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**Determinants and Challenges of
Sustainable Forest Governance in India:
An analysis in retrospect and prospect**

**Madhusudan Bandi
P. K. Viswanathan**



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Abstract

This paper looks into the role of community based natural resource management focussing on the Joint Forest Management (JFM) in India. The analysis presented is the result of triangulation of critical review of the literature on the JFM with the empirical case study on the joint/community forest management from erstwhile Andhra Pradesh. The paper further discusses the forest acts and policies in detail while explaining the emergence of the innovative concept of joint management involving local communities. At the same time, it touches upon crucial issues, *viz.* climate change and REDD+ even while highlighting the major determining factors and challenges that confront the sustainability of forest governance through community based institutions.

Keywords : Joint/ Community Forest Management, Podu Shifting cultivation, Climate change, Carbon sequestration, REDD

JEL Classification : Q23, Q57, Q54

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Determinants and Challenges of Sustainable Forest Governance in India: An analysis in retrospect and prospect

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1. Introduction

Community-based natural resources management (NRM) policies presume that communities are willing to manage natural resources collectively because of the latter's utilitarian and/or intrinsic benefits or because the communities are promised a reward for such management. An extensive body of theoretical and empirical literature explains the conditions under which collective action occurs to manage natural resources (Ostrom, 1990; Baland and Platteau, 1996; Agarwal, 2001; Dasgupta, 2008). Many of these conditions influence the success (or failure) of NRM policies. Even if governments are willing to decentralise, success depends on the resource under consideration, the community dependence on the resource and the type of institutions created to govern the management of resource (Shyamsundar and Ghate, 2011).

Forest governance captures the problems or challenges associated with collective action in the broader context of developing societies, including India. Forest governance in India has changed substantially in the past century. Large areas of forest land in India remained under a communal management regime until the end of the 19th century (Singh, 1986). Colonial (mainly British) rulers confiscated communal rights over forest land using regulations/ legislation¹, only to expropriate India's forest wealth in the pretext of conserving it to facilitate the tremendous expansion of railways (Agarwal, 1999; Guha, 1983). As late as the 1880s, the Indian Forest

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¹ The Forest Act of 1865 and the Forest Policy of 1894 de-recognised communal property and restrictions were placed on forest dwellers' collection of forest products (Guha 1983). Conservation programs resulted in progressive encroachment of the rights enjoyed by tribals for centuries over fuel wood, timber, non-timber forest products and hunting (Shyamsundar and Ghate, 2011).

Department (FD) was entertaining repeated requests from the British Navy for the supply of Madras and Burma teak ships built in the dockyards of Surat and along the coast of Malabar to meet such demands (Saikia, 2011). Empirical evidence demonstrates that even after independence, forest governance in India has not changed much in terms of obliterating the colonial legacy of state control and regulations. The forest management system that India inherited from the British perpetuates the notion that forests constitute a distinct territory that must be governed repressively to extract a profit. Furthermore, the Wildlife (Protection) Act of 1972 (WLPA), India's main wildlife law, remains rooted in and modelled on the Indian Forest Act of 1927. More importantly, the domain of conservation and management of forests in India has been overwhelmingly dominated by a top-down bureaucratic approach cherished by the Indian Forest Service's civil servants. As some scholars argue, this trend had perniciously affected both the understanding and practice of forest conservation in the country (Gopalakrishnan, 2010).

The unification of forest laws and the extension of scientific management became the most important considerations of forest administration immediately after India's independence, when the states also enacted legislations to consolidate the privately owned forest areas under control of the state forest departments (Kashyap, 1990 as cited in Bandi, 2011). Three important policy pronouncements were considered instrumental to streamlining the fundamentals of forest governance in India, specifically, the 1952 Forest Policy, the National Commission on Agriculture (NCA) 1976 and the 1988 Forest Policy (Saxena, 2000). The 1952 policy affirmed forestry as an important land use category and insisted on keeping one-third of the country's land area as forests. But, commercial exploitation of forests was given top priority, depriving the needs of local communities. This policy continued till 1976, with heavily subsidised forest land given to industries and businessmen in the pretext of 'national interest' and industrial development, which had significant negative impacts on forests and forest dwellers (Bandi, 2011: 79).

The National Commission on Agriculture introduced 'social forestry' in 1975 to develop forestry in the unproductive non-forest government and community lands after realising the importance of locals' support for protection of forests. Simultaneously, farmers were encouraged to plant trees in their private lands, resulting in the overlapping of the terms 'social' and 'on-farm' forestry. In 1988, the National Forest Policy effected a paradigm

shift, as it sought to involve “tribal people closely in the protection, regeneration and development of forests as well as provide employment to people living in and around forests” (MoEF, 1988).

However, the conservation of forests and their ecosystems were always skewed against the forest-dependent people. Even in the earlier conservation policies the control of forests and its resources also remained with the state, thus granting limited rights to local communities to use and manage resources. The seriousness of the conflicts between the state and communities is significant, notably in a situation in which local communities have limited options of income and employment. Spatial and socio-cultural factors spurring forest dependence also had intensified the conflicts, as the communities’ livelihoods have been historically rooted in the forests and its resources.

All these factors, including an excessive population, livestock dependence and the requirements of forest products to support livelihoods, had generated pressure on forest resources such as fuel-wood, fodder, timber, lumber, and paper, causing massive deforestation in India. Notwithstanding these pressures, the early decades of planning and development had also intensified the massive destruction/degeneration of forests because of a spurt in large projects, from large dams and thermal power projects to huge mines and massive industrial complexes (GOI, 2009).

Thus, the unbridled deforestation and degradation of forests causing a decline in forest cover have long been sources of concern for policy makers in India. These concerns and the near failure of earlier policies and legislations figured as backlashes, inducing the nation-state to evolve a new governance paradigm and institutional arrangements for overcoming the impasse. It was in this historical context that India had devised a governance model for the forestry sector referred to as joint forest management (JFM) to develop strategies and action plans for sustainable community-based forest management.

A discourse on the underlying principles and the outcomes of implementing forest governance in the form of JFM in India does not have sanctity on its own because of the rich and diverse empirical perspectives on this topic. Nevertheless, a critical assessment of JFM and its current status of implementation across India merits attention in the emerging context of climate changerisks, as forests and forest-based communities represent the

most vulnerable segments of the society. Hence, it is important to consider how future JFM policies and action plans would integrate conservation and management goals with climate change mitigation and adaptation strategies (including REDD+), while serving the interests of forest-dependent communities.

Against this backdrop, this chapter critically assesses the forest governance system, ie., JFM that India launched in 1990 alongside a broader vision of sustaining India's forests and forest-based ecosystems, while appreciating the rightful claims of forest-dependent communities. Following a critical overview of the status and implementation of JFM across Indian states, it discusses the major determinants and challenges confronting the sustainability of forest governance, drawing on empirical evidence from the south Indian state of Andhra Pradesh.

2. JFM in India: An overview of its implementation and current status

In India, JFM has emerged as a landmark intervention in the management of forest resources. While West Bengal first introduced JFM as early as the 1970s, the programme has been launched nationally since 1990, following the 1988 National Forest Policy. JFM specifies a concept of managing and improving forest resources by forging partnerships between forest user groups (local communities) and the FD. Yet, the JFM Policy is not based on a constitutional legislation and is only being implemented through Government Orders (GO) of the respective states within the framework of the 1990 National Guidelines.

JFM recognises the livelihood and sustenance needs of the people through the principle of 'conservation by participation'. The concept, JFM has been interpreted in various ways, but its basic element is to establish grassroots community-based institutions to protect and manage forests. JFM aims at empowering locals in their active participation as partners in the management of forest resources and sharing the benefits derived from forests. The JFM optimises returns, minimises conflicts and links forestry development with the overall development of land-based resources. It also aims to build technical and managerial capability at the grassroots level (GOI, 2009).

Following the announcement of national JFM guidelines in 1990, all of India's provincial (state) governments had adopted and started implementing it in their respective states with appropriate resolutions (Bahuguna *et al.*,

2004). The states of West Bengal, Haryana and Odisha (formerly Orissa) have already completed two decades of the JFM programme (as they had initiated it on their own much before), while others, such as Assam, Sikkim and Mizoram, issued enabling orders in 1988. As of March 2008, there were 113,036 JFM committees in 28 Indian states. The area co-managed by these committees is measured at 22.02 million ha. Approximately 8.3 million families are involved in JFM efforts, while the number of families indirectly benefited by it is much higher (Bahuguna, *et al.*, 2004 as cited in Bandi, 2011: 85). Table 1 presents an overview of the trends and the status of forest cover, as well as the implementation of JFM across major states in India.

Table 1: Trends and status of implementation of JFM in major Indian states

States	(% share in TFA)	Forest area as (%) of TGA, 2011	No. of JFMCs		Area under JFM ('000 ha)		JFM area as (%) of total forest area
			1990	2008	1990	2006	
Andhra Pradesh	8.3	16.9	7606	8498	1679	2566	40.2
Bihar	0.8	7.3	296	615	505	385	59.5
Chattisgarh	7.8	41.2	6412	7887	3391	3276	54.8
Gujarat	2.5	7.5	1237	2578	138	273	14.4
Haryana	0.2	3.6	471	1831	66	60	38.5
Himachal Pradesh	4.8	26.4	914	1749	111	425	11.5
Jharkhand	3.1	28.8	1379	10903	430	2190	92.8
Karnataka	5.0	18.9	2620	4849	185	303	7.9
Kerala	1.5	44.5	32	571	5	173	15.4
Madhya Pradesh	12.3	25.2	9203	14428	4126	5947	62.8
Maharashtra	8.0	16.5	2153	12473	687	2685	43.3
Orissa	7.6	31.4	12317	10647	783	880	15.1
Rajasthan	4.2	4.7	3042	4882	309	770	23.6
Uttaranchal	4.5	45.8	7435	13523	607	545	15.7
West Bengal	1.5	14.6	3545	4192	488	625	52.6
Sub-total	72.1	22.2	58662	99626	13511	21103	38.0
All India ('000 ha/%)	76954	21.1	62890	113036	14255	22018	28.6

Note: TFA – Total Forest area; TGA – Total geographical area; JFMC Joint Forest Management Committee.

Source: GOI, MoEF

2.1 JFM and the formulation of design guidelines in India

A closer examination of the important policy directives for JFM in India helps reveal the extent to which the design guidelines have been incorporated into the framework for implementation at the grassroots level. In this respect, Table 2 presents the chronology of policy directives and legislative incorporation *vis-à-vis* a description of the important features of JFM policy directives adopted by the Government of India over time.

Table 2: Important Features of Policy Directives and Design Guidelines on JFM in India

Policy directive	Main features of design guidelines
The Circular (first) Concerning JFM, 1990	Involvement of village communities and NGOs in regeneration of degraded forests Benefits of participation should go to village communities
JFM Cell Creation Notification, 1998	For monitoring impact of JFM carried out by state governments
Standing Committee Notification, 1988	Advise on all operational aspects of JFM for its expansion to non-forest areas
Terms of Reference Notification, 1999	Sharing of experiences of JFM implementation as each state passed its own resolution Monitoring JFM programmes
Notification for JFM Network, 2000	To act as regular mechanism for consultation between various agencies involved in JFM at the national level
Guidelines for Strengthening JFM, 2000, 2002	Present latest JFM policy directives and broad framework for its implementation Measures such as legal support for JFM Committees, promotion of women's participation, and conflict resolution Memorandum of Understanding between forest department and JFM Committees outlining short and long-term roles and responsibilities, and pattern of sharing of usufructs Capacity building for management of non-timber forest products for providing remunerative prices for users
Operational Guidelines for Tenth Five Year Plan, 2002–2007	Formulation of National Afforestation Programme to facilitate sustainable forest development Implementation of afforestation schemes via a two-tier system consisting of Forest Development Agencies and JFM Committees Transfer of funds to JFM Committees through Forest Development Agencies

Source: Balooni and Inoue, 2009:7.

The policy directives seem to have been concerned by integrating the design guidelines with respect to the : (a) involvement of local communities and NGOs in the regeneration of degraded forests; (b) principles of benefit distribution; (c) multi-level implementation and monitoring of systems; and (d) conflict resolution.

3. Outcomes of JFM in India: Some evidence

An analysis of the impact of policy directives is important for determining whether the design guidelines on JFM have been properly incorporated into the policy directives to generate beneficial outcomes for forest-dependent communities. In this regard, a comprehensive review of empirical literature on various aspects of JFM and its performance across Indian states (D'Silva and Nagnath 1999; Murali, *et al.* 2006; Patel, *et al.* 2006; Ghate and Ghate, 2010 ; Ghate *et al.* 2009; Bawa *et al.* 2007; Sahu 2008; Adhikari 2005; Dutta *et al.* (2004); Pandolfelli, *et al.* 2007; Agrawal and Chatre 2006) highlights several of its positive outcomes, viz.,: (a) increase in employment and household incomes; (b) increase in biomass production of fuel wood and fodder; (c) reduction in distance travelled and time expended by households (particularly women) for collecting fuel wood and fodder; (d) rise in income from non-timber forest products (NTFP); (e) creation of long-term incentives through transfer of net income from sale of forest produce; (f) provision of livelihood security through forest regeneration; (g) women's autonomy and greater representation in JFM; (h) increased representation of marginalised sections in JFM executive committees. In the case of 'g' and 'h', women's increased representation occurred because of the reserved quotas for females and other under-represented sections in the JFM of their respective states.

At the same time, the JFM as implemented in India, has been facing innumerable problems as revealed by several studies. The regenerated forests themselves have become valuable assets that became sources of conflict among communities, threatening sustainability of JFM (Joshi, 1999). A major contentious issue highlighted by many studies pertains to sharing of benefits among communities. For instance, in Karnataka, only one-third of the community assigned forest produce was distributed by the FD to members in 18 JFMs in the Uttar Kannada district (Damodaran, 2000). Moreover, significant variations exist across states in the benefit sharing arrangements between village communities and FDs, though the states have passed their own resolutions to resolve these variations.

Studies also differ with respect to JFM's beneficial outcomes in India in terms of: (a) poverty reduction; (b) welfare; and (c) social security. A study from Jharkhand reveals that the wealthier sections benefited from JFM at the expense of the poorer sections (Kumar, 2002). Similarly, the principle of equity in benefit sharing has been a major casualty, and marginalised groups such as shifting cultivators and head loaders were denied access to the forests in the JFM programme based on claims of forest protection (Carter and Gronow, 2005). Matta's (2006) study in Tamilnadu revealed inequity in the participation in JFM activities and benefit sharing and a lack of adequate provisions for extending individual assistance to the poor and erstwhile forest users. Furthermore, a review by Matta and Kerr (2004) of 278 forest communities suggests that in most states, the forest committees created under JFM have not lasted long. In many cases, the forest protection committees (FPCs) became dysfunctional after either the initial enthusiasm evaporated or the incentive money is exhausted (Kumar 2002; Matta and Kerr 2004; Ghate and Nagendra, 2005).

JFM was launched in India under a variety of names, such as community forest management (CFM) or community based forest management (CBFM), participatory forest management (PFM), and joint forest programme (JFP), and a plethora of empirical evidence underscores that even after more than two decades of continued promotion and scaling up, such community-based forest management initiatives have not fulfilled their goals (Bandi, 2013). A prominent reason cited for the sub-optimal performance of the JFM has been the colonial legacy (Saikia, 2008; Kumar, 2002) and the 'command and control' principle that dominated the forest management regimes in most states over the past six decades under the planning process.

While there are apprehensions concerning the overall beneficial outcomes of JFM in India, an analysis of the changes in forest cover over the past two decades reveals noteworthy trends in major states. For instance, while the national forest cover declined at a rate of 0.6 million ha between 1991 and 1997, the period henceforth has shown significant growth in forest cover. National forest cover increased from 67.55 million ha in 2001 to 69.20 million ha in 2011, resulting in a net increase of 0.16 million ha per annum during the period. The largest increase in forest cover occurred in dense canopy forests, while medium density forests have declined. To a large extent, this growth in forest cover has been attributed to afforestation

programmes and the forest protection policies pursued by thenational and state governments under the JFM (FSI, 2009).

The trends in forest cover of India's major states are presented in Table 3. Between 2001 and 2011, the forest cover improved in all states except Gujarat, Haryana, Karnataka, Rajasthan and Chhattisgarh. While the average decadal increase in forest cover was closer to 2.5% nationally, a few states, viz., West Bengal, Bihar, Kerala, Tamilnadu and Maharashtra, reported notable increases in forest cover because of conservation efforts.

Table 3: Trends in Forest Cover in major Indian states, 2001 to 2011

States	Forest cover 2001 (KM ²)	% TGA	Forest cover 2011 (KM ²)	% TGA	% change between 2001-11
Andhra Pradesh	44637	16.2	46389	16.9	3.9
Bihar	5720	6.1	6845	7.3	19.7
Gujarat	15152	7.7	14619	7.5	-3.5
Haryana	1754	4.0	1608	3.6	-8.3
Himachal Pradesh	14360	25.8	14679	26.4	2.2
Karnataka	36991	19.3	36194	18.9	-2.1
Kerala	15560	40.0	17300	44.5	11.2
Madhya Pradesh	77265	25.1	77700	25.2	0.6
Maharashtra	47482	15.4	50646	16.5	6.7
Orissa	48838	31.4	48903	31.4	0.1
Rajasthan	16367	4.8	16087	4.7	-1.7
Tamil Nadu	21482	16.5	23625	18.2	10.0
Uttar Pradesh	13746	5.7	14338	6.0	4.3
West Bengal	10693	12.0	12995	14.6	21.5
Jharkhand	22637	28.4	22977	28.8	1.5
Chhattisgarh	56448	41.8	55674	41.2	-1.4
Uttarakhand	23938	44.8	24496	45.8	2.3
Sub-total	473070	20.3	485075	21.0	2.5
All India	675538	20.6	692027	21.1	2.4

Source: GOI, MoEF, Forest Survey of India, Reports, 2001 and 2011.

3.1 Community Forest Management in Andhra Pradesh: Determinants and Challenges

Following the discussion of the scenario on the status of implementation and outcomes of JFM, this section examines JFM's major determinants and challenges based on an empirical case study conducted in the south Indian state of Andhra Pradesh (AP).

AP is the fifth largest of the 29 Indian states in terms of area and population. According to the Forest Survey of India (2011), 63,814 sq km of AP's total geographic area of 275,069 sq km is forest area (i.e., 23.2% of the state's total area). AP ranks second (after Madhya Pradesh) in terms of forest area in India, with a relative share of 8.3% of the country's total forest area.

The Forest Department (FD) in AP began implementing JFM in 1993 with the World Bank's (WB) support. *VanaSamrakshanaSamithis (VSS)*, or the 'Forest Protection Committees' (FPCs), are institutions established to protect the respective village forests. In 2003, JFM was modified into 'Community Forest Management (CFM) by GO 13² issued in 2002, to make it 'more democratic' in the interest of the 'community' by relegating the FD to the role of mere 'facilitator'.

As of 2006, 8412 VSS were functioning in AP. Of these, 5000 committees are sponsored by the World Bank, with the rest under centrally sponsored schemes such as the Forest Development Agency (FDA), Employment Assurance Schemes (EAS), the Rural Infrastructure Development Fund (RIDF) and the National Bank for Agriculture and Rural Development (NABARD) (APFD, 2006). These projects require funding to undertake various forest regeneration activities such as plantation and labour payment and 'entry point programmes' such as building 'village community halls', 'buying irrigational equipment', or other activities that encourage village development, thus keeping the community interested in the programme until its forests can yield sustained produce for the community.

² The GO 13 is a comprehensive document detailing the constitution of the VSS. It also defines the duties and responsibilities of Communities and the FD.

3.2 Empirical site

For empirical analysis, the study selected one district from each of the three geographical regions of AP, *viz.*, the Adilabad district of Telengana, the Chittoor district of Rayalaseema and Visakhapatnam district of Coastal Andhra. These three districts were selected because the number of VSS functioning in these districts was the highest among other districts within their respective regions. The final sample comprised 11 VSS villages each from the Adilabad and the Visakhapatnam districts and 8 villages from the Chittoor district, thus totalling 30 villages. Among these VSS villages, 20 were sponsored by APCFM and the remaining 10 were non-APCFM supported.

Primary data were gathered using 'Focus Group Discussions' (FGD) and Household (HH) surveys using structured questionnaires. Data were also obtained using direct observation and informal conversations with the officials and the people concerned, individually and in groups. One FGD was moderated in each of the 30 VSS villages. The respondents comprised VSS General Body (GB) and Managing Committee (MC) Members, including the Chairperson and Vice-Chairperson of the respective VSS. In addition, 360 VSS members (12 HH in each village) were individually interviewed at the HH level. Accordingly, the study conducted 360 HH interviews, comprising 132 interviews each in Adilabad and Visakhapatnam and 96 interviews in Chittoor. The field survey was conducted between 1st March and 31st August 2006.

Providing for an institutional mechanism to manage 'forests' does not indicate in itself that the objectives of an institution such as 'Community Forest Management' (CFM) will be achieved as desired. Many different factors beyond the purview of governance principles also determine the course of community-based institutions. The remaining section assesses the causes of such decisive issues that can influence the performance of the CFM programme in the AP districts.

Among the sample of 30 VSS villages, there were reports of conflicts of one form or the other, though the frequency of conflicts varied from one VSS to another. Most members in their respective VSS identified the major sources of conflicts as theft, smuggling, grazing, the conduct of VSS members and hostilities from non-VSS HHs in the same village (Table 4).

Table 4: Sources of conflict in VSS (%)

Sources of conflict	Adilabad	Chittoor	Visakhapatnam	Overall
Theft	38.97	16.7	50.0	35.7
Smuggling	22.2	5.6	0	8.9
Grazing	16.7	27.8	10.0	17.9
VSS Member's conduct	16.7	38.9	30.0	28.6
Hostilities between VSS and Non-VSS HHs	5.6	11.1	10.0	8.9
Total (n)	100 (18)	100.0 (18)	100 (20)	100.0 (56)

Note: n=this is higher than the sample number of VSS in their respective districts due to multiple responses from respective VSS.

Source: Field Survey (FGD)

As evident, theft tops the list of sources of conflict, indicated by approximately 36% of VSS and the offenders reportedly were neighbouring villagers. Theft occurred as the neighbouring village HHs would suddenly find themselves barred from entering a forest from where they were collecting firewood for domestic use. In some cases, these HHs secured their livelihoods by selling firewood, while artisans such as ironsmiths and washer men collected firewood to sustain their traditional occupations. In the opinion of the VSS members, most offending neighbours were finally convinced to not enter their forests, though some time was required to convince them. Now, they are reportedly using alternatives to meet their firewood needs. Some adamant villages were also awarded with a VSS to pacify them. However, people who exploit the forest for smuggling continue to clash with VSS members (two villages in Adilabad) quite often. In one of the Visakhapatnam villages, some VSS members narrated how they were beaten up by their neighbouring villagers while passing through the latter's village as a revenge of their opposition to permit them to steal wood from their forest.

Conflicts arising from smuggling were reported by 9% of the VSS, with Adilabad reporting the highest incidence (22%). Smuggling is a more serious offence compared with theft with respect to social outcomes. All the VSS reporting problems of smuggling are located in districts known for timber trade, which fetches good remuneration in open and black markets. Smuggling was not reported by VSS villages in Visakhapatnam because of their remoteness, poor road connectivity, and absence of priced timber. Although one mixed caste village in Chittoor does not grow high-valued timber in its

forest, its VSS members claim to suffer from smugglers' offences because the offenders use a route that bypasses their village to smuggle red sanders from the forest situated on the other side of the hill adjacent to their forest. They are threatened by dire consequences if their activity is reported to the FD or the police.

Grazing is yet another problem that creates a conflicting situation in 18% of the VSS villages (Table 4). It happens when cattle from neighbouring villages stray unintentionally or sometimes are herded deliberately into the VSS forests. The magnitude of the problem in one mixed village (in Chittoor) was severe, as thousands of goats from neighbouring villages were herded into its forest every day for grazing, thus destroying its vegetation in an unprecedented manner. Countless efforts were made by the VSS members in containing this menace unleashed by their neighbours. Consequently, the VSS members have not been able to salvage even 10% of the plantation. They were disillusioned after fighting unending and hopeless battles with the goat herders and not receiving support from the FD, despite lodging complaints repeatedly.

The most discouraging aspect of all conflicts concerns the internal fights amongst the VSS members reported in approximately 29% of the VSS villages (Table 4). These fights occur approximately uniformly across tribal and mixed villages in all three districts. The cause of the internal fights among members is the non-payment of wages on time and even non-payment of expected wage-rate by their respective chairpersons. The internal fights related to non-payment of wages happen because ground-level FD officials cheat them and deprive them of their rightful and anticipated share. Invariably, the quarrels flare up when members are inebriated. Overall, the conflicts appear to be occurring more frequently among the mixed villagers compared with tribal villagers, to some extent because of the dynamics in the composition of the members.

Though minuscule in presence, a smaller segment of the sample VSS (8.9%) reported clashes between members and non-members for reasons listed in Table 4. The non-VSS HHs alleged that their chairperson and MC members deliberately barred them from VSS membership. Personal rivalry is cited as the reason in some VSS villages, while party politics laced with caste discrimination is cited in others. In some villages, VSS members accused non-VSS members of being greedy, wanting to share the forest benefits

enjoyed by them. This problem arises occasionally in one of the study villages, while the issue has reached the court in another village. The hostility induced battle continued for over a year, thus hampering regular VSS activities because the FD had kept the alleged VSS under suspension since then. In another mixed caste village (Chittoor), though there was no direct conflict between VSS and non-VSS members, there existed uneasy relations between members, probably due to caste/ community differences.

3.3 *Podu/encroachment and the CFM interface*

The term *Podu* is elucidated differently by different people. Generally, '*podu*' refers to 'slash and burn' cultivation, a lengthy procedure implying the clearance of forests on hill slopes, burning trees and growing crops in the ashes, and after a certain period, shifting the cultivation to a new hill slope to allow soil fertility and vegetation on old plots to regenerate. However, because of the increasing tribal population and reduced forest cover over the past century, *podu* rotations have been reduced to two or three years from ten years of fallow period. It was observed that the communities indulging in shifting cultivation are the poorest sections. Additionally, in the absence of inputs such as bullocks, agricultural implements, and manure for *podu* cultivation, the tribals grow different types of cereals and vegetables in a single plot and often, this result in insecure and uncertain output and yield along with attendant legal consequences.

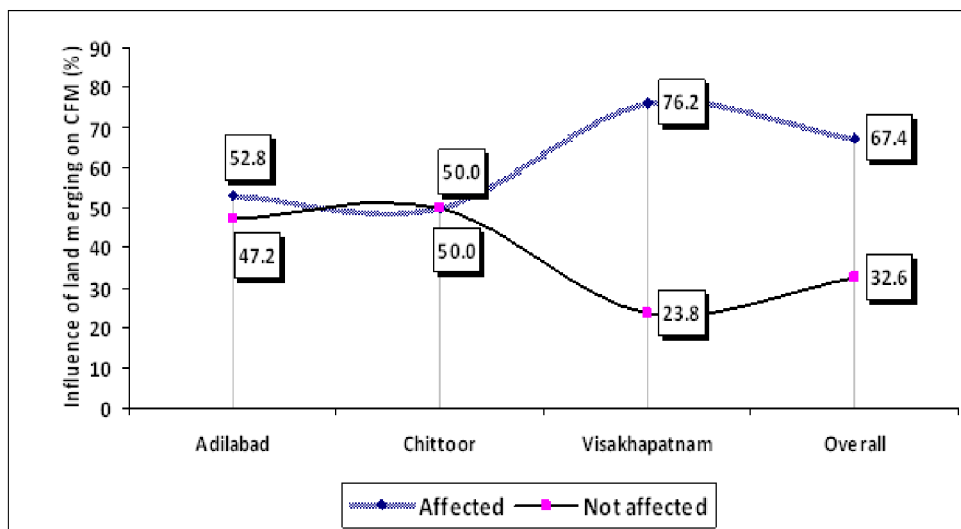
Given APFD's stance on *podu*, that is, treating it as an encroachment (APFD, 1999), and the accusations against it for seizing tribals' traditional lands justified by J/CFM, the VSS respondents were asked to share their experience in this regard. Members in 11 of these VSS acknowledged cultivation as having implications for J/CFM (Figure 1).

Only 11 of 30 VSS reported a *podu*/encroachment problem in their villages. Of the 132 VSS members in these 11 villages, 67.4% were affected by the initiation of CFM for merging their land with VSS forest. The mode of acquisition differed in each case. While some VSS members claimed to have surrendered willingly, others faced forceful evacuation. The most affected district was Visakhapatnam, notably the tribal villages.

When the affected respondents were further probed regarding how the loss of land affected them, the reasons cited included: (a) reduced income; (b)

food insecurity; and (c) dependence on another's field for work as a labourer. The worst affected were those suffering from food insecurity, because they had little alternatives for their livelihoods, as they either were not assured wage-works from the VSS or could not find work.

Figure 1: Member responses about the influence of merging lands with CFM



Source: Field Survey (Household).

3.4 Methods used by the FD to acquire Podu/Encroached Lands

Concerning the methods used by the FD to recapture *podu* lands from the tribals, VSS members revealed that the FD employed convincing, compensatory and coercive tactics selectively with the communities, based on their background. In the case of more aggressive communities, the FD used convincing methods or provided faster compensation. Naïve communities such as the primitive tribal groups (PTGs) were rarely treated respectfully, and their lands were simply seized and merged into the VSS forest. Conversely, the more compassionate the officer was, the better the alternatives provided to the community.

A section of VSS members were furious for not receiving the promised compensation. When the issue was raised to the FD in the jurisdiction of the aggrieved VSS members, the officials denied any such promises of compensations, instead maintaining that the land belonged to the FD, and

hence, compensation to reclaim it was unnecessary. Some officers even demanded a penalty from the offenders to send strong signals to prevent others from such encroachments.

Thus, it emerges that the *podu*/encroachment continues to have negative impact on J/CFM performance, because of the rigid and indifferent approach of the FD towards the tribals practicing *podu*, i.e., ignoring their traditional rights and economic implications. Hence, many tribals resorted to the cultivation of their previous land (officially now controlled by the VSS), while some tribals are considering returning to their former lands or wish to occupy new lands.

3.5 Coordination between CFM and Other Departments, including NGOs as Determinants

3.5.1 Interdepartmental Coordination

The Revenue Department, Tribal Welfare Department, Livestock Department, Department of Rural Development, Integrated Tribal Development Authority (ITDA), Defence Research and Development Organisation (DRDO), Drought Prone Areas Programme (DPAP), Girijan Cooperative Cooperation (GCC), *Velugu*³, Non-Government Organisations (NGOs) and Self Help Groups (SHGs) are some of the government departments, cooperatives and organisations that influence the outcomes of the CFM programme. All these organisations work in the same jurisdiction as the CFM. Hence, interdepartmental coordination becomes vital. The role of many of these line departments is limited to an advisory level, while certain bodies, organisations, and cooperatives such as the *Panchayat*,

³ The Indian government has issued GO MS No.78, EFS and T (For III) Department: 17-10-2003 on the convergence of the *Velugu* project with CFM to ensure greater convergence between these two projects and the Tribal Welfare Department. Convergence with DPIP and APRPRP projects, popularly called Indira Kranthi Pathakam (formerly *Velugu*), are being implemented in Andhra Pradesh through financial assistance from the World Bank. Because the development objectives and most of the target groups of these projects and the Andhra Pradesh Community Forest Management (APCFM) project overlap, a mechanism for convergence has been devised to ensure an effective implementation strategy and the non-overlap of investments, and orders in this regard have been issued in GO MS No.78 EFS and T (For III) Department: 17-10-2003.

ITDA, GCC and NGOs have a significantly greater role to play in the day-to-day operations of the CFM.

In this section, we examine the role of some important organisations that influence the outcomes of the CFM in AP. The analysis is based on the views expressed by VSS members during the FGD. Table 5 presents the inter-departmental co-ordination and role of few organisations in influencing the CFM process in the study villages. It also describes the role of various line departments/ agencies in influencing the CFM activities. For instance, the RD assumes a supposedly key role in addressing land rights and the sensitive issue of encroachment. However, it is also being criticised by the FD for issuing pattas to people without verifying their land credentials.

Furthermore, when the VSS members were asked to reflect on the role of NGOs, members of only one of the 30 VSS villages acknowledged that NGOs played an active role in creating awareness among members about the CFM programme. By contrast, members of 9 VSS reported that NGOs limit themselves to the preparation of a micro plan in the initial stages of J/CFM. Moreover, only a few of the members are said to have conducted a participatory rural appraisal (PRA) to prepare the micro plan document. Members in most VSS (67%) referred to NGO's presence as negligible. Of these, 12 VSS (40%) are based in remote tribal areas, where the presence of NGOs is most necessary. Sharing their bitter experience with an NGO, some tribal VSS members in Visakhapatnam recounted how they tired of paying Rs. 750 to their NGO every time they received their VSS wages.

Similarly, many other NGOs were not too enthusiastic and claimed that they were no longer interested in VSS because of non-cooperation from the FD and because they felt the programme had lost its purpose and objective. When asked why NGOs do not like to work in remote VSS villages where their presence is important, most of the NGO staff questioned why government teachers dreaded to go to such remote villages/hamlets.

Table 5: Inter-departmental co-ordination and CFM outcomes

No	Department	Role and influence on CFM outcomes
1	Revenue Department (RD)	<p>Plays a key role while managing land rights, particularly the sensitive issue of encroachment</p> <p>As alleged by some FD officials, the Revenue Department issues '<i>pattas</i>' to people without verifying their credentials on lands that are deep in the Reserved Forest</p> <p>According to VSS, this lack of verification not only creates bad relationships between people and the FD but also generates mistrust between them.</p>
2	Integrated Tribal Development Authority (ITDA)	<p>VSS members maintain positive relations with the ITDA, as they benefit from the ITDA schemes.</p> <p>In the Visakhapatnam tribal belt, many VSS members are grateful to the ITDA not only for helping them with coffee, silver oak and pepper plantation and throughout the stages of these plants' growth but also for their enhanced economic condition.</p> <p>As per the respondents, the ITDA has an active presence only in the Visakhapatnam district.</p>
3	Girijan Cooperative Cooperation (GCC)	<p>The VSS members have no faith in the GCC.</p> <p>The members now consider the GCC an exploiter identical to the <i>Sahukars</i>.</p>
4	Gram Panchayat (GP)	<p>The role of <i>Panchayats</i>, according to GO13 (2002), commences from marking of boundaries of the VSS forests when the Forest Range Officer (FRO) consults the <i>Sarpanch</i> of the particular village in completing the task.</p> <p>The <i>Sarpanch</i> is a member of the advisory council constituted by the FRO and chairs its meetings.</p> <p>Although each VSS has one or two members from the Panchayat, sometimes even from ranks such as the Sarpanch, they have never observed interactions between the VSS and the Panchayat.</p>
5	Non-Government Organisations (NGO)	<p>CFM envisages a positive role for the NGOs in its set-up through the CFM GO 13 (2002). They are expected to prepare micro plans, train VSS members on marketing and value addition of the forest produce, micro credits, accounting procedures, awareness creation/capacity building and conflict resolution.</p>

Source: Authors' compilation.

3.5.2 Training and capacity building

We also consider training and capacity building as an important determinant of CFM performance in the villages studied. Under the CFM project, the FD claimed to have undertaken capacity building and awareness building programmes by training the VSS members, particularly the chairpersons, vice-chairpersons and MC members. Emphasis was placed on training in financial management and book-keeping activities for the selected VSS members to improve their skills in record maintenance, minutes preparation, forest management, orientation and demonstration. Training was also provided on specific forest-based micro-enterprises to provide VSS members with synergy and sustainable dependence on forests. The use of a Global Positioning System (GPS), map interpretation, silviculture nursery raising and grafting of high-yielding varieties were some of the other areas in which the FD set agendas to train VSS members.

The members in the sample VSS were asked whether they had attended a training programme and whether it benefited them and their VSS. The response was far from satisfactory, as only 19% of the 360 sample VSS members opined that they had benefited from it. Most such members were chairpersons, vice-chairpersons or MC members and on the utility of the training, half of them acknowledged it as beneficial, while the other half did not agree. Those reporting 'not benefited' reflected that the training was more of a tourist exposure, as they were taken to places of interest in Hyderabad city. However, some members expressed that they personally benefited from the training programme, as they fully understood the VSS concept after attending a couple of training camps. Women members in a few VSS were happy to have been trained in making incense-sticks and leaf-plates.

None of the members in the sample VSS reported receiving higher training such as for the usage of a GPS, map interpretation or micro-enterprises, as envisaged by CFM training. The trainings, in most cases, were limited to the basics of plantation techniques, book-keeping and account maintenance. Many members confessed that they did not relay to their GB what they learnt in the training because, their GB was uninterested; the chairperson cared little to perform the necessary functions, or in some cases, the incompetence of the Chairperson in imparting the training was very much evident.

3.5.3 External Funding for CFM as a determinant

In the context of the emerging presence of wage-works as the backbone to sustain the CFM programme (Reddy *et al.*, 2004), we enquired ‘whether the VSS members agree with such a notion wherein the CFM lasts as long as it provides wage-works and not after it?’. Approximately 33% of respondents apprehended that VSS (and thus, CFM) will lose its meaning in the absence of monetary incentives (Table6). Already, some VSS members have moved away from the CFM. In such VSS, the forest has neither reached a sustainable level, nor is likely to reach a beneficial stage because of the poor management by the FD and the VSS, because of financial and other irregularities in implementation.

About 33% of the VSS members were hopeful of continuing with CFM even in the absence of external funds. Some of them had evolved a unique arrangement of planting cashew in individual plots, to sustain their members’ interest in the VSS. Hence, they are individually motivated to reap definite benefits from these plots, even if the benefits from the larger portion of the VSS forest require more time to yield sustainable benefits.

Table 6: Response of VSS members as regards the sustenance of CFM with external funding for wage employment (%)

Response	Adilabad (n=132)	Chittoor (n=96)	Visakhapatnam (n=132)	Overall (n=360)
CFM sustain only through external support for wage employment	18.5	25.0	54.5	33.3
Not necessarily	36.4	37.5	27.3	33.3
Neither	45.1	37.5	18.2	33.3
Total	100	100	100	100

Source: Field Survey (Household).

Another 33% members responded neither way, thus indicating that for all practical purposes, their VSS are defunct. In Adilabad, 45% of the members concur, followed by Chittoor (37%) and Visakhapatnam (18%).

4. Climate change adaptation and mitigation strategies for India's forests: Can JFM model the way?

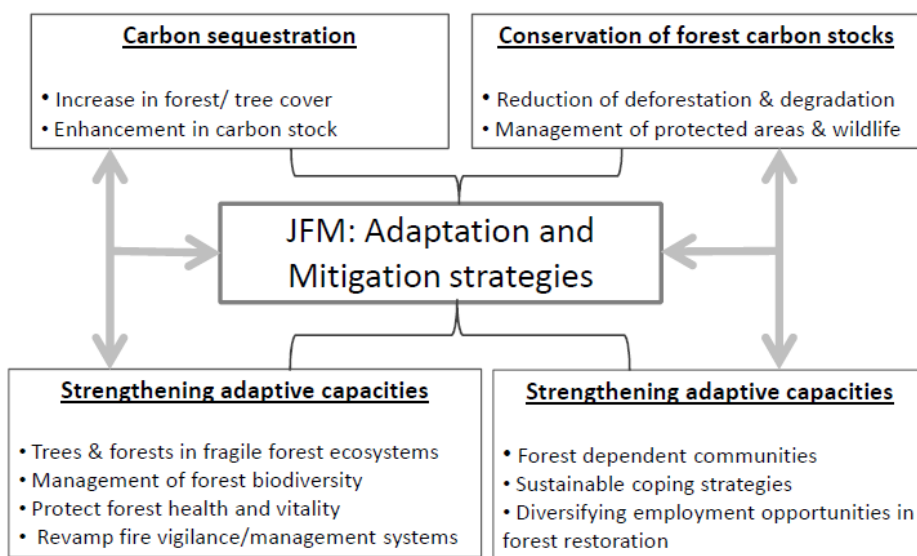
The ensuing climate change risks are most likely to cause dramatic changes in the forest landscape of India. An assessment of the impact of climate change on India's forest ecosystems based on climate projections of the Regional Climate Model of the Hadley Centre (HadRM3) shows that nationally, approximately 45% of the forested grids might change. A vulnerability assessment showed that while such vulnerable forested grids are spread across India, their concentration is highest in the upper Himalayan stretches, parts of Central India, the northern Western Ghats and the Eastern Ghats. Low tree density, low biodiversity status, higher levels of fragmentation and climate change increase the vulnerability of these forests.

Preliminary assessments at the national level indicate major changes, such as: (a) shifts in forest boundaries; (b) changes in species assemblages or forest types; (c) changes in net primary productivity; (d) possible forest extinction in the transient phase; and (e) potential losses of or changes in biodiversity. Even in a relatively short span of approximately 50 years, most of India's forest biomes seem highly vulnerable to projected climate changes. Approximately 70% of the vegetation in India is likely to be sub-optimally adapted to its existing location, thus making it more vulnerable to the adverse climatic conditions as well as to the increased biotic stresses. These impacts on forests will bear adverse socio-economic implications for forest-dependent communities, as approximately 173,000 villages are classified as forest villages (Gopalakrishnan *et al.*, 2011).

These eventualities necessitate effective conservation plans for sustaining forests, given the dependence of livelihoods on them and protecting them against the adversities of climate change. Because forests have immense potential for mitigating climate change through their carbon sequestration, the UN Framework Convention on Climate Change launched a major initiative, 'Reduce Emissions from Deforestation and Forest Degradation' (REDD+), in 2008. In the forest sector, mitigation strategies entail reducing emissions from deforestation and forest degradation; increasing the role of forests as carbon sinks; and substituting products, such as using wood rather than fossil fuels for energy, and forest products rather than materials whose manufacture involves high green house gas (GHG) emissions.

Within the REDD+ framework, initiatives (including financial transfers) are underway at the global level for conservation and sustainable management of forests and the enhancement of forest carbon stocks. India launched the National Action Plan on Climate Change in 2008, called the National Mission for a Green India (GIM). The Mission aims to address climate change by: (a) enhancing carbon sinks in sustainably managed forests and other ecosystems through afforestation of 6 million hectares and the revival of degraded forestlands; (b) enhancing the resilience and ability of vulnerable species/ecosystems to adapt to changing climates; and (c) enabling the forest-dependent communities to adapt various measures to overcome the climatic risks. The implementation of REDD+ in India is being proposed through the JFM, the Forest Department and the forest-based communities.

Figure 2: Framework for integration of JFM with climate change adaptation and mitigation strategies in India



Source: Modified by authors based on FAO (2012) Framework for Forests and Climate Change.

However, the critical issue is how the forest-dependent communities and the JFM beneficiaries can be effectively integrated with the REDD+ initiatives in India such that their stake is enhanced with mechanisms and arrangements for the proper distribution of welfare gains. REDD+ initiatives must also incorporate the VSS (under the J/CFM) to act as custodians of

the forest conservation funds to sustainably manage forest resources and forest ecosystems. Thus, developing and implementing adaptation strategies to minimise the possible adverse impacts of climate change risks are necessary. In this regard, the framework described in Figure 3.2 shows how the JFM can be effectively integrated with climate change adaptation and mitigation strategies encompassing four major components, viz., (a) carbon sequestration; (b) conservation of forest carbon stocks; (c) strengthening of adaptive capacities at the system level; and (d) strengthening adaptive capacities at the community level.

5. Sustainable Community Forest Management in India: A Roadmap for the Future

The issues discussed in this chapter are of a basic nature and ground-level and pertain to people living around the forests. The determinants were not entirely unforeseen, but the magnitude of their dimensions and nature were unanticipated. However, addressing these challenges based on the presented case study could immensely benefit not only the forest-dependent people but also the forests in the larger context of the environment.

Forest governance in India according to JFM reveals that the implementation and success of the programme has changed substantially and manifested variably across states. While the programme had resulted in significant positive outcomes in several regions, the sustenance of J/CFM is thwarted by several challenges and issues at the grassroots level. These challenges and issues emerge predominantly from the specific governance regime based on command and control principles followed by India over the past under the colonial and the post-colonial periods. Despite the tremendous achievements in forest management from changes in governance practices, the challenges of mobilising the local communities for collective action and protection of forests and forest ecosystems still persist.

Given the long tradition of community-based natural resource conservation practices that India has evolved over generations, sustainable forest management could have been possible, if the policies and governance institutions were efficient, proactive and more responsive in the post-independence period. Instead, the management regime continued to be greatly influenced by colonial policies and governance structures, without making inroads into the livelihoods of forest-dependent communities and

forest resources. The contradictions in the current management system reinforces the conflicting interests between economic and ecological benefits or between the community and the state, particularly in situations in which the local communities are left with limited alternatives of income and employment, thus implying a situation of limited substitutability.

With rapidly changing global and local natural environments alongside resource-depleting development processes and climate change induced threats, the conservation of forests and their ecosystems should constitute the critical aspects of India's forest management policies and J/CFM regimes. As the forest biodiversity and ecosystems in India have been facing serious problems of degradation and exhaustion, it is important that alternative livelihood opportunities be explored for forest-based communities to reduce the current pressures on forests for agriculture and other livelihood demands. The efforts towards reducing the dependence on forests presupposes devising a long-term conservation strategy and agenda in which communities are integrated with the various types of conservation action programmes. Invariably, providing alternative sources of fuel wood should also form an integral part of the strategy. Alongside, the communities' contributions must be adequately compensated in terms of employment opportunities, incentives for conservation practices, and community involvement in the sustainable management and conservation of PAs and the ecosystem services they provide.

Ideally, shifting the pressure from the local communities should coincide with heightened vigilance of illegal extraction from the forests by strong social and political interest groups. The onus of promoting sustainable forest regeneration by simultaneously opening up new avenues for alternative sources of energy for local communities, therefore, may depend on various developmental schemes beyond forest management *per se*. The solution in terms of an alternative paradigm for addressing the growing need for fuel wood in general and for the local communities in particular thus requires immediate attention.

Finally, communities depending primarily on forests for their livelihoods must maintain this precious resource in a state of ecological balance. To do so, the communities must have an effective institutional mechanism to govern them. Such an institutional governance mechanism could also uphold conducive and pro-active policies of the respective governments towards

‘sustenance of ecosystem’. Even then, the type of institutional arrangements established that would constitute a foolproof system of governance of conservation or a similar system is a serious concern. Most likely, this chapter’s proposed framework for the integration of JFM and the forest-dependent communities might facilitate the sustainable management of forests in India in the emerging context of climate change threats and communities’ persistent dependence on forests for their livelihoods. The management framework suggested for the integration of JFM as the key institutional mechanism for implementing climate change adaptation and mitigation strategies would provide a sustainable road map for the conservation of forest-based biodiversity and ecosystems and the sustenance of the livelihoods of India’s forest-dependent communities.

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The major areas of research at the Institute are the following:

1. Natural Resources Management, Agriculture and Climate Change

Research under this area concerns the broad realm of environment and development. Studies have focused on economic viability, equity, environmental impact assessment and institutional mechanisms. Issues in common property land resources, land use and water harvesting have been researched extensively. Implications of climate change risks for Asia and the adaptation and mitigation strategies at the local levels have begun to be studied.

2. Industry, Infrastructure and Trade

The main themes include policy dimensions concerning the micro, small and medium enterprises, industrial clusters and intellectual property rights. Studies on basic infrastructure and linkages between infrastructure and regional growth have also been carried out. Trade and development and finance are new areas of interest.

3. Employment, Migration and Urbanisation

Studies under this theme relate to employment, labour, diversification of economic activities and migration. International migration has emerged as an additional theme along with urban services and aspects of urban economy and governance.

4. Poverty and Human Development

Issues examined include access, achievement and financing of education and health sectors. Studies on poverty relate to conceptual and measurement aspects, quality of life, livelihood options and social infrastructure. There is an increasing interest in understanding urban poverty, rural-urban linkages and issues in microfinance.

5. Regional Development, Institutions and Governance

Recent studies enquire into regional underdevelopment and the dynamics of local level institutions. Tribal area development mainly relating to livelihood promotion and human resource development has been a focus area. Recent analyses have also looked into Panchayati Raj Institutions, Forest Rights Act, MGNREGA and Right to Education Act.

Much of the research informs national and regional policies. The Institute also undertakes collaborative research and has a network with governments, academic institutions, international organisations and NGOs. A foray into specialized training and doctoral programme has just been made.



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