

## Articles

# Agency Perspectives on Transition to Participatory Forest Management: A Case Study From Tamil Nadu, India

JAGANNADHA MATTA AND JANAKI ALAVALAPATI

School of Forest Resources and Conservation, University of Florida,  
Gainesville, Florida, USA

JOHN KERR

Department of Community, Agriculture, Recreation, and Resource  
Studies, Michigan State University, East Lansing, Michigan, USA

EVAN MERCER

Southern Research Station, U.S. Forest Service, Research Triangle Park,  
North Carolina, USA

*India's Joint Forest Management (JFM) policy, in which government forest agencies and local communities jointly manage forests, has been touted as a successful strategy in helping both forests and people. Its efficacy in the field, however, is uneven. Although government forest departments are charged with implementing JFM, very little is known about their perspectives on this policy. Assessment of foresters' perspectives on JFM in Tamil Nadu, India, revealed that despite foresters' motivation toward implementing this policy, uncertain incentives and institutional complexities make the task complex and difficult. While decentralized decision making in the Tamil Nadu Forest Department could help mitigate the situation, the department's culture that limits feedback in the system stands as a strong barrier against organizational adaptation. Hence, pragmatic strategies for promoting participatory forest management should focus first on improving the institutional conditions of foresters' work in order to develop a shared vision and a unified strategy for successful action.*

Received 6 February 2004; accepted 21 March 2005.

We are grateful to the members of the Tamil Nadu Forest Department for their unstinted support and cooperation. The support provided by the Winrock International–India to the first author for field research is warmly acknowledged. We thank Dr. Kimberly Chung for her help with the methodology. We also thank four anonymous reviewers for their valuable comments. This article is Florida Agricultural Experiment Station Journal Series R-10296.

Address correspondence to Janaki Alavalapati, School of Forest Resources and Conservation, University of Florida, PO Box 110410, Gainesville, FL 32611-0410, USA. E-mail: janaki@ufl.edu

**Keywords** employee perspectives, joint forest management, organizational change, public participation

Public participation has become a fundamental aspect of natural resource governance the world over (Pretty 2003). Natural resource management, however, is increasingly occurring in highly dynamic and often controversial situations characterized by multiple goals and stakeholders, debatable information, and lack of clear consensus on cause-effect relationships (McCool et al. 2000). The public good nature and associated externalities of many natural resources pose additional challenges (Singleton 2002). Given the frequently limited consensus on priorities for natural resource management, encouraging meaningful public participation remains a challenging task (Germain et al. 2001).

Several studies have suggested ways of improving public participation (Frentz et al. 2000; McCool and Guthrie 2001; Hjortso 2004): for example, insuring all interest groups are properly represented, building relationships between government agencies and the interested public, encouraging sharing of responsibility, and gaining social and political acceptance. Public agencies, unlike private firms or nongovernmental organizations (NGOs), often operate under certain political and administrative constraints, including a limited choice on whom to involve (Yadama 1997; White 2001). The few studies that have analyzed factors influencing incorporation of public participation strategies by government agencies suggest that major determinants of success include the capacity and experience of the agency in promoting participatory programs, implementation speed, impacts on the staff's daily work (White 2001), and the extent to which the staff are included in planning the program (Cochran et al. 2002). Despite the critical role of bureaucracy in internalizing public participation in natural resource management, research examining government employees' perceptions of these major policy changes is limited.

The objective of our study is to improve the understanding of the dynamics of participatory resource management from a forest agency perspective. Specifically, we draw on observations from a study of the Tamil Nadu Forest Department's implementation of Joint Forest Management (JFM) policy to examine forest managers' attitudes toward sharing forest management decision making with local communities, and the factors and processes that lead to successful implementation of public participation in forest management.

### **The Indian Joint Forest Management Context**

India's JFM policy confers certain rights over state forests to forest-fringe communities in return for the communities' participation in forest protection and management. Thus, JFM requires forest departments to move beyond simply seeking local community input in developing forest management plans, to actually working with the communities to manage the forests on a day-to-day basis. The forests falling under the JFM are typically degraded and the resources to improve them are limited. Heterogeneous communities, extreme poverty, and low literacy levels typify the social settings. Therefore, the objectives of the JFM are twofold: to improve the health and management of the nation's forests while advancing the socioeconomic development of local communities.

India's forest agencies were established almost a century ago, with the primary mission of managing the nation's forests for commercial and industrial purposes.

State control and management of these forests for national rather than local interests, however, often created antagonistic relationships between forest departments and forest fringe communities. Therefore, for many foresters, JFM represents a major shift in roles, from protecting forests from local communities, to working with them to jointly manage forests.

To date, however, little systematic research has examined foresters' perceptions of the JFM policy. In many instances, failures in implementing the JFM have been attributed to the negative attitudes of foresters. For example, Jeffery et al. (1998) reported that foresters' interest in JFM is "lukewarm"; Lele (2000) observed that this is because of foresters' upbringing in a "strong technocratic tradition." Jeffery and Sundar (1999) noted that foresters are reluctant to "part with their power." Contending that the practice of JFM in its "true spirit" was dismally low, Ghate (2000) blamed JFM failures on foresters' lack of "faith in people's capacity to manage forests." However, since most observations on the bureaucratic interface in JFM are anecdotal, a systematic study of forest agency's response to this new policy is crucially needed (Vira 1999).

### **Study Setting and the Public–Forest Agency Interface**

Our study was carried out in the state of Tamil Nadu, India, where JFM was initiated in 1997 as a part of a Japanese Overseas Economic Cooperation Fund (OECF) project. The OECF project provided about US\$100 million over a period of 5 years to introduce JFM in 1000 villages surrounded by marginal forests (defined as having a crown density of 0.4 or less).

The unit of management in JFM is a village and its predefined abutting forest area delineated on a watershed basis. A Village Forest Council (VFC), comprised of both a male and a female representative from all willing households, functions as the people's representative body. The VFC members work with the state Forest Department (FD) to protect and manage the forests, and, in turn, receive all the forest produce that they can harvest sustainably. The FD and the VFC work together to prepare a detailed micro-plan that addresses the treatments needed for watershed rehabilitation and village improvement. Watershed improvement involves afforestation and soil and water conservation, while village improvement is mainly aimed at institutional building and includes activities such as laying roads, constructing drinking-water facilities, and establishing self-help groups that provide micro-credit and vocational training services.

While the Forest Department provides all funding for afforestation and water harvesting, the VFC directs village-level activities. The sources of funds for the VFC are VFC membership fees, sale of forest products, fines and penalties, taxes, and individual contributions by VFC members. Because several years are required to harvest substantial quantities of forest products from JFM forests, the program provides Rs 600,000 (about US\$14000) as seed money to each VFC during the first 3 years.

A typical FD district organization consists of a District Forest Officer (DFO), who has about 10 JFM villages and 5 to 7 Range Officers (RO) under his or her jurisdiction. Each RO Supervises three to five Foresters. Foresters interact with villagers on a daily basis and oversee the field management of JFM.<sup>1</sup> ROs are responsible for preparing and executing the micro-plan in collaboration with the villagers. Besides providing overall guidance and funding, DFOs liaise JFM activities with other departments in the district. About five to eight DFOs report to the

Conservator of Forests (CF), who functions at a regional level and supervises the work of the DFOs. The Chief Conservator of Forests (CCF) has jurisdiction over the CFs and directs the program at the state level.

### **Research Approach, Data, and Methods**

An exploratory study applying qualitative data collection and analysis techniques was employed to investigate the perspectives of foresters relating to JFM. Qualitative techniques enable the researcher not only to understand *what* study participants think or do but also to gain deeper insight into *why* they feel or act that way (Bowers and Becker 1992).

Sampling started with selecting the five forest divisions containing the largest number of JFM villages and the longest history of implementing the JFM. One CCF, two CFs, and five DFOs in charge of these divisions were recruited for the study. Five more DFOs who previously worked in the selected forest divisions were also interviewed to obtain a wider perspective of agency views on JFM. From the large number of ROs and Foresters working in these divisions, 10 ROs and 5 Foresters who had a minimum of 3 years of experience in conventional forestry and JFM were selected.

Exploring a sensitive subject like employees' attitudes toward JFM requires a fairly open and private environment. Hence, to overcome the problem of reticence and to understand issues from the perspective of the participants, individual in-depth interviews were conducted. Interview questions focused primarily on how the participants perceived and valued JFM and community involvement in forest management. Respondents were also asked to describe what they considered to be major challenges in JFM implementation and necessary interventions for promoting JFM. The procedure outlined in Miles and Huberman (1994) guided data collection and management.

The responses were transcribed and translated with professional help and developed into detailed field notes. These field notes were individually coded with the qualitative data analysis software NVivo to identify as many concepts and dimensions as possible. The issues and processes discussed most often by the informants guided the inductive thematic coding. Following Rubin and Rubin (1995), identified concepts were examined for possible relationships, and analytical abstraction was used to group the concepts into categories and develop an overarching model of foresters' perceptions on JFM implementation.

### **Research Findings**

The perceptions of the Forest Department staff toward JFM and the challenges entailed in its implementation were not uniform. For example, while ROs and Foresters stressed challenges at the village level, senior officers<sup>2</sup> emphasized broader policy-level inconsistencies. Similarly, ROs and Foresters were more vocal about organizational challenges. DFOs consistently covered the challenges at all three levels mentioned earlier. Little variation in the responses of ROs and Foresters was observed in the study, as the roles and responsibilities of these two ranks in JFM often overlapped. In fact, 3 of the 10 ROs interviewed had been promoted from the category of Foresters.

***Agency's Attitudes Toward Jointly Managing Forests with Villagers***

Overall, agency personnel expressed positive attitudes toward the JFM. Although a majority considered JFM a success, almost all the participants expressed serious concerns about the sustainability of this approach, in view of the challenges entailed in its implementation. The factors that motivated foresters to adopt JFM and their overall assessment of the performance of this policy are discussed next.

***Motivation—The Driving Force Behind Bureaucratic Adoption of JFM***

The foremost priority of the Forest Department in JFM, according to our respondents, was forest improvement. Foresters perceived that the problem of forest degradation was caused by villagers' uncontrolled use of forests, especially for cattle grazing and goat browsing. Thus, the basic motivation for taking forestry to villages, according to the foresters<sup>3</sup> interviewed, was to address this problem at its source. Many foresters were also weary of the difficulties entailed in protecting vast forest areas through the old "fines and fences" approach (Songorwa 1999). According to a DFO, "JFM provided for the first time, at least in concept, a holistic approach to the issue of forest improvement which the foresters have been saying for decades."

The immediate motivation to foresters for expanding their JFM efforts included financial support from the OECF and the unstinted cooperation of the villagers. The CCF in charge of the JFM, and a few other CFs and DFOs, used the JFM to leverage public participation in forest protection. These officials provided a major thrust to the program in terms of leadership and initiative. Loyalty to the department, a benign competition among the staff to do well in the eyes of superiors, and an urge to do good for the department and enhance its image in the public eye served as principal factors for the staff's motivation. Some staff members at the lower rungs of the organizational hierarchy, who were also cognizant of the problems associated with limiting locals' access to forests, indicated that the opportunities provided by the JFM to work with locals was a key motivating factor. Thus, in the words of a CF, the JFM policy was implemented with a "missionary zeal."

***Agency's Assessment of JFM Performance***

Contrary to the notions of some authors (e.g., Jeffery et al. 1998; Lele 2000; Jeffery and Sundar 1999; Ghate 2000), the foresters seemed quite interested in the idea of comanagement of forests with the villagers. Foresters of all ranks emphasized the positive impacts of JFM, including increased vegetative cover and soil moisture levels. Further, they unequivocally attributed the success of JFM to heavy investments made in forestry and to the cooperation of villagers. Many foresters stressed the reduced goat populations and cattle grazing in forests observed after the onset of JFM. Study participants also affirmed that the water augmentation activities in JFM produced quick and discernable results in improving agricultural yields and local economies. They also appreciated the opportunity provided by JFM to play a direct and positive role in the development of forest fringe villages. Some participants concluded that JFM has improved villagers' awareness of the roles and responsibilities of the Forest Department and its efforts to improve the condition of forests and the economies of surrounding villages. Examples of remarks of the FD respondents on their overall assessment of JFM follow:

This scheme is like a God's gift. (Fr)

There is a special respect if I go there [to the JFM village]. (Fr)

This [JFM] will be the last chance to save the forest. (RO)

This is the only program where we can really create an impression in the minds of the people and leave a landmark. (DFO)

It is great I tell you. The self-satisfaction I got is really great, unbelievable. (CF)

While some foresters recounted that villagers came by the hundreds to put out forest fires and aid in other emergencies after the onset of JFM, others praised local leaders for braving the odds and siding with the Forest Department in protecting forests. Some foresters were also pleased that the JFM produced a realization among the general public that the forests are no longer open access. Taking forest management to the people and establishing regulations on the use of forest resources through peoples' institutions has led to a general feeling in the villages that forests have "value." Citing improved relationships between foresters and local people and the prospect of restoring forest cover, almost all the foresters desired continuation of JFM. Citing several implementation hurdles, however, they also called for major policy reforms to ensure long-term sustainability of JFM. These issues are discussed next.

### ***Major Challenges in Implementing Joint Forest Management***

The Forest Department faced both internal and external challenges while implementing the JFM. At the village level, foresters reported that declining interest of villagers in JFM and difficulties entailed in ensuring equity in VFCs were major constraints to JFM. At the macro political and bureaucratic level, lack of interdepartmental coordination and institutional and policy inconsistencies emerged as the main hurdles. Despite the motivation to implement JFM and a determination to face some of these external challenges, the staff was frustrated by the program's rapid and ad hoc nature of implementation. The foresters particularly noted a lack of any scope for expressing their difficulties in the top-down management style of the FD and called for enhanced opportunities for sharing their experiences and concerns. Details of these external and internal challenges are discussed in the following subsections.

#### ***Declining Interest of Villagers in JFM***

Almost all respondents expressed serious concerns about villagers' declining interest in JFM following the initial 3 years of implementation. Low productivity, long gestation, and uncertainty involved in the forestry enterprises were cited as reasons for villagers' diminishing interest. Pointing out that it would take at least another 15 years for villagers to realize benefits from forests, respondents stressed that it is difficult for the villagers to visualize a productive forest and lasting local institutions that would ensure sustainable management and equitable distribution of forest benefits.

Respondents also cited the current trends in Tamil Nadu society that are further eroding the interest of local people in forest products. "Not many people are buying the idea of investing their time and effort now for some fuel wood and fodder they might be getting after five or 10 years," emphasized a DFO. Many ROs and Foresters also indicated that if given a choice, the villagers would prefer cooking gas to fuel wood. Even in the case of forest plantations, respondents cited local people's preferences for quick-growing commercial species to realize economic benefits in

the immediate future. Differences in the objectives between foresters and villagers in a forestry program (Alavalapati 1990) and villagers' growing interest toward quick growing plantation crops were reported earlier (Sundar 2000; Yadama 1997).

Most field officers observed that the initial 3 years of seed money for the VFCs was the primary motivation for villagers' participation in JFM. The impacts of activities such as provision of drinking water and improvement of school buildings were reported as significant. Despite the poor productivity of forests, fulfilling these critical and long-pending demands of villagers seemed to have greatly helped in winning villagers' confidence. The limiting factor, however, was that the funds were confined to just the first 3 years of the project. Stressing that these benefits barely earned villagers' goodwill, foresters argued that sustaining JFM will require the Forest Department to move from depending on villagers' goodwill to actually providing them with tangible long-term incentives. Several previous studies also mentioned the role of nonforest incentives in moderating some of the challenges involved in JFM (Bahuguna et al. 1994; Corbridge and Jewitt 1997; Varalakshmi et al. 1999; Ghate 2000).

#### *Dilemmas Over Equity and Membership Criteria in VFCs*

Many officials indicated that lack of immediate and tangible benefits from forests and an emphasis on nonforest incentives in JFM set off a completely different dynamic in some villages. The nonforest village development activities often attracted many educated, influential, and politically active people to participate in the program. While some of these elites were genuinely interested in ecological improvement, some were attracted by the program's nonmaterial benefits, such as prestige and public exposure.

The domination of village elites in VFCs sometimes led to the neglect of the poor and other marginalized sections of the community when allocating benefits or ensuring proper representation for all voices in VFC meetings. In some cases, although isolation of the poorer residents was not deliberate, the poor's participation rates were still low. Foresters reported that in many villages, elite members in VFCs could be persuaded to ensure equity. However, JFM provisions stipulating equal representation to all households<sup>4</sup> limited the FD's options in this respect. For example, in bigger villages the VFCs tended to be large and unwieldy, making it difficult for the FD to influence VFC membership or procedures. In such situations the social fencing<sup>5</sup> component of JFM often failed, forcing the hiring of paid watchers to protect the forests.

Defining and identifying the role and representation of "forest users" and "forest dependents" proved difficult in many villages. According to most foresters interviewed, a majority of villagers believed that providing any benefits to the existing forest user groups such as cattle herders was unfair. Villagers generally construed this provision as rewarding those who had previously exploited and degraded a public good in the first place. Thus, the issue of dealing with forest users seemed paradoxical in Tamil Nadu, where the FD was primarily interested in reducing forest dependency, whereas other states emphasized establishing forest user groups and promoting sustainable forest use. Overall, it is evident that the target population for JFM and the ways and means of ensuring its effective participation, need clarification.

#### *Macro-Level Factors Hindering the Progress of JFM*

Almost all respondents pointed out that when they entered a village with the message of JFM and worked intensively with villagers, the issues they faced extended beyond

forests and spanned the whole gamut of socioeconomic development. Activities such as awareness creation, group building, skill enhancement, and micro-enterprise development deepened foresters' involvement in community affairs. In a majority of the cases, villagers' needs were developmental, and their requests ranged from ration cards<sup>6</sup> to conducting repairs to school buildings. Having closely worked with villagers in identifying these needs, foresters perceived a responsibility to work with villagers in meeting these needs. In many cases, however, the FD had neither the jurisdiction nor enough resources to adequately address these problems on its own. Many officials believed that OECF's emphasis on treating JFM primarily as an afforestation activity limited their ability to actively engage in much needed social development.

Participating foresters stressed the role of various local, regional, and state institutions and functionaries in providing this developmental assistance for JFM. Almost all the foresters described how village improvement activities undertaken in conjunction with other agencies visibly changed the JFM situation. Another crucial issue related to the role of other departments in developing alternatives for fodder and fuel wood. Foresters unanimously agreed that JFM forests currently hold very little potential for grazing and that uncontrolled grazing was the biggest threat to the forests. While they stressed that a long-term ban on animal grazing or fuel wood collection was not feasible, they highlighted the need for complementary policies from other departments such as Animal Husbandry to promote stall-feeding and livestock improvement. Similarly, senior officials complained of difficulties in getting adequate funding for JFM from the state government. Since budget appropriations were primarily based on the department's contributions to the State Treasury, the Forest Department found it difficult to argue for additional funding based on the forests' nonmonetary values. Many respondents observed that the actions and mandates of several departments and functionaries were disparate, uncoordinated, and sometimes worked at cross-purposes. They stressed that in view of the intricate relationship between forest protection and developmental needs and aspirations of local communities, JFM needs to be designed and implemented in a holistic and multidimensional manner.

#### *Ad Hocism, Uncertainty, and Risk—The Implementation Snags*

According to many DFOs and ROs, problems with JFM resulted from a lack of complementary policies enabling the decentralized decision making needed to implement JFM. As a result, implementation of the program as a 5-year project with fixed targets and mandates was marked by considerable ad hocism. Some foresters expressed disenchantment with the inadequate time allowed for distributing proper information to villagers and for the emergence of appropriate village-level JFM institutions. Some respondents also admitted that the sheer drive to achieve targets, sometimes under the threat of disciplinary action, led the staff to look for shortcuts.

Although policies and procedures for decision making were often nonexistent, in some cases implementing JFM required violating existing FD rules. For example, the FD lacked proper policies for selecting villages, determining the extent of forest area that could be put under each JFM village, and establishing the constitution and composition of VFCs. Almost all the staff also highlighted a lack of clear guidelines on species composition in JFM plantations. Uncertainties related to these policies caused considerable tension between senior officers and field staff as well as between field staff and local communities.



Increased involvement of stakeholders, in both number and intensity, and a consequent necessity to cater to their diverse needs, required new tools, techniques, and procedures. As a result, foresters' work in JFM changed "beyond recognition" (Hannam 2000), with every situation requiring its own judgment and unique course of action. Field staff who worked directly with villagers particularly needed to quickly adapt to new situations. Respondents stressed that misunderstanding these subtle nuances could ruin a staff's career at the slightest allegation of wrongdoing in a multistakeholder work environment. Citing mounting objections of the Principal Accountant General,<sup>7</sup> these officials contended that many field officers were wary of the JFM approach in the absence of appropriate organizational changes in the Forest Department. Thus, although foresters indicated support of JFM based on the collective interest of the larger community, many also hesitated to take the individual risks required for its successful implementation.

#### *Cultural Conundrum and Communication Holdups*

The challenges or problems discussed in the foregoing paragraphs were rarely brought to light in the Forest Department. The prevailing principle of the department was that the "staff should somehow adjust and manage the situation," explained a District Forest Officer. In most cases, these "adjustments" represented the reality. With the whole department heavily focused on JFM, there was also tremendous peer pressure both within and outside the FD on achieving success. In this situation, no one was willing to point out or address the constraints or inconsistencies entailed in JFM. As observed by Singh (1992), failures were usually not reported since they were not appreciated and accepted by the system. The lack of open communication impaired the FD's effectiveness, severely restricting the emergence of common understanding and collective effort among foresters. In the absence of effective bottom-up and horizontal communication, it was difficult to obtain unbiased information about JFM. Plans and policies built upon poor information exacerbated the situation further, leading to a poorly adapted organization in a changed work environment.

### **Discussion and Conclusions**

Natural resource management (NRM) is a challenging task. The characteristics of a resource, the management group, and the socioeconomic and political environment can make this task complex and difficult. The process becomes further challenging in a developing country like India, where the objectives of equity, economic development, and ecological sustainability are simultaneously incorporated in the policy goals.

Observations on the declining villager interest in JFM suggest that the main challenges in adopting the JFM policy at the ground level—where people's participation is needed—are economic. This is because the needs and aspirations of the people living in and around the forests are mainly economic and developmental.<sup>8</sup> While foresters regard forest improvement as an aim and the villagers' involvement as a means, villagers, on the other hand, see village and personal improvement as the aim and JFM as a means. OECF funding for JFM endeavored to address both these interests in varying proportions. The comparatively few forest benefits available from the degraded JFM forests, however, could not provide the needed motivation for villagers to participate in JFM beyond the initial period of outside funding. This appears to be specific to Tamil Nadu where JFM was introduced to improve

degraded forests. Nonforest benefits helped to promote the anticipated social capital, but they were insufficient to inspire the needed change in social norms. Ambiguity about how to deal with existing forest users and equity, and lack of alternatives to alleviate the effects of forest closure, aggravated the situation and severely undermined the sustainability of the whole approach.

The solutions for these problems, however, are primarily political. Negotiations with donor agencies to increase funding or the project period, collaboration with other agencies to obtain needed resources, and mobilization of state government to secure budget provision for the protection of the public good services provided by forests are all essentially political processes. Dealing with institutional complexity and multistakeholder interest and involvement is also fundamentally a political undertaking (Lee 1993). Similarly, development of a well-defined participation mechanism for involving the poor and downtrodden in any governance structure requires acceptance and approval of a larger political institution.<sup>9</sup> Thus, partnership between a poor-quality forest and an equally lowly (economically) endowed group of villagers by itself may not effect significant improvements in either. External involvement (Jewitt 1995; Krishnaswamy 1995) in JFM is needed if this policy is to succeed; the Forest Department could play a vital role in this context (Vira 1999).

The role of functional bureaucracies as facilitating agents in promoting participatory resource management is well recognized (Bahuguna et al. 1994; Sinha 1999; Rangachari and Mukherji 2000). This is especially so in the case of an organization such as the Forest Department with its significant staff presence in the field. Moreover, as our findings suggest, foresters recognize the importance of public involvement in improving forests and thus have a strong incentive to promote it. The organization's esprit de corps and strong commitment by the staff to undertake any activity identified by the FD leadership as important is promising. Hence, pragmatic strategies to improve forests and forest-fringe communities should capitalize on these strengths while improving deficient conditions in the Forest Department. Particularly important are promoting foresters' capacity for enhancing public participation and instilling a learning environment and an adaptive management strategy in the Forest Department's organizational culture. There is also a pressing need for developing holistic approaches that lead to more interaction among the staff and between the staff and the public for better planning and prioritization of JFM needs and resources. Similarly, changes to the basic structures and processes that govern communication and decision making in the Forest Department could significantly enhance the bureaucracy's learning capacity (Matta et al. 2005). Positive changes in these dimensions are critically needed to create a vision for JFM among FD staff and to provide them with the ability and tools to act on this shared vision.

## Notes

1. Two other categories of FD employees include Forest Guards and Forest Watchers, who function at the lowest rung of the FD hierarchy and are mainly responsible for forest protection in conventional forest management systems. Their role in JFM, however, was unspecified and unclear. Hence they were not included in this study.
2. The term "senior officers" is used to refer, in general, to the ranks of CF and CCF.
3. While the term *forester* is used to represent any category of the forest staff, "Forester" is used to specifically refer to this particular rank of FD organizational hierarchy.
4. Restricting VFC membership to certain sections may not be within the administrative domain of FD.

5. Social fencing refers to the concept where villagers trust each other and commit to community agreements on forest protection.
6. These cards enable poor people to purchase rice and other basic necessities at subsidized prices.
7. Principal Accountant General is the semiautonomous body that audits government expenditures.
8. There are, however, some cases of protection of forests by villagers for various noneconomic reasons (e.g. sacred groves) in various parts of India. Similarly, there are also some instances of local people revolting against exploitation of forests by vested interests in the past in other parts of India. These examples perhaps represent productive forests where people have significant cultural, ecological, and economic stakes in managing them. The Tamil Nadu forests in our study, however, are degraded. With the banning of all commercial use of forests in the state in the 1970s, the question of forests' undue exploitation by industrial interests should not arise in the future. Recent emphasis has been on forest protection. Lack of any major production activity in these forests over the years, and leaving them with just protection, could be said to have further reduced these forests' role in meeting any economic and employment needs of the villagers. These forests are now more or less open-access resources that are exposed to the severe impacts of uncontrolled grazing, fuel wood collection, and encroachments for agricultural cultivation.
9. Such as the state legislature.

## References

- Alavalapati, J. R. R. 1990. *An analysis of factors influencing social forestry adoption: Implications for forestry extension*. MS thesis, University of Alberta, Canada.
- Bahuguna, V. K., V. Luthra, B. Mcman, and S. Rathor. 1994. Collective forest management in India. *Ambio* 23(4-5):269-273.
- Bowers, B. and M. Becker. 1992. Nurse's aides in nursing homes. The relationship between organization and quality. *Gerontologist* 32(3):360-366.
- Cochran, J. K., M. L. Bromley, and M. J. Swando. 2002. Sheriff's deputies' receptivity to organizational change. *Policing Int. J. Police Strat. Manage.* 25(3):507-529.
- Corbridge, S. and S. Jewitt. 1997. From forest struggles to forest citizens? Joint forest management in the unquiet woods of India's Jharkhand. *Environ. Plan.* 29(12):2145-2164.
- Frentz, I. C., D. E. Voth, S. Burns, and C. W. Sperry. 2000. Forest service-community relationship building: Recommendations. *Society Nat. Resources* 13(6):549-566.
- Germain, R. H., D. W. Floyd, and S. V. Stehman. 2001. Public perceptions of the USDA Forest Service public participation process. *Forest Policy and Economics* 3(3-4):113-124.
- Ghate, R. 2000. *Joint forest management: Constituting new commons, a case study from Maharashtra, India*. Paper Presented at the Eighth Biennial Conference of the International Association for the Study of Common Property, May 31-June 4, 2000.
- Hannam, K. 2000. Educating the environmental elite: The training of the Indian Forest Service. *Int. Res. Geograph. Environ. Educ.* 9(4):285-295.
- Hjortso, C. N. 2004. Enhancing public participation in natural resource management using Soft OR—An application of strategic option development and analysis in tactical forest planning. *Eur. J. Operational Res.* 152(3):667-683.
- Jeffery, R. and N. Sundar, eds. 1999. *A new moral economy for India's forests? Discourses of community and participation*. New Delhi, India: Sage.
- Jeffery, R., N. Sundar, and P. Khanna. 1998. *Joint forest management: A silent revolution amongst forest department staff?* Workshop on participatory natural resource management, Mansfield College, University of Oxford, UK.
- Jewitt, S. 1995. Voluntary and "official" forest protection committees in Bihar: Solutions to India's deforestation? *J. Biogeog.* 22(6):1003-1021.
- Krishnaswamy, A. 1995. Sustainable development and community forest management in Bihar. *Society Nat. Resources* 8(4):339-350.

- Lee, K. N. 1993. *Compass and gyroscope: Integrating science and politics for the environment*. Washington, DC: Island Press.
- Lele, S. 2000. Godsend, sleight of hand, or just muddling through: Joint water and forest management in India. *Nat. Resource Perspect.* 53. ODI, UK.
- Matta, J. R., J. Kerr, and K. Chung. 2005. From forest regulation to participatory facilitation: Forest employee perspectives on organizational change and transformation in India. *J. Environ. Plan. Manage.* 48(4):475–490.
- McCool, S. F. and K. Guthrie. 2001. Mapping the dimensions of successful public participation in messy natural resources management situations. *Society Nat. Resources* 14:309–323.
- McCool, S. F., K. Guthrie, and J. K. Smith. 2000. Building consensus: Legitimate hope or seductive paradox? *USDA Forest Service Rocky Mountain Research Station Research Paper RMRS RP-25:1*.
- Miles, M. B. and A. M. Huberman. 1994. *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage.
- Pretty, J. 2003. Social capital and the collective management of resources. *Science*. 303(12): 1912–1914.
- Rangachari, C. S. and S. D. Mukherji. 2000. *Old roots, new shoots: A study of joint forest management in Andhra Pradesh, India*. New Delhi, India: Winrock-Ford.
- Rubin, J. H. and I. S. Rubin. 1995. *Qualitative interviewing: The art of hearing data*. Thousand Oaks, CA: Sage.
- Singh, R. V. 1992. *Administrative changes to meet requirements in Indian forestry sector*. Paper presented at the national seminar on forestry sector administration development, New Delhi.
- Singleton, S. 2002. Collaborative environmental planning in the American West: The good, the bad and the ugly. *Environ Polit.* 11(3):54–75.
- Sinha, V. K. 1999. *Current practices of joint forest management in Western India: A case study from Rajpipla forests*. PhD Dissertation, State University of New York, Syracuse.
- Songorwa, A. N. 1999. Community-based wildlife management (CWM) in Tanzania: Are the communities interested? *World Dev.* 27(12):2061–2079.
- Sundar, N. 2000. Unpacking the “joint” in joint forest management. *Dev. Change* 31(1):255–279.
- Varalakshmi, V., R. Hegde, and T. P. Singh. 1999. Trends in grassroots institutional evolution—A case from joint forest management programme, Haryana, India. *Int. J. Sustain. Dev. World Ecol.* 6(3):185–195.
- Vira, B. 1999. Implementing joint forest management in the field: Towards an understanding of the community–bureaucracy interface. In *A new moral economy for India's forests? Discourses of community and participation*, eds. R. Jeffery and N. Sundar, 254–275. New Delhi, India: Sage.
- White, S. S. 2001. Public participation and organizational change in Wisconsin land use management. *Land Use Policy* 18:341–350.
- Yadama, G. N. 1997. Tales from the field: Observations on the impact of nongovernmental organizations. *Int. Social Work* 40(2):145–151.