felt mainly by the landed and better-off groups.

Conclusion

Even as debate rages on over the prospects of sustainable environment under the dominant capitalist mode of development, various attempts to reform the system are evident. Participatory management of forests by way of programmes like JFM is a visible example of reformation. The compulsion to arrest fast depleting forests and restore forest cover to at least one-third of the given area has forced the state in India to attempt a reversal of its exclusionary and utilitarian forest policies in favour of a people-centric approach. Theories of the participatory approach have identified a tenuous link between participation and development with the outcomes on efficiency and equity obviously constrained. JFM, no doubt, is unique and innovative in many ways although it has followed a theoretically visualized trajectory, largely speaking, in its outcomes. Systemic and programmatic barriers have ensured that JFM remains top–down and limited in its scope and transformational impact. The macro impact of increased forest cover, both quantitatively and qualitatively, has been very modest since the launch of JFM. Limited resource allocation and donor dependence are among the few macro constraints to have been identified.

At the policy level, JFM has been able to create only conditional and uncertain legal provisions incapable of ushering in a more empowered devolution for forest conservation by communities. The pre-eminence of state/forest bureaucracy has been sustained reducing participation to a mere instrumental and perfunctory phenomenon. The people's institutions under JFM have suffered in the context of sustainability given the absence of autonomy and legal backup. No doubt, at the micro-level, JFM has created many islands of success signifying potential that might be tapped. The relative importance of forests for the poor and prospects of livelihood improvement acting as an incentive for forest regeneration has been demonstrated by these examples for possible replication.

Forests are important, both for the broader society and the poor. The gains for forest regeneration may be better realized if positives of the JFM experience can be strengthened while simultaneously reversing the negatives observed. This is relevant in view of attempts on the part of the National Green India Mission to accelerate forest cover rapidly. Major possible future directions for JFM have been identified based on the review attempted in this article. These include the following:

1. The participatory framework of JFM needs to be deepened by ensuring legal backup to FPCs/FDAs so that they emerge as empowered institutions in the context of sustainability and enforcement of rights conferred on communities. The JFM platform should be able to help the poor assert their rights in case of future conflict over forests. Participatory approaches need to be extended even to dense forest areas.
2. Ensuring autonomy both in the institutional design and planning process of JFM assumes importance given the diverse contexts in which JFM works. The local livelihood needs of the community must be addressed prominently with the help of such autonomy. Micro-planning has to be necessarily integrated with the forest plans.
3. The JFMCs could continue either as user-based or wider community-based institutions tailored to local needs or contexts resolved through democratic processes involving local governance institutions (panchayats). However, JFMCs once formed as above need to be linked to panchayats in order to ensure the inclusion of women and marginalized sections and for conflict resolution. Linkages with NGOs have to be strengthened for further capacity building and value-addition to NTFPs.
4. The state needs to allocate greater resources to forestry and other natural resource regeneration programmes so that they can reinforce the role of

ecological security for poverty alleviation. The JFMCs in their areas could converge with wage employment (MGNREGA) and watershed programmes for conservation measures.

To conclude, while JFM has produced limited gains the way forward lies in deepening the participatory thrust lest efforts to restore forests through a people-centric approach take a full circle.

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Appendix A

Table A.1. State-wise Progress of Joint Forest Management Programme

	2000		2010		
States	No. of JFMCs	Area (Ha.)	No. of JFMCs	Area (Sq.km.)	% to Total Forest Area
Andhra Pradesh	6,706	1,679,084	7,718	15,910	24.93
Arunachal Pradesh	13	5,810	362	214.2	0.42
Assam	101	3,060	700	1,000	3.73
Bihar	1,675	935,066	682	4,560	70.44
Jharkhand			8,779	21,861*	92.61
Chhattisgarh	2,955	2,335,940	7,887	33,190	55.53
Goa	–	–	26	100	8.17
Gujarat	1,150	133,461	3,125	4,120	21.77
Haryana	351	60,744	2,487	700	44.90
Himachal Pradesh	203	62,000	1,023	2,051	5.54
Jammu & Kashmir	1,599	79,273	3,334	1,480	7.32
Karnataka	1,212	12,800	3,848	8,080	21.11
Kerala	21	4,000	576	2,074	18.41
Madhya Pradesh	9,203	4,125,837	15,228	66,874	70.62
Maharashtra	502	94,728	12,054	24,033	38.80
Manipur	35	1,400	665	603	3.46
Meghalaya	–	–	288	204	2.15
Mizoram	129	12,740	613	503	3.01
Nagaland	55	627	771	510	5.53
Orissa	3,704	419,306	11,995	11,363	19.55
Punjab	89	38,991	1,224	1,783	57.82
Rajasthan	2,705	235,634	5,316	7,800	23.90
Sikkim	98	2,191	219	885	15.15
Tamil Nadu	799	224,389	3,487	7,565	33.07
Tripura	160	23,477	920	2,353	37.38
Uttar Pradesh	498	44,278	3,014	7,246	43.70
Uttarakhand	7,435	606,608	12,089	5,450	15.73
West Bengal	3,545	488,095	4,386	6,458	54.36
Total	**44,943**	**1,974,669 (28.30%)**	**112,816**	**238,969 (34.24%)**	**34.24**

Source: GoI (2001) and Forestry Statistics India (2011).
URL: http://www.icfre.gov.in/UserFiles/File/Institute- ICFRE/2013/Stat/Forestry-stat-07Mar13.htm (accessed on 29 October 2014).

Notes: Figures in brackets are percentage of JFM area to total forest area.
*The data pertains to 2006 as per a Jharkhand Government Resolution.

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