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Western Midnapore Division in West
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TOWARDS A SUSTAINABLE JOINT FOREST MANAGEMENT
PROGRAMME: EVIDENCE FROM WESTERN MIDNAPORE
DIVISION IN WEST BENGAL

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ABSTRACT This paper demonstrates that the resistance movement of forest communities in western Midnapore division in West Bengal, which acted as a key precursor to the joint forest management (JFM) programmes in India through a June 1990 Ministry of Environment and Forests circular, was based to a large extent on the successful experience of JFM in Arabari Hills under this division. In this particular locality, the resistance movement of forest communities had been mobilized for a long time by poor forest communities fighting for their community rights to forest resources as a matter of immediate survival, opposing top-down approaches to forest management.

A detailed study of the existing four Forest Protection Committees (FPCs) of this area confirms that these immediate survival needs, generating mainly sustenance and income from non-timber forest products (NTFPs) for FPC members, are the key element for the long-term sustainability of a JFM system.

KEYWORDS: *Bengal, environment, forests, joint forest management, sustainable development*

Abbreviations used:

FPC Forest Protection Committee
JFM Joint Forest Management
JFMP Joint Forest Management Policy
NTFP non-timber forest product
VFPCs Village Forest Protection Committees

Introduction

In the context of Indian forestry, several strands have contributed to the present emphasis on

community involvement in forest protection. JFM emerges as the latest in a long history of policy changes, attempting to create a new relationship between ‘state’ and ‘community’. The old custodian forest management systems were rendered ineffective in the 1950s and 1960s due to various reasons, mainly traditional emphasis on production of commercial wood and disregard for local needs. Against this old custodian forest management system, the local communities in different parts of India have mobilized repeatedly and since long to protect ‘their’ local resources from manipulation by outside groups. The emergence of a new community forest management system in West Midnapore division in West Bengal, like some other parts of rural India, is grounded historically in tribal and peasant resistance movements.

The paper first presents a brief historical perspective of the context of forest management and then provides a short critical review of the relevant literature. The main section covers the data sets and findings, before conclusions are drawn in the final section.

Historical Perspective

In pre-colonial India, western Midnapore was covered by dense jungle tracts (dense forest). While patches of forest, particularly along river plains, had been cleared for agriculture, much of the area was wild and remote. Western Midnapore, primarily populated by Santal, Bhumij and Mahato tribals, with some low caste Hindus, included the police stations (*thana*) of Garbetta, Binpur, Gopiballavpur, Salboni, Sildha and Jhargram. Prior to the colonial era, while this area was nominally under Mughal control, due to the inaccessibility of the area, little attempt was made to extract revenues or exert political authority. The local forest-dwelling communities could easily resist incursions into the area. Their superior knowledge of the jungle and their hunting skills made them an effective guerrilla force. Some Bhumij communities gained a reputation as robbers (*chaur*) from their aggressive raids into the plains. Many local rulers (*rajas*) and landlords (*zamindars*)

preferred to leave them alone and did not attempt to extract taxes from them, avoiding conflicts with jungle people (Poffenberger, 1995).

Tribal communities that maintained forest-oriented self-sufficient economics were thus able to obstruct outside political domination, protecting their political autonomy as well as local forest resources. The Santal and Bhumij tribal communities of forest inhabitants practiced shifting (swidden) cultivation as well as hunting and gathering forest products (Duyker, 1987: 28). Much of their diet was provided from wild fruits, roots, herbs and the nutritious flowers and fruit pulp of the Mahua (Madhuca) tree, making them less dependent on agriculture. Tribal villagers were also actively engaged in trade in firewood, silk, resin, deer and buffalo, horns, wax, honey, bark fabrics, lac, medicine and charcoal.²

Along with the survival needs of the forest communities, their cultural values protected health, fertility and prosperity of the forest. During the pre-colonial period, and up to the present, the belief systems of the forest communities of this area have been strongly grounded in the worship of nature. Religious festivals are tied to both the agricultural cycle and the flowering and fruiting of the forest trees. The Santal New Year, for example, begins with the blossoming of the sal (*shorea robusta*) tree in March. This links in tribal beliefs, illustrated in folk songs,³ which are believed to help the regeneration of nature and the natural forest.

In 1760, the district of Midnapore was transferred to the East India Company by Mir Qasim, one of the first districts in India to be brought under British rule (Duyker, 1987:28). During the late eighteenth century the British sent military expeditions into this area in an attempt to extend their authority and extract land revenues. The forest chieftains and tribal communities resisted this, ambushing British forces and harassing them whenever possible. Local *zamindars* also resisted the imposition of colonial authority, refusing to pay their taxes, organizing militias, and falling into arrears in their taxes. In 1798, widespread violent resistance disrupted revenue collection activities

in the Midnapore area, forcing the Company to restore lands to hereditary chiefs that had been put up for sale because of failure to pay taxes.

Through superior force, however, the British gradually succeeded in extending their control in the area during the nineteenth century. As this process continued, the British empowered a new class of *zamindars* to control and tax local forest communities, encouraging them to open forest land for cultivation. In order to meet their tax obligations, such *zamindars* were anxious to bring in tribal and peasant cultivators to clear the forest and convert it into agricultural land. The tribal communities resisted the imposition of the taxing and land conversion systems through a series of armed revolts. The first, referred to as the Chaur Rebellions, lasted from 1767 to 1800.⁴ Tribal guerrillas were so effective that ‘even as late as 1800, after nearly forty years of British occupation, a collector reported that two thirds of Midnapore consisted of jungle, the greater part of which was inaccessible’ (Duyker, 1987: 35). Gradually, however, the Company succeeded in strengthening its control, despite determined resistance by forest people, such as the Naik Revolt (1806-16). Under the Permanent Settlement Act by 1866, 1369 *zamindari* estates had been established in Midnapore, with absolute ownership of agricultural and forest lands as long as they paid government revenues.

The process of forest clearing for agricultural land conversion had sweeping ecological implications, especially for river systems and soil conditions. Removal of forest cover allowed torrential monsoon rains to wash away the shallow top soils, leaving an exposed laterite hard pan that made farming virtually impossible in many areas. Traditional forest-based industries like *tusar* silk, indigo and *endi* (or Eri: it is a type of silk like *tusar*; it is produced from an insect, *Philasamia Cynthia*) declined dramatically, as did the population density of this area as the forest was cleared.

The pressure on forests grew further by the 1860s as the growing railway system demanded immense quantities of sal logs to provide sleepers for rail beds. Commercial demand for timber accelerated forest cutting and raised the value of forestlands. Timber merchants rushed in, even

before the rail lines opened and began leasing or purchasing large tracts from the Midnapore Zamindary Company and other *zamindaris*.

In early 1855, six to seven thousand Santal tribals from Birbhum, Bankura, Chotanagpur and Hazaribagh came together for organizing resistance to their growing marginalization. On 16 July 1855, some ten thousand tribals, under the messianic leadership of four Santal brothers, stood their ground firmly and fought with bows and battle-axes in a battle near Pirpaiti.⁵ The revolt collapsed eventually after half their members were reportedly killed. Despite their defeat the HUL Rebellion (as it is known among the Santal) profoundly influenced the ideological development of many Santal communities (Duyker, 1987: 35) and lives on in the songs and oral traditions of the tribal people of this area. Throughout the later part of the nineteenth and the first half of the twentieth century, many forest communities in this area became increasingly indebted to money lenders and tax collectors, causing widespread mortgaging and loss of their agricultural lands. Though the alienation of private lands was an important element in the impoverishment of tribal and low caste communities, so too was the loss of cash and kind income from forest-based activities as the forests were cleared.

The forest policy of postcolonial India continued on the colonial path of commercialization and reductionism, and with it continued people's resistance to a denial of their basic needs, both through alienation of rights and through ecological degradation (Shiva, 1999). Despite the populist government in West Bengal after independence, the old custodian system of commercial forestry, which disregarded local needs also prevailed in western Midnapore. Throughout 1969 and 1970, some forest communities in this area became discontented with the Forest Department and its policies of providing elites and contractors with low-cost resource exploitation leases. Forests were logged of timber trees and bamboo, so that villagers lost the raw materials they required for their subsistence and commercial needs. The Dom tribals in particular were upset by the high prices

and fuel wood scarcity experienced by potters, blacksmiths and other caste groups also increased antagonism towards the forest department and those who acted as contractors for them.

While successful examples of joint forest management were beginning to emerge in the Arabari Hill in Midnapore district during the early 1970s, throughout the decade they remained isolated cases with little effect on routine forest management within the state. Recognizing the success of Arabari and a few other villages where management agreements with forest communities had been made, some senior forest officers like Dr. Ajit Kr. Benerjee, began to encourage field staff to pursue similar negotiations in other areas throughout the southwestern part of the state. By formulating agreements that responded to the specific economic needs of forest communities, new incentives were created among villagers, which resulted in the emergence of effective controls on forest exploitation. The emergence of the Chingra, Chandana and Harinakuri FPCs are examples of decentralized forest protection group formation in Midnapore district. This early experience demonstrated that opening communication with forest communities could effectively reduce conflicts between the forest department and forest user groups. Forest officers were able to identify terms for effective management partnerships through discussions. In some communities village men formed volunteer patrols. People who were found cutting green wood or grazing animals were warned by these village volunteers. Repeat offenders from the participating villages were fined, and outsiders were turned over to forestry field staff.

The experience of FPCs in this area illustrates the way in which village leaders like Mahadev Munda Singh of Chingra FPC, Lokhun Sahu of Chandana FPC and Joti Naik of Harinakuri FPC were able to work with field staff and other neighbouring communities to identify forest areas for protection and to reach agreements, while turning away outside users. It appears that the ability of local communities to take the lead in defining management territories was a key to the success of the programme. Although field staff helped facilitate this process by encouraging group meetings

and authorizing community protection activities, frequently successful FPCs took the initiative in organizing themselves and establishing operational controls over forest access. Most confrontations occurred during the first and second year of protection, after which the restrictions and rights of the protection committees were generally recognized by outsiders.

Despite early success, these achievements were limited to small forest tracts. The JFM in this area, however, was largely effective among most neighbouring forest communities by the time West Bengal Government Orders were issued on 12 July 1989 to formalize the FPC arrangements, wherein the duties and responsibilities of the FPC members, usufructury rights, and other benefits to which they would be entitled were laid down. The departmental appeal to tribal communities to protect forest resources and its willingness to empower them apparently coincided with a growing desire among these communities to take environmental action. It was easier for communities to mobilize because the West Bengal programme did not require complex registration and budgetary allocation processes for communities to take action, but rather presented communities with a straightforward opportunity to protect the local forest and enjoy the benefits. As each community began protection activities, it influenced the behaviour of neighbouring villages. Without necessarily waiting for the forest department to take action, villagers were forced to negotiate and discuss management issues and needs with one another (Poffenberger, 1995). It is this community based 'chain reaction' or catalytic effect that is apparently a driving force behind the rapid emergence of localized access controls on state forest lands in southwest Bengal.⁶ According to the latest State Forest Report, published by the Directorate of Forests, Government of West Bengal in December 2001, the total number of FPCs in west Midnapore division was 542, the highest number among all divisions in West Bengal.

Thus the historical events outlined here suggest that the communities in this area have mobilized repeatedly over a long time to protect their resource rights from manipulation by outside groups.

This background study indicates therefore that the emergence of new wider official community forest management systems is grounded historically in tribal and forest communities' resistance movements. In many parts of rural India, pockets of disempowered people have been organizing repeatedly to struggle for their survival as their resource base was increasingly captured by local elites, moneylenders, tax collectors, and the state. In the past, each time the movement had been crushed or collapsed, but would re-emerge after some time. The people of western Midnapore in West Bengal represent a classical case of this struggle.

Review of Studies

Empirical evidence from across the world now confirms that community-based regimes are a viable option for the management of local common property resources (Baland and Platteau, 1996; Berkes, 1989; Bromley, 1992; Correa, 1999; Lama and Buchy, 2002; Martin, 1992; Naik, 1995; Saxena and Sarin, 1999; Singh, 1994 & 2001). At the same time, the theoretical literature has developed some understanding of the mechanisms, which make these regimes work. Early research was pessimistic about the possibilities of group management, arguing that individuals would not face the full costs of their resource use under such regimes, and would have an incentive to over-exploit the resources. This was the 'free-rider' problem and the only way to solve this problem, according to their suggestion, was to create private property rights in the resource, or to regulate resource use by coercion through the state (Vira, 1999: 260). This early theoretical tradition was inconsistent with the empirical evidence of traditional group management regimes, and it was subsequently pointed out that the free-rider problem was a characteristic of the 'unregulated commons' or 'open access' (ibid: 260). This was distinct from 'common property', a regime in which a clearly defined group co-operated to manage a shared resource (Ciriacy-Wantrup and Bishop, 1975). Today, it is no

longer theoretically disputed that individuals can coordinate their actions and participate in collective regimes.

As better management of common property resources, such as forests, is considered vital for poverty alleviation, sustainable development with equity, ecological stability and preserving biodiversity, there is a constant search for alternative approaches, necessitated by the fact that the usual options of state or market mechanism are not advocated due to their inherent inadequacies. There is evidence to suggest that privatization of such common property resources would enhance inequity, denying access to underprivileged classes of the community (Karnath, 1996). The survival of community needs of poor communities should be recognized on a priority basis as pillars for strengthening community participation (Mukherjee, 1995). Some authors have produced general lists of conditions, which facilitate successful community-based resource management (Baland and Platteau, 1996; Ostrom, 1990).

Eleven factors are commonly identified in this literature as creating conditions which are more conducive to local-level management.⁷ But expectations of immediate returns via wages and incomes from sale of old plantation and local consumption need to fill the requirements of fuel wood, fodder, minor forest produce and small timbers seemed the most important factors motivating massive local peoples' participation for protection and development of forests (Mukherjee, 1995; Naik, 1997; Saxena and Sarin 1999). The present process and basis of developing VFPCs and FPCs will need considerable strengthening if these have to be developed into robust and confident local institutions. The first important step in this direction is to ensure that FPC members have clear entitlement to all types of forest produce from redefined JFM areas for meeting their bona fide requirements, with no removal of produce from the area unless it is surplus to local consumption needs. Moreover, the present policy of selecting the most degraded land for planting trees would have to be modified in favour of greater emphasis on regeneration and less on

planting (Saxena and Sarin, 1999: 213).

But long-term gains hardly matter to people who are facing major daily problems of livelihood-food security. In depressed areas with higher level of poverty, day-to-day existence comes topmost on the agenda of local people – it becomes a matter of survival. The most urgent community need under the JFM regime at Arjuni in Midnapore district is that of alternative means of livelihood during the lean season, agriculture being the mainstay in the peak season. The Arjuni experience in JFM shows that unless survival needs of food and livelihood are met, participation in natural resource management would always remain threatened (Mukherjee 1995: 3132). This experience goes a long way to show that survival needs are of prime importance and can easily destabilize community rights and benefits to resource management. Any JFM which does not recognize the significance of creating strategies for sustaining livelihood – basic food security - at the local level has a doubtful future (*id.*). The findings of Naik (1997), based on two case studies in Gujarat, help identify the critical factors in making JFM successful and controllable. The present JFM needs to be remodeled in terms of livelihood benefits which are immediate and less commercial (Mukherjee, 1995: 3132). To this end, the 1998 forest policy of the Government of India recognized the need to fulfill the requirements of fuel wood, fodder, minor forest produce and small timber of rural and tribal people, and emphasized the need to create a massive people's movements for protection and development of forests.

Concerning the benefit-sharing arrangements between states and forest communities and the management of forests, policies differ widely between states within the country. Orissa's NTFP policies are among the most regressive, guided by the principle that all forests and forest produce are state property. The NTFP gatherers' access to income from NTFPs is severely restricted due to such policies. The Vana Samrakshan Samiti gatherers in Orissa get only wages for collecting forest products. Thus even in jointly managed forest lands the people, who are supposedly co-managers,

are treated as mere hired labourers whose earnings are based on a minimum wage rate unrelated to the value of the products (Rao, 2001: 261). Even in recent NTFP policies in Orissa, no steps have been taken to account for the real problems of NTFP gatherers. Thus issues affecting the livelihood of forest-dependent poor women and men remain unaddressed, and any talk about community participation in management of forests and community rights remains meaningless (Rao, 2001: 262).

The field context in which JFM is implemented brings together two principal players: the village community and the forest bureaucracy. The forest bureaucracy, in many cases, enforces rather than abdicates its power, influencing adversely the relationship between forest communities and the forest department. Benefit-sharing arrangements in many states have been specified in advance, without asking villagers whether they, in fact, want to harvest their timber, and how they would like the proceeds to be distributed. In most states, the committees are simply registered with the forest department. Only in five states (Gujarat, Haryana, Rajasthan, Arunachal Pradesh and Karnataka) do the VFPCs have a legally independent existence as co-operatives registered under the Co-operative Society Act, at least formally (Jeffery and Sundar, 1999: 45).

In most cases the forest department also reserves the right to dissolve committees if they perform unsatisfactorily, or at least deny them the shares expected (Poffenberger and Singh, 1996: 71; Jeffery and Sunder, 1999: 45). As happened in the Panchmahals in Gujarat, parallel processes exist, refusing to register existing committees, specially if the forests they have been protecting have now turned from degraded into good forests (Agarwal and Saigal, 1996: 7); or attempting to latch onto existing committees while simultaneously denying the legitimacy of rules that have been framed earlier and do not fit into state resolutions (Sundar et al., 1996). Moreover, planners, policy makers and the forest bureaucracy, in many cases, fail to develop appropriate strategies to successfully involve the poor (including women) who depend on the forest and have little access to alternative

source of biomass in community forestry. It has been well documented that community-based projects and programmes (especially in India and Nepal) ignore women and the poor (Agarwal, 1997; Hobley, 1996; Joeke et al., 1994; Locke, 1999; Lama and Buchy, 2002; Sarin, 1998). Gender, class and caste are often overlooked by policy makers without proper understanding of individual relations constructed through gender, class and caste. Men and women from the poorer sections of society, especially lower castes, have been excluded or prevented from participating in community forestry programme (Hobley, 1990; Lama and Buchy, 2002). Community forestry in Nepal fails to deliver its promise and instead further disempowers those already marginalized. Local elites, rich families, upper caste groups and leaders dominate decision-making processes and, as a result, obtain more benefits. This will in the long run alienate subaltern groups from mainstream development, hence threatening sustainable management of forest resources.

Although some researchers (e.g. Agarwal, 1986) have questioned the belief that excessive foraging and fuel wood collection by the rural poor is primarily responsible for shortages, the findings of these studies are largely ignored by development practitioners. Often, commercial demands have resulted in large-scale forest destruction (Shiva, 1999; Poffenberger, 1995; Poffenberger et al. 1996; Correa, 1999). Earlier, despite government regulation, people would use the forests for firewood, manure and NTFPs. With the introduction of JFMPs, people agree not to use the forest for these purposes, or to use only specified areas, thereby restricting their use of the forest (Correa, 1999). It has been proved that such community-based forest protection activities resulted in the rapid regeneration of degraded natural forests and offered the best prospects for sustainable forestry (Poffenberger, 1995: 350-60; Vira, 1999: 259-60). Natural regrowth led to substantial increase in biomass productivity and enhanced availability of a range of important minor forest products. The capacity of degraded natural forests to rapidly regenerate and produce fodder, fuel, fibres and other valuable materials appears to have been instrumental in sustaining community

protection activities (Poffenberger, 1995; Poffenberger et al., 1996; Correa, 1999).

Data Sets and Findings

The present study is based on secondary data relating to the research project entitled ‘Role of NTFP in sustenance of JFM. A case-study’, carried out by the Divisional Forest Officer of West Midnapore division under the office of the Principal Chief Conservator of Forests, Government of West Bengal in 2001. The study was conducted in four FPCs of Nayagram block, in Paschim Midnapore district. The entire block is very well forested, with forest covering about 48% of the total geographical area. According to the last census, Nayagram block has a total population of 106,490 of which 18.33% is scheduled caste and 40.45% is scheduled tribe, the Sabar constituting one of the dominant ethnic groups. The main economic activity of the population is agriculture, while income from forest sources is the second most important source.

Almost the entire forest was cut down during late the 1970s and early 1980s mainly due to mass illicit felling by contractors for commercial needs. Since then, the forest has been resuscitated following the adaptation of JFM principles. The predominant species of the forest is sal with associates like mohua (*madhuca indica*), bahera (*terminalia balerica*), piasal (*pterocarpus marsupium*), asan (*terminalia tomentosa*), karam (*adina cordifolia*) and pial (*buchanania lanzan*). Most of the tree cops are of coppice origin. The study was conducted in the following four FPCs:

Ambisole FPC: Located in the Nayagram beat of Nayagram Range, the forest area under this FPC is 130 hectares. The Committee was registered in 1991 and has 41 members, of which 40 belong to scheduled tribes and one to the general castes. There are 23 Lodha members in this FPC. All the 40 scheduled tribe members of this FPC are landless.

Bansiasole FPC: Also located in the Nayagram beat of Nayagram Range, with a total forest area of

102 hectares, this FPC was registered in 1990. There are 60 members, among whom 34 belong to scheduled tribes and 26 to general castes. There are 18 Lodha members. All 34 scheduled tribe members of this FPC are landless.

Kasia FPC: Located in the Chandabilla beat of Chandabilla Range, with a forest area of 215.89 hectares, this FPC was registered 1991. There are 100 members, of whom 24 belong to scheduled tribes and the rest to general castes. There are 11 Lodha members in this FPC. Forty-one families are landless.

Kadokata FPC: Also located in the Chandabilla beat of Chandabilla Range, this FPC covers a forest area of 343.27 hectares. The committee was registered in 1995 and there are 24 members, all of whom are tribal.

The forests protected by these FPCs show typical characteristics of this area. Tree species in the forest were enumerated by laying out sample plots. This empirical study helps us to understand to what extent the economic returns from forests, particularly the share of net revenue from final harvesting of timber, income in the form of wages from forestry activities and income from NTFPs in the forest, are significant for FPC members for the sustainability of JFM. The data in some cases are non-classified and non-tabulated. Despite these limitations, we have attempted to study their findings in simple proportions, averages and in some tabular forms for this paper.

Table 1: Income from the share of revenue from timber from 1995-96 to 2000-01

Name of FPC	No. of members	Share of revenue for the entire FPC (in Rs.)						Income/ member/ year (Rs.)
		1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	
Ambisole	41	0	13373	0	79734	0	0	378 (1.48)
Bansiasole	60	0	15338	0	0	0	11984	76 (0.36)

Kasia	100	0	0	0	0	48084	0	80 (0.22)
Kadokata	24	0	0	0	0	0	80985	562 (1.37)
Total	225	0	28711	0	79734	48084	92969	185 (0.59)

Figures within brackets represent percentages in respect of income from timber out of total forestry income.

As seen in Table 1, the per capita annual monetary incomes from the share of revenue from timber are quite dissimilar across the four FPCs studied. Since felling intervals are not the same for all FPCs, the area of felling coupe is not uniform and per capita forests of FPC members across the committees are dissimilar. Also per capita notional income per member per year is not equal. Each FPC, according to the respective JFM agreement, becomes eligible to a share of 25% of total revenue earned from final harvesting of timber products. Although per capita annual money income of a member of Ambisole and Kadokata FPCs is higher than the total average, out of the total forestry income of FPCs, the share of revenue of final harvest from timber is only very small. Moreover, this income is received at irregular annual intervals and usually does not meet immediate survival needs. Although the success of the Arabari experience in JFM in Midnapore district, West Bengal is well known, ironically in the same district, the JFM of Arjunimouza which started from 1991,⁸ failed to deliver results after the middle of 1994 as the members of this FPC were only granted a 25% share of timber, without any other share of the forest resources. This was clearly insufficient to meet the immediate survival needs of poor FPC members. It caused large illicit felling, mainly by the poor forest communities due to the urgency of meeting immediate seasonal livelihood needs and food insecurity, which plagued the area and led to conditions of semi-starvation amongst the poor people.

In order to meet their immediate survival needs, poor FPC members are exclusively engaged as labourers in forestry operations carried out in their respective jurisdiction. All such forestry operations, such as raising nursery, planting, tending, harvesting and entry point activities are

labour-intensive and serve as a small part of their income, particularly in the lean season (Table 2).

Table 2: Income as wage from forestry-works from 1996-97 to 2000-01

Name of FPC	No. of members	Amount spent in the FPC in these five years(Rs.)	Income/member/year (Rs.)
Ambisole	41	251629.33	1227.64 (4.80)
Bansiasole	60	355459.40	1184.86 (5.67)
Kasia	100	432531.18	865.06 (2.34)
Kadokata	24	539749.97	4497.91 (10.98)
Total	225	1579369.88	1403.88 (4.53)

Figures within brackets represent percentages in respect of income as wage from forestry work out of total forestry income.

Income from this source per member per year is computed by adding a wage component of total amount spent over 5 years (1996-97 to 2000-01) in a particular FPC and dividing it, firstly, with the strength of FPC members and then with the number of years (five in this case). This source of income, too, is variable across the FPCs and depends on the scope of forestry operation in a particular committee area. Wages from forestry work constitute again a small source of income, but this is one of the main sources of survival during the lean season (June to September).

In addition to the maintenance of regular consumption needs of the local FPC members, NTFP is the main source of money income for all FPC members under our study, as shown in Tables 3a, 3b, 3c and 3d.

Table 3a: Period of collection, sale value, collection intensity and annual per capita income from NTFPs of Ambisole FPC.

NTFPs	Period of collection	Local rate (Rs.)	Average daily collection (per member)	Average annual income per member (Rs.)
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Sal (<i>Shorea robusta</i>) leaves	10 months	14 per thousand	2000 nos.	8400 (35.04)
Pial (<i>Buchanania lanzan</i>) fruit	21 days (April - May)	20 per kg.	1 kg	420 (1.75)
Mohua (<i>Madhuca indica</i>)	30 days (April - May)	8 per	90 kg	720 (3.00)
Mohua flower	45 days	8 per kg	2.5 kg	900 (3.76)
Bahera (<i>Terminalia balerica</i>) fruit	30 days (Mar - April)	3 per kg	5 kg	450 (1.88)
Kurchi (<i>Holarrhena antidysenterica</i>) fruit	30 days (Feb - Mar)	22 per kg	1 kg	660 (2.76)
Haritaki (<i>Terminalia chebula</i>) fruit	15 days	10 per kg	3 kg	450 (1.88)
Dudhi lata (<i>Oxystelma esculata</i>)	30 days	4 per hundred	400 nos.	480 (2.01)
Kurkura (<i>Lycoperdon sp</i>) mushroom	30 days (June - July)	10 per kg	4 kg	1200 (5.00)
Karam mushroom	30 days	20 per kg	1 kg	600 (2.50)
Ghora insect	30 days	130 per kg	0.3 kg	1170 (4.88)
Rahara (<i>Soyimida febrifuja</i>) fruit	20 days (May - June)	6 per hundred	300 nos.	360 (1.50)
Sidha (<i>Lagerstroemia parviflora</i>) fruit	15 days	3 per kg	2 kg	90 (0.38)
Anantamul (<i>Hemidesmus indicus</i>)	15 days	20 per kg	2 kg	600 (2.50)
Satamul (<i>Asperagus racemosus</i>)	15 days	6 per kg	2 kg	180 (0.75)
Chun alu (<i>Dioscorea deltoidea</i>)	120 days	6 per kg	2 kg	1440 (6.01)
Kalmegh	15 days	7 per kg	6 kg	630 (2.63)
Paan alu	120 days	6 per kg	1 kg	720 (3.00)
Kanta alu (<i>Dioscorea pentaphylla</i>)	120 days	9 per kg	2.5 kg	2700 (11.26)
Sal resin	60 days	60 per kg	0.5 kg	1800 (7.51)
Total				23970* (100)

Figures within brackets represent percentages of income out of total income from NTFPs.

* The percentage of NTFP income for Ambisole FPC members works out to 93.72% out of their forestry income.

Table 3b: Period of collection, sale value, collection intensity and annual per capita income from NTFPs of Bansiasole FPC.

NTFPs	Period of collection	Local rate (Rs.)	Average daily collection (per member)	Average annual income per member (Rs.)
Sal (<i>Shorea robusta</i>) leaves	10 months	14 per thousand	2000 nos.	8400 (42.67)
Pial (<i>Buchanania lanzan</i>) fruit	21 days (April - May)	20 per kg.	0.5 kg	210 (1.07)
Mohua (<i>Madhuca indica</i>)	30 days (April - May)	8 per	30 kg	240 (1.22)
Mohua flower	45 days	8 per kg	0.5 kg	180 (0.91)
Bahera (<i>Terminalia balerica</i>) fruit	30 days (Mar - April)	3 per kg	10 kg	900 (4.57)
Kurchi (<i>Holarrhena antidysenterica</i>) fruit	30 days (Feb - Mar)	22 per kg	1 kg	660 (3.35)
Haritaki (<i>Terminalia chebula</i>) fruit	15 days	10 per kg	2 kg	300 (1.53)
Dudhi lata (<i>Oxystelma esculata</i>)	30 days	4 per hundred	500 nos.	600 (3.05)
Kurkura (<i>Lycoperdon sp</i>) mushroom	30 days (June - July)	10 per kg	3.5 kg	1050 (5.34)
Karam mushroom	30 days	20 per kg	2 kg	1200 (6.09)
Ghora insect	30 days	130 per kg	0.25 kg	975 (4.95)
Ban karala (Urea lobata)	30 days	25 per kg	0.1 kg	75 (0.38)
Anantamul (<i>Hemidesmus indicus</i>)	15 days	20 per kg	1 kg	300 (1.52)
Satamul (<i>Asperagus racemosus</i>)	15 days	6 per kg	3 kg	270 (1.37)
Chun alu (<i>Dioscorea deltoidea</i>)	120 days	6 per kg	1 kg	720 (3.66)
Kalmegh	15 days	7 per kg	5 kg	525 (2.67)
Paan alu	120 days	6 per kg	0.5 kg	360 (1.83)
Kanta alu (<i>Dioscorea pentaphylla</i>)	120 days	9 per kg	1.5 kg	1620 (8.23)
Sal resin	60 days	60 per kg	0.25 kg	900 (4.57)
Ban kundri (<i>Coccinia indica</i>)	15 days May	20 per kg	10 kg	200 (1.02)
Total				19685* (100)

Figures within brackets represent percentages of income out of total income from NTFPs.

*The percentage of NTFP income for Bansiasole FPC members works out to 93.98 % out of their forestry income.

Table 3c: Period of collection, sale value, collection intensity and annual per capita income from NTFPs of Kasia FPC.

NTFPs	Period of collection	Local rate (Rs.)	Average daily collection (per member)	Average annual income per member (Rs.)
Sal (<i>Shorea robusta</i>) leaves	10 months	14 per thousand	3500 nos.	14700 (40.89)
Pial (<i>Buchanania lanzan</i>) fruit	21 days (April - May)	20 per kg.	2.5 kg	1050 (2.92)
Mohua (<i>Madhuca indica</i>) fruit	30 days (April- May)	8 per kg	120 kg	960 (2.67)
Mohua flower	45 days	8 per	3 kg	1080 (3.00)
Kurchi (<i>Holarrhena antidysenterica</i>) fruit	30 days (Feb - Mar)	22 per kg	2 kg	1320 (3.67)
Haritaki (<i>Terminalia chebula</i>) fruit	15 days	10 per kg	2 kg	300 (0.83)
Dudhi lata (<i>Oxystelma esculata</i>)	30 days	4 per hundred	150 nos.	180 (0.50)
Kurkura (<i>Lycoperdon sp</i>) mushroom	30 days (June - July)	10 per kg	2 kg	600 (1.67)
Karam mushroom	30 days	20 per kg	2 kg	1200 (3.34)
Ghora insect	30 days	130 per kg	0.25 kg	975 (2.71)
Bhurru (<i>Gardenia gummifera</i>) fruit	20 days	4 per kg	5kg	400 (1.11)
Atari (<i>Combretum decundrum</i>) fruit	15 days	2 per kg	20 kg	600 (1.67)
Anantamul (<i>Hemidesmus indicus</i>)	15 days	20 per kg	2 kg	600 (1.67)
Asan (<i>Terminalia tomentosa</i>) gum	120 days	10 per kg	1 kg	1200 (3.34)
Chun alu (<i>Dioscorea deltoidea</i>)	120 days	6 per kg	1.5 kg	1080 (3.05)
Bahera gum	120 days	10 per kg	2 kg	2400 (6.67)
Paan alu	120 days	6 per kg	1 kg	720 (2.07)
Kanta alu (<i>Dioscorea pentaphylla</i>)	120 days	9 per kg	2 kg	2160 (6.01)
Sal resin	60 days	60 per kg	0.25 kg	900 (2.50)
Ban kundri (<i>Coccinia indica</i>)	15 days (May)	20 per kg	20 kg	400 (1.11)
Pog mushroom	60 days (July-Aug)	8 per kg	1.5 kg	720 (2.00)
Jara kalai (<i>Glycine hispida</i>)	75 days (June-Aug)	30 per kg	80 kg	2400 (6.67)
Total				35945* (100)

Figures within brackets represent percentages of income out of total income from NTFPs.

*The percentage of NTFP income for Kasia FPC members works out to 97.44% out of their forestry income.

Table 3d: Period of collection, sale value, collection intensity and annual per capita income from NTFPs of Kadokata FPC.

NTFPs	Period of collection	Local rate (Rs.)	Average daily collection (per member)	Average annual income per member (Rs.)
Sal (<i>Shorea robusta</i>) leaves	10 months	14 per thousand	5000 nos.	21000 (58.48)
Pial (<i>Buchanania lanzan</i>) fruit	21 days (Apr-May)	20 per kg	5 kg	2100 (5.85)
Mohua (<i>Madhuca indica</i>) fruit	30 days (Apr-May)	8 per kg	40 kg	320 (0.89)
Mohua flower	45 days	8 per kg	2 kg	720 (2.01)
Kurchi (<i>Holarrhena antidysenterica</i>) fruit	30 days (Feb - Mar)	22 per kg	0.5 kg	330 (0.92)
Haritaki (<i>Terminalia chebula</i>) fruit	15 days	10 per kg	3.5 kg	525 (1.46)
Dudhi lata (<i>Oxystelma esculata</i>)	30 days	4 per hundred	50 nos.	60 (0.17)
Kurkura (<i>Lycoperdon sp</i>) mushroom	30 days (June - July)	10 per kg	5 kg	1500 (4.18)
Karam mushroom	30 days	20 per kg	1.5 kg	900 (2.51)
Ghora insect	30 days	130 per kg	0.2 kg	780 (2.17)
Bahera (<i>Terminalia balerica</i>) fruit	30 days (Mar-Apr)	3 per kg	3.5kg	315 (0.88)
Atari (<i>Combretum decundrum</i>) jhanti	60 days	10 per basket	0.5 pon.	3000 (8.35)
Asan (<i>Terminalia tomentosa</i>) fruit	30 days	2 per kg	10 kg	600 (1.67)
Asan (<i>Terminalia tomentosa</i>) gum	120 days	10 per kg	0.5 kg	600 (1.67)
Bahera gum	120 days	10 per kg	1.5 kg	1800 (5.01)
Ban kundri (<i>Coccinia indica</i>)	15 days (May)	20 per kg	20 kg	400 (1.11)
Pog mushroom	60 days (July-Aug)	8 per kg	2 kg	960 (2.67)
Total				35910* (100)

Figures within brackets represent percentages of income out of total income from NTFPs.

*The percentage of NTFP income for Kadokata FPC members works out to 87.65% out of their forestry income.

Some common characteristics may be discerned from these detailed tables. First, the money income generated from the share of revenue from timber and income as wage from forestry works are quite insignificant in relation to NTFPs for all FPCs studied. The contribution of NTFP income of Ambisole, Bansiasole, Kasia and Kadokata FPCs are 93.72%, 93.98%, 97.44% and 87.65% respectively out of the total money income (from all sources) of the respective FPCs.

Secondly, sal leaves (*shorea robusta*) are the main source of money income from NTFPs for all FPC members. More than 35% of total NTFP incomes for all FPC members come from the sale of sal leaves to the local market. The period of availability of sal leaves is the highest (10 months in a year) of all NTFPs. The money income received from other NTFPs are different for the four FPCs studied here. Thirdly, out of 36 types of NTFP, 10 types are common to all FPCs studied.⁹ The contribution of income from these common NTFPs works out to 62.58%, 70.18%, 62.20% and 78.64% respectively out of the total NTFP income of the respective FPCs. Fourthly, the period of availability for the same NTFP does not differ among FPC members. Moreover, the local rate (Rs. per unit) of the same NTFP does not differ among FPC members. The members of each FPC dispose of the same NTFP at a fixed price. The amount of output the members of an FPC decide to sell seems to have no effect on the local market price of the product.

This study therefore clearly suggests that the relative importance of NTFPs in forest-based economics is supreme. Consequently, it plays the major role in sustenance of joint forest management and to this end the FPC members are expected to optimize the production of NTFPs. Although, the sample size of four FPCs is too small to make a broad generalization, it may be said that in predominantly tribal FPCs with a good cover of sal forest, NTFPs are bound to provide the main and stable source of forestry income.

Conclusions

The historical context in which JFM has emerged as the latest in a history of policy changes in India has been grounded since long in community resistance movements of local poor communities against the old top-down custodian system of forest management. In many parts of India where forests are an essential component of the local livelihood support system, a community-based rights regime with built-in safeguards for access and the livelihood of forest-dependent people has historically provided a solution to problems of sustainable forest management as well as sustainable local livelihood maintaining bio-diversity, ecological balance and environmental stability. State intervention and outside commercial interests interfered with such subtle balances and led to renewed resistance.

The present study suggests that current JFM models needs to be restructured to account for livelihood benefits of the poor forest communities which are immediate and less commercial. In line with this, the new policy managements of both degraded and non-degraded forests are to be re-oriented from timber production to optimizing the production of NTFPs for strengthening the livelihood of local communities as well as the sustainability of community forest management with environmental stability. Any JFM, which does not recognize the significance of sustaining livelihood, basically food security, at the local level, has a doubtful future.

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Notes

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² For detailed information, see Hunter (1876).

³ The links in tribal belief between the health of the forest, fertility and prosperity are clear in the following lines from this Baha festival song (Archer, 1974: 237):

When the sal trees are in leaf,
On the mountain,
How lovely they look,
Wealth in the house....

⁴ The British adopted the Bengali term *chaur*, meaning an outlandish or wild person, to refer to the tribal and low caste people of the area.

⁵ On the Santal Insurrection of 1855-57 see Dutta (1940: 35).

⁶ It is likely that similar community concerns over environmental degradation in other parts of India could provide effective support for JMPs if initiated by state forest departments.

⁷ The common factors are (i) perceived benefits from co-operating; (ii) clearly defined rights and boundaries for resources; (iii) knowledge about the state of the resources; (iv) small size of the user group; (v) low degree of heterogeneity of the user group; (vi) long-term, multi-layered interaction among the community; (vii) simple rules and adaptable management regimes; (viii) graduated sanctions as punishment; (ix) ease of monitoring and accountability; (x) conflict resolution mechanisms and the role of leadership; (xi) influences from the wider political economy.

⁸ This JFM is not included in the present study.

⁹ Tables 3a-3d demonstrate that the most common NTFPs are sal leaves, pial fruit, mohua fruit, mohua flower, kurchi fruit, haritaki fruit, dudhi lata, kurkura mushroom, karan mushroom and ghora insects.