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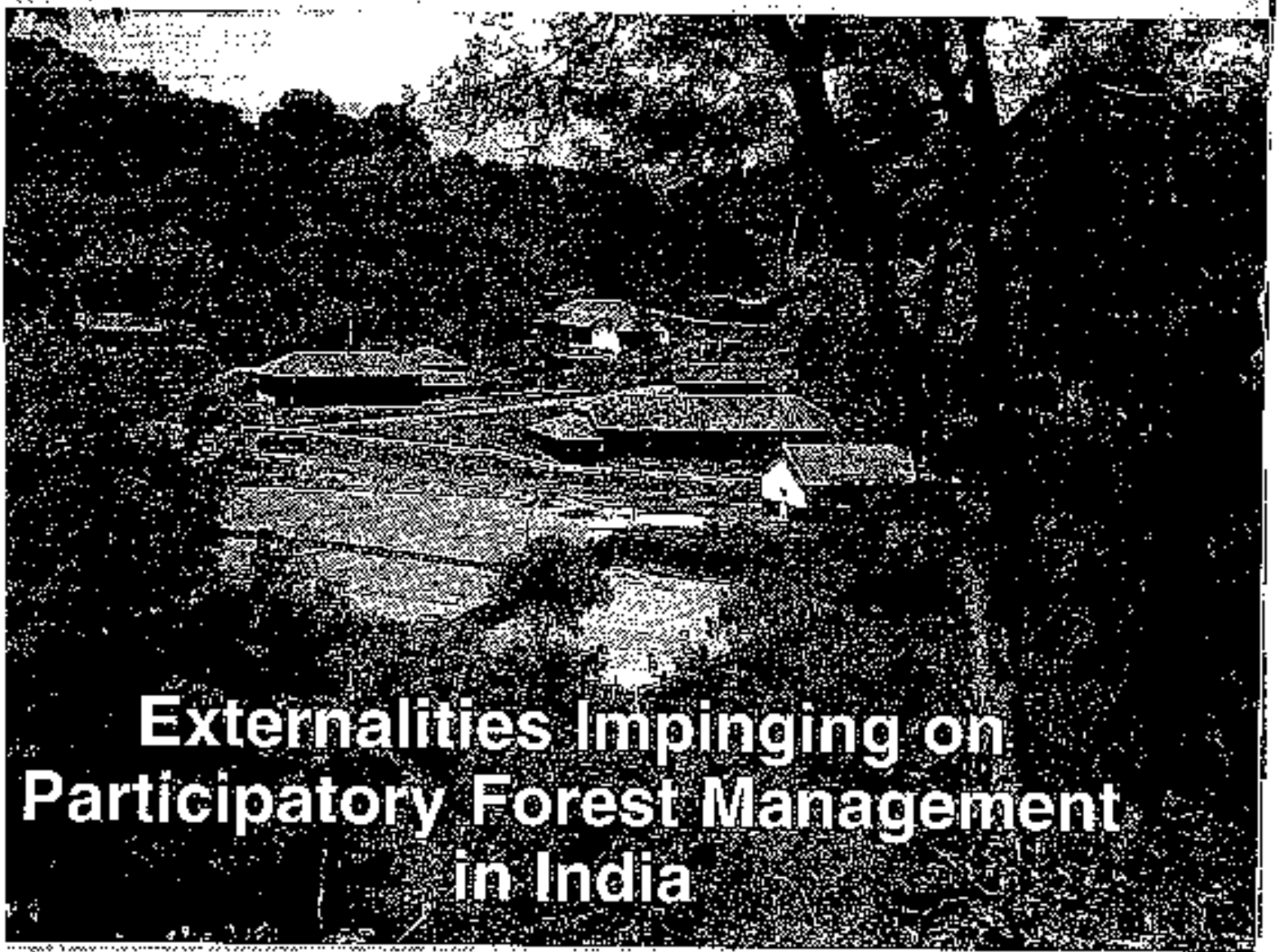

Externalities Impinging on Participatory Forest Management in India

Seema Bathla

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Externalities Impinging on Participatory Forest Management in India
by Seema Bathla 1999

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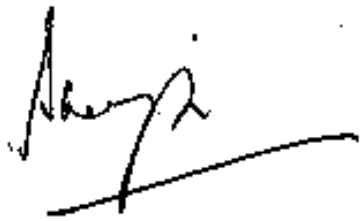
Forestry and Land Use

Programme

Foreword

Forest lands in India are mostly under State ownership and custody. At the same time, these areas in many parts of the country are burdened with rights and concessions and also linked to the livelihood needs of the people resident in and around them. This is specially so in the tribal tracts. In this sense, these forest lands are very much Common Property Resources (CPRs), whose proper upkeep and management is crucial for meeting the livelihood needs of the local people as well as for promoting national ecological security.

The evolution of Joint Forest Management (JFM) in recent times is an important milestone on the national scene. This development is influencing forest management in India in significant ways. In turn, there are several externalities, which impinge on JFM in different ways and will undoubtedly have a bearing on shaping this initiative in the future. This paper analyses the situation specifically from this angle. It tries to categorise the externalities with a view to provide a clear understanding of the whole issue. Hopefully, this analysis will help the policy makers in providing for the changes in policy and administrative arrangements, which will make participatory management of natural resources more meaningful in the country.



(Samar Singh)
Secretary General, WWF-India

About WWF-India

The World Wide Fund for Nature – India (WWF-India), formerly known as the World Wildlife Fund – India, was established in 1969 as a Charitable Trust under the Bombay Public Trusts Act of 1950. Today, WWF-India is the country's largest conservation NGO with a network of State/Divisional and Field Offices spread across the country. Its Secretariat is in New Delhi. The organization is part of the WWF family worldwide, with 25 independent WWF National organizations. The coordinating international Secretariat, the WWF International, is located at Gland in Switzerland.

WWF-India started life as a modest wildlife conservation organization with a focus on protecting particular species of wild fauna. Over the years, the perspective broadened to encompass conservation of habitats, ecosystems and support to the management of the country's protected areas network. In 1989, WWF-India articulated its Mission as follows, to suit India's specific ecological and sociocultural circumstances:

"The promotion of nature conservation and environmental protection as the basis for sustainable and equitable development".

The WWF-India's Mission has five broad programme components:

- Promoting India's ecological security; restoring the ecological balance
- Conserving biological diversity
- Ensuring sustainable use of the natural resource base
- Minimizing pollution and wasteful consumption
- Promoting sustainable lifestyles.

In achieving its Mission, WWF-India uses the following *main programme methods*: **field programmes** that serve as demonstration projects, **public policy analyses and debates** through independent research, consultation, and campaigns, **education** activities for key target groups including the youth, professionals and administrators; **communication** through multimedia approaches; **networking** and supporting the work of fellow NGOs in India, and **mobilizing** necessary financial, scientific and technical resources.

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I Introduction

Some of the natural resources, often common pool resources (CPR's), are accessible to the whole community of a village or villages and over which no individual has exclusive property rights (Jodha, 1986). Such CPR's include Panchayat land, water, fish, community wells, lakes, etc. Forestland, which is the focus of the present paper, is also perceived as a CPR to be shared by a group of people. Within the categories of forests, only unclassed forests fully fall under the class of CPR's. The protected forests are partially included in CPR's, while reserve forests remain under the state control[1].

Generally, right to exploit CPR's is held either by the state or private individuals as a group or by persons in common with others[2]. It is also possible that uniform property rights may or may not exist in the case of commons[3]. In case of forestland in India, the ownership of forest is still vested with the state, partial user rights in protected forests and full user rights by the law in case of unclassed forests are permitted[4].

It is widely acknowledged that CPR's are open to misuse and over-exploitation. The continued economic growth, structure of the market, policies of the government, and demands of rapidly growing population (especially those living at or below the subsistence level for fuel, fodder and other resources) exert pressure on CPR, thereby resulting in progressive deterioration. It is manifested in the form of "tragedy of commons"[5]. The economic rationale underlying the tragedy is that a collective and unregulated access to a CPR creates a decision making environment in which incremental private benefits to an individual from the increased use of the resource can markedly exceed the incremental costs associated with the increased use (Singh, 1994). The action of an individual resource user, motivated to consume more of a resource leads to outcomes that are not rational from the perspective of a group or the community. As the resource declines and scarcity increases, conflicts emerge

[1] In 1997, the percentage of reserved, protected and unclassed forest area to total recorded forest area were 54.44, 29.18 and 16.8 percent, respectively (GOI, 1997).

[2] See Bromley (1992), Larson and Bromley (1990) and Ciriacy-Wantrap and Bishop (1975) for specification of continuum of property rights existing on the use of environmental resources.

[3] This differentiates common pool resources from common property resources, in which the resource use is owned jointly by a group of individuals having legal rights and rules for regulating its use. However, the terms are often used synonymously (Singh, 1994).

[4] The reserve forests are inaccessible.

[5] The term used by Hardin (1968) is a manifestation of degradation of natural resources, in particular common pasture land, together with the breakdown of community control and management.

to control and exploit what is left. Hence, individual users engaged in 'mining' of the resource, create an unsustainable situation[6]. Further, in CPR, exclusion is non-trivial (but not necessarily impossible) i.e. the exclusion of those who do not purchase or pay for the resource (called free riders) is often not possible, and yield is subtractible or competitive i.e. if one person uses more of the good, less is left for use by others (Ostrom et. al. 1992).

Conceptually, the market is supposed to act as a clearing agent between forces of demand and supply of resources, such as, forest products. However, because of impingement of various kinds of externalities like unpriced resources and many others, which we will look into, clearance may not be automatic. Then, it is considered as a failure of market mechanism. The market mechanism in the management of CPR, in particular, forest is perceived as a failure. Also, various attempts by the state to control and regenerate degraded resources have proved to be ineffective. As a result, community forms of control have emerged in some states and have become the mainstay for the protection of CPR's. In a similar vein, participatory forest management (PFM) programme have come into existence to address the problem of degradation of CPR of forest lands. In this paper, we will be looking into the performance of PFM in terms of externalities impinging on them and raise issues of concern in this area. This may help policy makers in finding ways to internalize the externalities so as to make PFM a success in real terms.

II Participatory Forest Management (PFM): An Evaluation

As per the Forest Survey of India, the actual forest cover in 1997 was 63.34 million ha (19.27 percent of India's geographical area). About half of this land is highly degraded. Loss of forest cover has been so severe that only 36.73 million ha have got forest growth of more than 40 percent crown density, 26.13 million ha between 10 and 40 percent crown density, and about 5.72 million ha have only scrub vegetation representing crown density below 10 percent. Mangrove forests cover 0.48 million ha of area. The extraction of the resource has exceeded the natural regeneration resulting in a continuous decline in forest area as well as forest yield and resources over time. The degraded state of forests is feared to have obstructed the goals of achieving a higher level of growth, productivity and ecological sustainability.

It was to remedy the grave situation described above that the joint forest management programme (JFM) was launched in 1991. The programme brings the state forest department and village communities together in the protection, development and management of forests, in particular, degraded forests. In turn, both parties share the responsibilities and benefits in this endeavor. Attempts of participatory forest management of forest land in recent years have largely been catalyzed through a) local initiative, b) forest department promoted ventures like Van Panchayat, FPC, VFPC, HRMS, and c) Government/NGO/local initiative

[6] See Poffenberger (1995) for patterns of community forest management in India in the past.

Table 1
TYPES OF LOCAL FOREST MANAGEMENT INSTITUTIONS

Inputs	Local Political Representatives	NGO Resource Persons	Traditional Leaders	National/State Policy Support	Forest Department	Donor Agencies	Statutory Body	Govt. Dept/ NGO	Grassroots Organization Movement
Type	LOCAL INITIATIVE			FOREST DEPARTMENT			GOVERNMENT/NGO/ LOCAL INITIATIVE/ BROADER MANDATE		
Examples	Jungle Samiti, Youth Club	Council of elders, village council, shamilat forest, sacred groves		Van Panchayats, forest co-operative forest labour co-op	FPC, VFPC, HRMS		Gram Panchayats, Tree Growers Co-op, Gram Vikas Mandal, Mahila Mandal	Chhatisgarh Mukti Morcha, Ghad forest users sign, Chipko	
Locations	Orissa, Bihar, Rajasthan, Gujarat	Orissa, Punjab, Karnataka, Rajasthan (most states)		U.P., H.P., Gujarat	West Bengal, Orissa, J&K, Haryana		All states, Gujarat, H.P.	M.P., U.P., Karnataka	
Characteristics	Informal hamlet group, tribal areas, strong forest dependency, up to 20–30 years old, some more recent	Informal clan, caste or hamlet, pastoral areas, rainfed agriculture, strong forest plus grassland dependency, some over 100 years old		State government/ F.D. recognized older	Created/promoted by F.D., a few with legal autonomy, most F.D. dependent, more recent		Multiple functions including forest protection, diverse mandates	Lobbying for local rights, strong grassroots base	

promoted. Various types of local forest management institutions are presented in Table 1.

As is clear from the table, a large number of PFM institutions have long been in existence[7]. Since JFM is of recent origin, this paper will focus mainly on the functioning of forest protection committees as promoted by the forest department in the states. Progress under JFM (synonymous to Participatory Forest management — PFM) was largely catalyzed after guidelines were issued on collective management of forest under the National Forest Policy of 1988[8]. Since then, participatory forest management initiatives have made notable success in terms of achieving an increased forest area, provision of fuelwood and fodder, lowering migration and in maintaining biodiversity. To date, 20 states have implemented JFM and nearly 10 to 15 thousand forests / village protection committees have been maintaining around 1.5 million ha of state forestland. In few Van Panchayat villages in Nainital district of Uttar Pradesh, the grass yield doubled after a year of protection, and thinning the dense shrub provided firewood (Mansingh, 1991). Similarly, in Gamtalao Khurd village of East Surat district, Gujarat, twelve tons of firewood and fifty tons of fodder was harvested from cleaning operations after nearly a year of protection (Arul and Poffenberger, 1990). Similar benefits from PFM are documented from Orissa, West Bengal and Haryana[9].

However, it is often argued that since PFM is still in its initial stage, no conclusions about it as a means of achieving national or global objectives can be drawn. In formulating participatory forest management programmes as well as in their actual implementation, the ground realities often come in conflict with the stated objectives leading to the interplay of externalities. The externality has been defined as follows in this paper.

The economic theory, among various other things, aims at optimal and rational allocation and utilization of resources. Against it, if something wrong happens, it results in an externality. To illustrate, in theory, price determines the demand for and supply of a good. If there is any divergence in the price of that good, it leads to externality. Consider a forest management situation. It can be maintained with best silvicultural practices or with involvement of people, as in the case of PFM. In any situation while implementing forest management programmes, a number of factors/ issues may have to be faced which are not internalized because of which the stated objectives, goals and directions are not realized. This also lead to conflicts, misallocation of resources and unsustainability etc. All these divergences from the mainstream of decision making process under PFM or otherwise will be called externalities. The externalities may be positive or negative. For example, in PFM a

[7] The salient features of JFM resolution is given in Appendix 1.

[8] See among others Kant et. al. (1991), Viegas and Menon (1991), Chopra, Kadekodi and Murty (1990).

[9] It has also been observed that women, due to socio-cultural conditionings, also face greater problems than men as far as the privacy for defecation is concerned. Such problems can be resolved through regeneration of bushes (see Saxena, 1996 and Sarin, 1996).

positive externality is expected, if developmental programmes like income generating activities are also pursued. A negative externality may occur, if people, the direct beneficiaries of programme are not involved in the planning and decision making process under PFM. The externalities may affect the successful implementation of PFM directly or indirectly. Some of the significant externalities include socio-cultural, economic, political, natural and technical. It may be asserted that if adequate attention is not paid to these externalities, they may hinder the progress of PFM. We will look into some of the externalities in the following section.

III Externalities identified in PFM

The externalities which can hinder the implementation of PFM negatively or positively can broadly be classified into five categories viz. (1) social and cultural (2) economic (3) political (4) natural and man made and, (5) technical. These are further divided into subcategories as discussed below. Fig. 1-5 show diagrammatic representation of each category of externality, its subcategories and the likely effects.

III.1 Social and Cultural Externalities

The social and cultural externalities can broadly be grouped as (1) inequity, (2) caste conflicts, and (3) gender bias. Each of these is reviewed with some cases to illustrate.

III.1.1 Inequity: Inter/Intra Village and PFM

It is well known that the villagers staying in the vicinity of forest blocks and actively participating in forest management gain from the programme by way of usufruct rights granted under PFM. However, the villagers who stay far away from the forest area are deprived of fuelwood and fodder on which their livelihood depends though they also ought to have traditional right to enter the forest. If the rights of people/communities are not clearly defined, it may lead to serious conflicts and rivalries thus constraining the activities of PFM. In Orissa, inter-village rivalry and clashes arose when neighboring villagers demanded a share in the usufructs (Mohan, 1996-97). The nomads, a tribal group that has a stake on forests, visit PFM areas in Jammu and Rajasthan. But, their involvement in the decision making process is nil. Also, immigrants in a village having no traditional rights in forests are often deprived of benefits thereby compelling them to resort to illegal extraction of forest resources.

III.1.2 Caste Conflicts and PFM

In the Yamunanagar district of Haryana and parts of West Bengal, the villagers complain that the benefits under PFM programme are tilted towards upper caste and the better off families in the forest protection committees (FPC) because they are large in number and hence influence the decisions in their favour. The perceptions and concerns of poor and the weaker section of people are ignored.

These inter and intra village conflicts and caste differences may obstruct the wholehearted participation of all communities in forest management activities and lead to destruction of protected areas in PFM programme, aggravate migration and deepen poverty. There is therefore an urgent need on the part of PFM to look into the inequity aspects, as they form some of the basic externalities.

III.1.3 Gender Bias and PFM

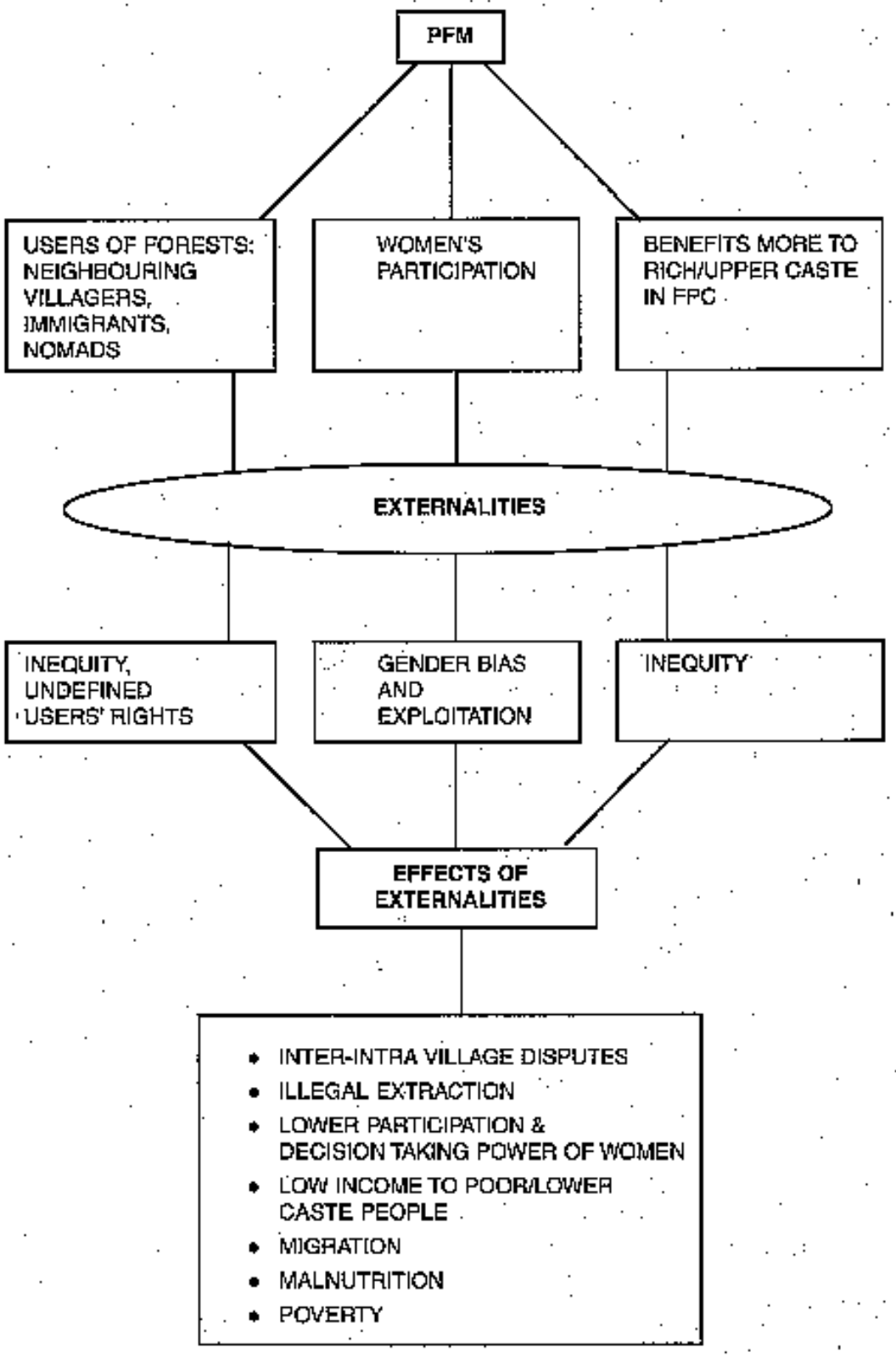
Rural women in India exhibit a close affinity with forests. Within the gendered division of labour, women hold the responsibility of collecting fuelwood and fodder from forests. Since women are the primary users of forest products, it is not difficult to discern that their contribution in terms of defining their needs and their role in forest management leading to long term sustainability assumes great significance. Yet, PFM has by and large overlooked gender perspective, both conceptually and operationally. It has been observed that most forest protection groups, traditionally and institutionally, are masculinist in nature with male heads leading the community participation activities and decision-making processes (Sarin, 1996), thereby, resulting in women's physical and ideological absence[10] (see Appendix 1 for membership conditions under JFM).

Another major lacuna in PFM is the absence of gender perspective in forest legislation and policy statements. In other words, the conceptual or operational basis for gender planning is virtually missing within the planning process, both at the national and state levels. Specific roles for women in PFM have not been thought about carefully. People's participation has largely meant men's participation. Not that policy statements will automatically translate into reality, recognition on the paper is a first step in this direction. Apart from this, the relationship between gender and PFM needs to be analyzed within the broader socio-cultural perspective, which renders women's perspectives and participation totally insignificant.

The social and cultural externalities discussed above, point out an inequitable access to forest under PFM by nearby villagers, immigrants and nomads who have traditional rights on forests. The rights of the users are not clearly defined. Further, the benefits under PFM are tilted more towards the upper caste in the forest protection committees and gender equity is also not addressed in the programme. All such aberrations are basic PFM externalities, which can result in inter-intra village conflicts, poverty, migration, low income to lower caste/ poor people, malnutrition and lesser participation and decision taking power of women.

[10] Agarwal (1997) has forwarded reasons for the lesser participation of women in PFM. At the macro level, as pointed out by Sarin (1996), women from least powerful classes remain the major losers although this category of women are most dependent upon the forests for their needs. Thus the caste/class conflicts among women themselves need to be analysed and understood separately. Further, it has also been observed that women, due to socio-cultural conditionings, also face greater problems than men as far as the privacy for defecation is concerned. Restricted efforts towards regeneration of bushes can add to their difficulties (see Saxena, 1996 and Sarin, 1996).

Fig. 1
SOCIAL-CULTURAL EXTERNALITIES



III. 2 Economic Externalities

The literature on PFM has largely focused on the social, political and institutional aspects of the programme. Even within the economic aspects, attention has been paid only to exploitation of tribals by middlemen in the sale of NTFPs. In other words, the focus has largely been on the market-related externalities. A number of other economic issues that may result in conflict/improvement in PFM programme like economic valuation of forests, sustainable use of resources, development vs. preservation, low economic value of NTFPs, priorities to subsistence needs, poverty and unemployment etc. have remained unaddressed. We will be looking into some of these issues below and the externalities associated with each of them.

III.2.1 Price/Value Externality: No Economic Valuation of Forests and PFM

The value of forests based on a decision process on forestry can be different from what people are willing to pay for it. This divergence lead to an externality, to be termed as value or price externality. The gross value addition in forestry and logging in India accounts for only 1.09 percent of the gross domestic product at current prices in 1995-96. The value of forest output at current prices in 1995-96 was RS. 10704 crore and at constant prices RS. 2849 crores, respectively. The forestry and logging activity that enters into the National Accounts Statistics (NAS) captures only those goods which are tangible, marketable, documented and whose price already exist in the market. However, the prices of such products, mainly timber and non-timber forest products are not indicative of current and future scarcities as well as sustainable harvest (Poffenberger and McGean, 1996).

NAS are indicators of economic performance, trends in economic growth and some measures of social welfare. But the treatment of 'forest resources' - their total value, cost of protection/rate of depletion, specification of inter-sectoral linkages etc., are beyond the purview of policy makers. Because of these, the forest resources are under valued. Besides providing timber and non-timber products, forests perform various ecological functions and services such as ecological balance, soil conservation, nutrient recycling through litter-fall, maintenance of hydrological cycle and preservation of biodiversity which elude market valuation. All these services are not accounted for in the NAS. In addition, unrecorded output[11], illegal extraction, losses due to fire, impact of production activities on forest like pollution have not been included. Implicit is the presumption that natural resources are unlimited in quantity or have zero marginal value which in fact is not true.

To capture the real value of forests, it is therefore, necessary to do environmental/natural resource accounting i.e. valuing the natural goods and services in physical terms (flow and stock) and in economic terms (monetary). The environmental resource accounting and its integration with NAS can be useful in designing sustainable development of forest resources as well as in planning a stream of economic benefits. Other important benefits of resource accounting are

[11] In case of roundwood and timber, the unrecorded production is estimated to be 10 times the recorded production (CSO, 1989).

that it helps in determining appropriate forest management policy, in bringing environmental considerations into decision making process and in deciding proper utilization and allocation of resources (See Parikh et.al. 1992).

The environmental resource accounting, if followed, requires identification of kinds of values accruing and appropriate valuation methodologies. Lately, recognizing the importance of forests in providing ecological security, scholars have put different values to the forest resources and services, in particular. Use and exchange value of forest fall under direct value. Existence value, instrumental value and option value of forests are included in the indirect value[12]. The economic and ecological values derived from forests are determined in monetary terms for the present as well as future use. Using various market approaches e.g., revealed preference and non-market approaches like contingent valuation method, the monetary value of flow of goods and services from forests can be estimated[13] (illustrated in the box).

Economic Value of NTFPs

As per Chopra's (1994) estimates, the total present value of non-timber goods and services from a tropical deciduous forest in India based on use, option and existence values, varies from a minimum of Rs 1,21,059 per hectare to RS. 1,99,870 per hectare. Of this, the use value of non-timber products is about 45 percent. Using opportunity cost of labour time in collection of fuelwood, Sharma and Bhatia (1986) have valued the annual flow of fuelwood from tropical deciduous forest in the range of RS. 536 to RS. 725 per hectare. For the same forests, the use value of soil conservation is estimated to be minimum RS. 2379 per hectare and maximum RS. 5652 per hectare. The method of approximation followed is the value of nutrients to restore on site productivity and dredging of downstream silt for off site costs (See Chopra et.al. 1993). Similarly, for Kadavakurichi reserve forest of Tamil Nadu, Appasamy (1993) has valued the fuelwood, fodder and honey to be RS. 2090 per hectare per year.

It may be asserted that so far, little research has been carried out in India to analyze the economic value of forests as well as their value in protecting lives of people who are dependent on them for medicine and livelihood. There is no monitoring of sale of forest goods. The existing literature has also ignored the value of animals and wildlife. Needless to say that these issues are not invoked in the forest policy of 1988 and the consequent resolution on JFM. The data base on the stock and flow of resources to arrive at depletion/improvement of forest is quite week. There exist no adequate valuation methodologies to do economic

[12] See among others Pearce and Turner (1989), Bateman and Turner (1993)

[13] See various studies in Economic Botany issue of 1993.

assessment of forests as supplier of resources. It is, therefore, difficult to assess the costs and benefits from different forest management schemes so as to plan our developmental needs vis-a-vis preservation needs. It is, however, felt that if research and policy planning on these issues are promoted, the price/value externalities can be tackled.

III.2.2 Unsustainability of Forests and PFM

Often, any divergence between sustainable forest use and actual use is termed as an externality. Part of this externality is due to economic factors. For instance, with increase in urbanization, industrialization and promotion of development projects like river valley, there is an accelerated conversion of forestland to other uses. As a result, increased encroachment of forest land, over extraction of timber and rapid loss of forest cover have affected the flow of goods and services besides the environmental functions which the forests perform. There exists evidence of considerable loss of biodiversity vis-a-vis species, loss of nutrients and soil structure characteristics.

Unsustainable Forest Management

In case of NTFP's in Madhya Pradesh, Chironji fruit is often harvested prematurely which affects their natural regeneration. In Central India, undergrowth in mahua forests is burnt repeatedly to simplify collection of the yellow mahua flowers from the forest floor and hence hampering regeneration. In one of the estimates by Lal (1992), the estimated sustainable yield of 40, 434 and 52 million cubic meter for fuel, fodder and timber is unable to meet the estimated requirement of 236, 882, and 264 million cubic meter for these goods, respectively.

The practice of unsustainable extraction of forest goods and consequent degradation as well as multiple uses of forests has raised the issue of sustainable harvest of forest resources and their present and future economic value. As far as sustainability is concerned, in a crude way, it can be determined by measuring the rate of extraction of forests and comparing it to the rate of natural replacement. A sustainable level in a stationary state is achieved when extraction is equal to yield. Knowing that the communities dependent on the forests for their livelihood are aware of the need for sustainable extraction, PFM can be designed as a way of achieving such sustainable condition.

In order to determine the sustainable use of forests, economic models can be employed to find required policies for forest management, current and potential levels of extraction to be followed and regeneration rates needed for tree species in each area. Prior to this, it is essential to have physical data on the stock and flow of resources in the forest ecosystem over time, their rate of depletion, information on growth, increment, yield and productivity. Lack of knowledge in this sphere may impinge on the working of PFM programme negatively. PFM aims at sharing of

benefits among the FPC and the tribals. In doing so, the liabilities in terms of extinction of species, natural losses and man-made losses due to improper management, value of forest depletion etc., can not be overlooked. The fulfillment of the objective of participation is possible only if the benefits as well as the losses are equally shared between the FD and the forest communities. Under PFM, micro plans are made to assess total biomass produced in the forest and the quantity needed to match the requirements of the masses. It may be argued that if physical accounting of forests is also done under micro plans, the role of PFM will become all the more complete and useful in providing data base as well as in simplifying the task of forest accounting for policy decisions.

III.2.3 Market Related Externalities: Low Economic Value of NTFPs from Collector's Perspective and PFM

Going back to the question of valuation and leaving aside the indirect use values and the option value of NTFPs, we limit our discussion to the direct economic value of NTFPs to the actual collectors/producers and various other intermediaries like private trader, contractors and government agencies. The divergence in the value added at different stages of NTFPs is important to look at because it is a type of externality in which the local income is diverted to the urban middlemen.

Broadly, NTFPs (also called non-wood forest products — NWFP or minor forest products — MFP) cover products other than timber like fuel and fodder, bamboo, fibre, oils, gums, resins etc. They hold priority on the PFM resolution providing usufructuary benefits. As pointed by Hall and Bawa (1993), this may be due to the fact that,

(*i*) continuing deforestation threatens to eliminate hundreds of species during the next few decades

(*ii*) effective conservation and management of NTFPs is viewed as a means of improving the rural economy and the well being of indigenous societies that rely on NTFP for subsistence and cash income,

(*iii*) there is growing recognition that rural communities, which rely on a variety of plant and animal species should participate in conservation of forests,

(*iv*) many species that yields NTFP are sources of valuable germ plasms which if tapped could yield new products particularly food and drugs and thus are important to the food security and pharmaceutical industries, and

(*v*) NTFPs compared to logs are considered as contributors to the preservation of biodiversity.

Besides, NTFPs hold an economic value. The estimates reveal that 40 percent of the total forest revenue is obtained from NTFPs. Their share in total exports in 1990-91 is recorded as 13 % of the total foreign exchange earned and 70 % of total forest products exported.

Despite the fact that NTFPs are a source of revenue as well as employment to the tribals on a large scale (see box), sufficient income can not be generated through their sale. The low income of NTFPs to the collectors/producers is often attributed to various market imperfections, lack of knowledge and non-accessibility to the market, all termed as market related externalities.

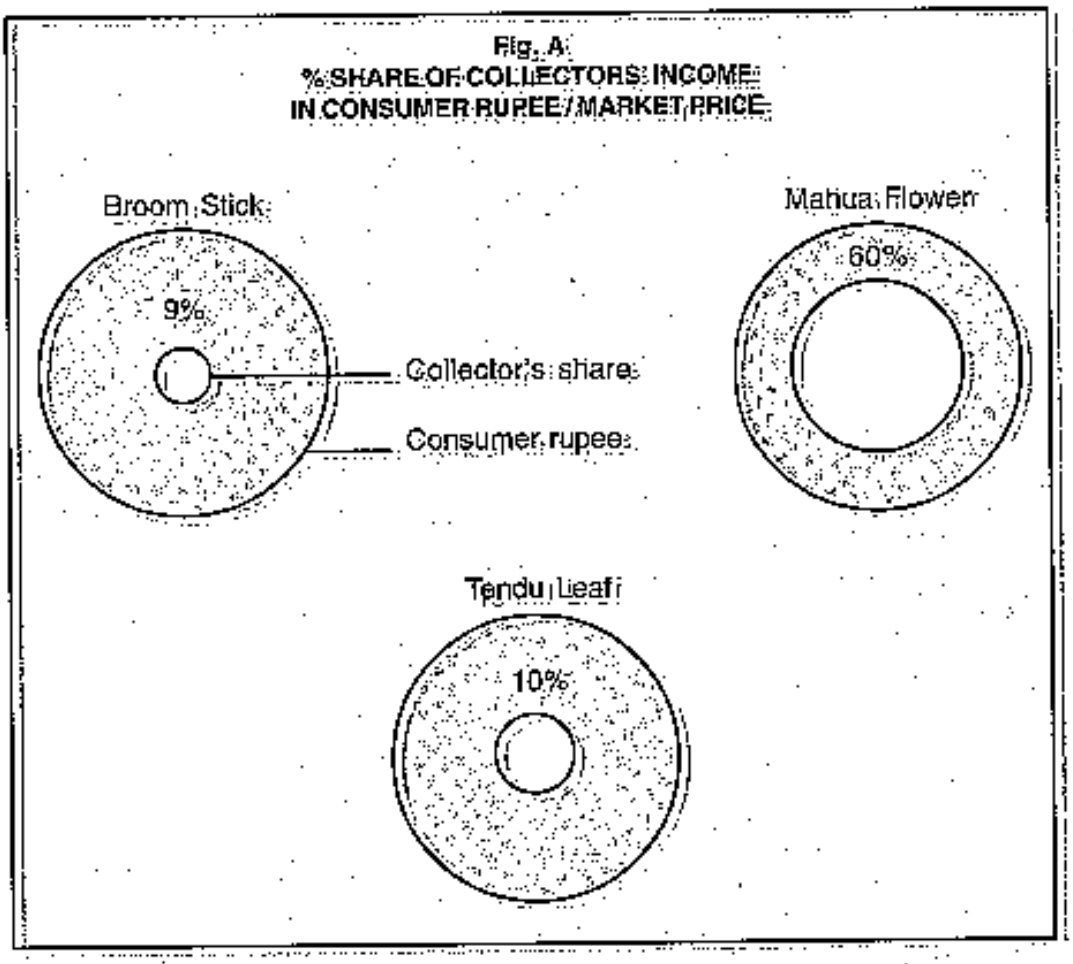
Income and Employment from NTFPs

The World Resource Institute (1990) estimated that really 500 million people living in and around forests in India depend on NTFPs for their livelihood. As per Khare's (1989-90) estimates, the collection and gathering of fuelwood and processing of NTFPs provide 1062.7 million man-days of employment in the country. At a national level, 50 percent of income to 20-30 percent of rural people is attributed to NTFPs. However the picture at a meso level is not encouraging. In one of the estimates, income from timber harvest in West Bengal is found to be Rs. 1.4 per hectare per day. In Pukuria village in Bankura district of West Bengal, village women can earn RS. 7 to 10 from each hectare of regenerating sal forest by utilizing NTFPs, after 5 to 6 years of protection (Poffenberger and McGean, 1996). Further in, Raipur district of Madhya Pradesh, nearly 72 percent of the collected produce is marketed and rest is used for self-consumption. The household income from collection of NTFPs (excluding tendu collection) varies between 11 to 53 percent of their total earnings. On an average, the household income from NTFPs (listed in Table 3) stands at Rs. 4991.14 per year with inclusion of tendu leaf and Rs. 1989.84 per annum after excluding tendu leaf (Chopra, 1994). On the basis of a study of ten FPC under PFM in Jamboni range and Midnapur district of West Bengal, Malhotra et al (1991) estimated income from NTFP regenerating sal forest to be in the range of Rs. 234 to Rs. 5569 per hectare. On an average, each FPC derives Rs. 2299 per ha of income.

3.a Inadequate market Linkages/ High marketing Margins in NTFPs and PFM

We now consider the inappropriate marketing structure of de-nationalized, nationalized and intermediate NTFPs and the consequent low economic value of some of the NTFPs to the producers and the role of PFM.

Within the country, trading in de-nationalized NTFPs in the tribal economy is done through a chain of middle men starting from the households who collect them, tribal agents, primary wholesalers and then the final consumers. In some states like Tamil Nadu, cooperative societies for instance Sathyamangalam Hill Tribes Lamp Co-operative Society acts as a wholesaler as well as retailer. In cases where NTFPs are being exported, the product reaches agents in major trading centres through contractors and then finally reaches the exporters. These middlemen corner major share of the NTFPs traded. The collectors of NTFPs in turn receive uneconomic prices which has no relation to the price at the terminal market. Also, the price, which they receive, does not reflect the value of their time in collection



of product, cost of labour input and transportation. Details of collector's share as percentage of market price for various NTFPs in Sathamangalam range of western Tamil Nadu and Raipur district of Madhya Pradesh is given in the box as well as in Table 2. The diagrammatic representation for broom stick, mahua and tendu leaf is shown in Fig. A.

Even for nationalized NTFPs like tendu leaves, sal seeds, gum, harra, mahua and some oil seeds, the middlemen as agents of government bodies exploit the tribals by giving them a low share. For instance, in case of tendu leaf, the collectors in Raipur get 10 percent of the price at which it is sold to factories for making 'bidi' (refer to Table 2 and Fig A). The government agencies also delay payments to the gatherers which forces them to sell the produce at lesser price than the government fixed price to the traders. Ironically, the collectors as well as FPC in Madhya Pradesh have no share in the revenue obtained from sale of these products even though they contribute to the increased production.

Similarly, sale proceeds from intermediate goods like bamboo, honey, grass etc. are not shared in many states because the government earns higher income from their disposal. These intermediate goods are purchased as raw material by the forest based cottage industries (FBCI). The FBCI, in turn, sells the goods mainly through contractor or at the weekly bazaar in the local village. On an average, the

Table 2
MARKETING CHANNELS AND SHARE OF COLLECTOR'S INCOME IN NTFPs

Villages in Tamil Nadu

NTFP	*Channels*	*Collector's Income*	
		Price Rs/kg	*as %age to consumer/ market price*
Broom stick	Society/Retailer	0.36/No.	9.00
Stone & Treemoss		1.50	24.44
Amla(dried)		1.50	15.00
Kadukai		2.00	25.00
Pungam kernels		2.00	28.57
Wood-apple (dried)		4.00	26.67
Poochakai		3.60	27.69
Chikakai		6.00	21.43
Neem seeds		2.00	50.00

Raipur district

NTFP	*Channels*	*Collector's Income*	
		Price Rs/qtl	*as %age to consumer/ market price*
Aonla	I	185.71	46.43
	II	185.71	47.62
	III	260.0	65.82
	IV	213.61	56.96
	V	257.6	67.79
Chironji	V	6000	60.0
Mahua Flower	III	300	60.0
Lac	II	5800	58.0
	IV	6000	60.0
	V	6200	62.0
Tamarind	I	600	60.0
	III	700	63.64
	IV	600	53.34
Tendu Leaf (Standerd bag)	VI	250	10.0 (only labour income)

Market Channels :

I Collector - Tribal Agent - Primary Wholesaler cum Retailer - Consumer
II Collector - Tribal Agent - Secondary Wholesaler cum Commission Agent - Consumer
III Collector - Primary Wholesaler cum Retailer - Consumer
IV Collector - Primary Wholesaler cum Retailer - Secondary Wholesaler cum Commission Agent - Consumer
V Collector - Secondary Wholesaler cum Commission Agent - Consumer
VI Nationalized.

Source: Shiva and Mathur (1993), Marothia and Gauraha (1992) and Chopra (1994)

percentage income of the households contributed by FBCI industries (bamboo products, honey, rope and grass based products) in Raipur is estimated to be 54, 3, 6 and 29 percent, respectively (ORG 1993).

It is clear that collection of NTFPs for market and for FBCIs provides income

Middlemen Gain from NTFPs

A study based on two villages viz. Areyapalayam and Devanatham of Tamil Nadu, shows that out of a sample of 40 households, around 78 percent are engaged in NTFPs collection. On an average, 3 persons out of 5 in a family are involved in this business. The average income of a person per year from collection is Rs. 2800. The tribals who are members of cooperative society give the collected produce to the society. The society has fixed price for each and every produce. The collectors get a very little amount for different products ranging from 9 to 15 percent of the market price. For example, society pays 0.36 paisa per unit for broom grasses to the collector whereas it is selling the same as retailer for Rs. 1.20 per unit with a profit margin of 0.84 paisa to meet the various expenses involved in processing and sale of NTFPs. But when it passes through the retailer, then the retail price is Rs. 4 per unit with a profit margin of Rs. 3.64. The collector in this situation is again getting 0.36 paisa only. The society and the retailer share the remaining amount.

In Raipur, the share of collector in consumer price for high valued NTFPs like mahua, cherongi, aonla etc. in Raipur ranges between 46.43 to 67.79 percent under different marketing channels. Six channels can be identified through which the produce passes and reaches the ultimate consumer. They are (i) collector - tribal agent - primary wholesaler cum retailer, (ii) collector - tribal agent - secondary wholesaler cum commission agent (iii) collector - primary wholesaler cum retailer (iv) collector - primary wholesaler cum retailer - secondary wholesaler cum commission agent (v) collector - secondary wholesaler cum commission agent, and (vi) nationalized channel.

The retailer's margin as a percentage of the sale price for these goods varies from about 8 to 25 percent. In case of high valued products like lac and cherongi, the chain of intermediaries is less for instance, under the fifth channel. That is why, the collector is able to fetch higher price (60 and 62 % of market price) for lac and chirongi. This also indicates that when the collectors are aware of high value of their products, they put efforts to get best price for them.

Situation is the same for medicinal plants being sold through contractors to government ayurvedic pharmacies, colleges and pharmaceutical industries. Despite the existence of large market for them at both national and international level, the producers in Madhya Pradesh get only one percent of the total profit of the produce. Whereas, contractors pocket 10-25 percent and the remaining 75 to 90 percent of profit is equally shared between traders and the exporters (GOMP, 1993).

and employment to the tribals but they lack access to vast market existing for NTFPs and other facilities like storage, processing and packaging technologies which provide value added benefits. Over and above, the unorganized marketing structure involving a long chain of intermediaries exploits them as well as the final consumers. The former gets lower share while the latter has to pay more. Now, an important query in this regard is how far has PFM been successful in getting fair price to the collectors and FBCIs by overcoming market imperfections as well in maintaining a sustainable amount of NTFPs collection. With increased privatization and monetisation, the market economy will become important and it is possible that in the short run, with an increased demand of NTFPs against a low supply, the per unit return from NTFPs get increased. Assuming an ideal condition of perfect market and greater chances of getting adequate harvest of NTFPs, can PFM vis-à-vis FD help in getting higher returns to collectors in the national and international markets for their produce ? It has also been realized that NTFPs can not be promoted on a sustainable basis, if they are left to market forces only or are regulated strictly by the state. Is it possible for the FD (Government) to monitor the trade in the open market rather than being the market itself ? Further, can it help in capturing value-added benefits by providing quality goods, storage, and processing and transportation facilities ?

The other important query is whether PFM has been able to value the labour time spent in collection of NTFPs ? It may be asserted that with integration of market economy with the villages, the opportunity cost of labour is expected to rise. While determining the share of produce with the communities, the PFM guidelines have not taken into consideration the alternative employment opportunities that may be available to the tribals.

It may be asserted that no in-depth research has been carried out on the economics of non-timber forest products, quantity traded, price information and variation. The economic principle of demand-supply and its relation with prices have not been invoked in the PFM resolution. For instance, in the recent past, an excess supply of eucalyptus in Haryana and Punjab has resulted in a glut and hence lowered prices. Similar is the case of sal timber from protected areas of West Bengal. PFM has not been able to check the effect of increased production of forest produce on prices. The instability of prices among various other factors and issues, specified above, affect the PFM programme negatively.

III.2.4 Promotion of Private Forest Based Industrial Units and PFM

Lately, a proposal of Madhya Pradesh Government to convert state forest lands in Madhya Pradesh into captive plantations by the private sector has been assailed by environmentalists on the grounds that it will adversely affect communities' rights over the forest (See Akerkar, 1997). Here is an externality due to legal violation of property rights and interference in the livelihood of tribal people. Nothing can be said about the proposal right now in regard to its employment generation potential for tribals. But, an important issue is - besides impinging on community rights, how will this proposal, if implemented, affect PFM ? The government policies are

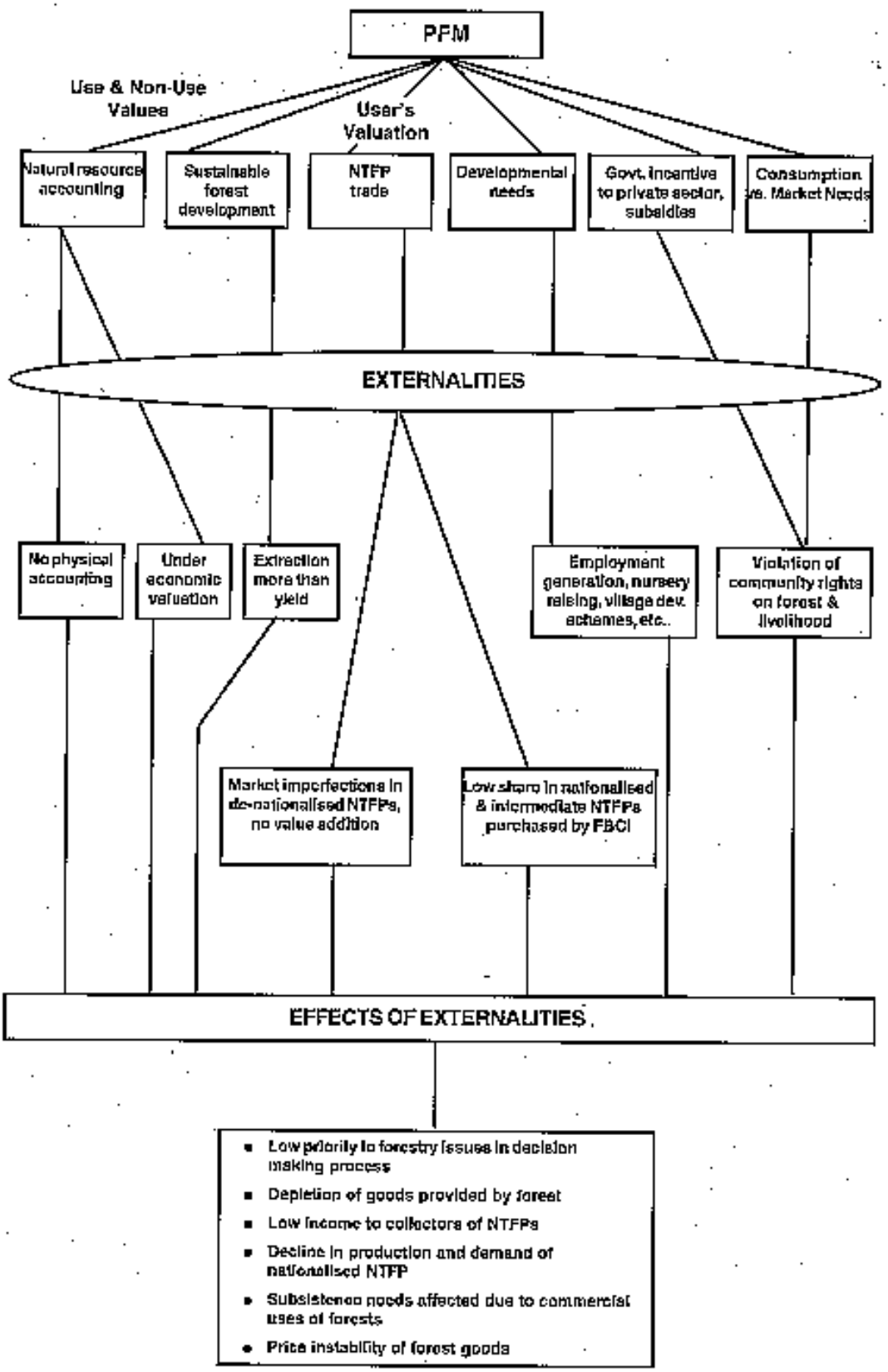
usually tilted towards the promotion of developmental needs through setting up of forest based industries or by providing incentives to them through subsidized raw material. The policies ignore the imbalance created in the nature through over exploitation of natural resource base over time, affecting income and employment of tribal people. In such situations, people participating in the forest protection programme may not feel secured, motivated and enthusiastic enough to pursue it vigorously.

III.2.5 Consumption vs. Market Needs and PFM

Quite often the plight of weaker sections is ignored by the FPC, which raises the issue of property rights on the forest resources. A good example is, giving greater importance to commercial uses and ignoring the basic needs of poor people on which their livelihood depends. In South Rajasthan for instance, one FPC obtained good yield of fodder grass and allowed to sell it to outside villages. Some people, especially women protested against it because they wanted grass for their own consumption (Sewa Mandir, 1994). At times people use grass for making ropes to earn extra income. In another instance, forest department in Haryana gives lease of bhabbar grassland to Hill Resource Management Society (HRMS) who in turn sells produce to contractors at a higher rate. The main objective is to increase the production of bhabbar grass for earning revenue as well as using it as fodder grass within the village at a cheaper rate. The whole process has undergone a change

The major economic externalities discussed are the price and market related externalities. Since the real value of forest resources and services have not been estimated, recognition has never been paid to forestry issues and forest management in the decision making process. In the absence of knowledge and research on valuation and database on stock and flow of resources, management programmes carried out may not work effectively. This may be one of the reasons for continuous divergence between sustainable forest use and actual use. A natural resource accounting and its integration with National Accounts Statistics need to be followed to realize the economic benefits as well as sustainable development of forests. The market related externality focuses on the economic value of NTFPs to the producers in the consumer rupee. Irrespective of labour time spent in collection of NTFPs, the collectors receive uneconomic prices in the market. This is due to involvement of a long chain of intermediaries in the business and high marketing margins. Lack of value added benefits, nationalization and price instability also adds to their misery. Further, an increase in commercial use of forests by the government or FPC is a direct interference in traditional rights and livelihood of people living near the forests. This may lower their spirit to participate in the PFM. If welfare of people is to be aimed at, a positive externality can be achieved through promotion of various developmental needs like health and employment programmes.

Fig. 2
ECONOMIC EXTERNALITIES



now because the HRMS subcontracts the area to the village and one or a group of members who buy the lease and pay money to HRMS. After the harvest, these people earn high profits by selling the produce outside (Mukerji, 1996). It is beyond doubt that such practices affect the subsistence needs of the people.

III.2.6 Developmental Needs and PFM

Having discussed the negative economic externalities in PFM, an example of successful working of PFM in the Harda Forest Division can be highlighted here to indicate the positive externalities that ought to be aimed at. Besides regenerating forests through control of illicit removals and caring for the rights of communities over forest resources in the region, the village protection committees under PFM have looked after the welfare needs of the people. Through generation of common funds, village development schemes like irrigation and drinking water supply, alternative land use programmes, promoting alternative energy sources, primary health, adult education and so on have been promoted. An Eco-development center has also been opened at Rahatgaon for developing skills for employment generation and training center for learning bee keeping, handlooms, decentralized nursery, local medicine collection, biogas and so on (Bahuguna, 1992).

III.3 Political Externalities

The political externalities, discussed below mainly focus on the (1) legal and institutional issues (2) conflict with the on-going government programmes (3) required additions in the micro-plans (4) non-integration of village panchayats with PFM and, (5) asymmetry of relationship between agencies involved in PFM.

III.3.1 Legal and Institutional Issues and PFM

Within the legal and institutional issues, one may point out that various institutional requisites, which are viable for communal management of forests, are missing under PFM, which can lead to conflicts. PFM has not been introduced uniformly in all the states by the respective state governments. The programme has started without formulating any institutional backup.

1.a Policies of Forest Department and PFM

Though PFM is a people's programme, the communities are not involved in the designing, planning and mapping of the programme. The decision regarding distribution of gains is also decided by the FD. In this situation, people are doubtful about the success of the programme and are also not motivated to participate in it. The distributional rules are not defined properly. The beneficiaries under the programme are supposed to get a low (25 %) share from the net sale price of trees (timber harvest) after maturity. For example, in Sukhomajri village in Haryana, the villagers have not yet received their share from the trees, which they had planted. Among other factors, lack of communication between FD and communities and direct people's participation are the important barriers (See Lise, 1997).

Today in India, a variety of institutional groups (village protection committees) have been protecting forest without having any legal or statutory basis. In such situation, they are not in a position to take action against the offenders or defaulters in the PFM. It may also be pointed out that a number of self initiated groups working towards same goals as PFM come in direct conflict with PFM. Since they work independently and not in conformity with the PFM programme, it may affect the participatory goals of programme in the long run.

The success of PFM depends on the cordial relation between the FD and the local communities and also within the community. At times, village politics, group rivalries and clash of interest also lead to destruction of forest patch allotted to communities. For instance, in Haryana some groups want to use bhabbar as fodder and others want to sell it when it matures as a fibre crop and fetch high returns. Similarly, in Orissa the restriction on harvesting of young bamboo by the department has affected the interests of artisans who used young green bamboo as raw material (see Mohan, 1996-97 and Mukerji, 1996). Lack of organizational ability and ecological monitoring on the part of FD can act as a barrier. Further, once the field staff and officers are able to establish rapport with the community, their frequent transfers become a constrain. At times, extraction of forest under political compulsions also affects the sustainable use of resource[14].

The PFM resolution is largely confined to the protection of degraded areas alone, leaving good forest as well as parks and sanctuaries under the preview of FD. Only exceptions are West Bengal and Madhya Pradesh where community is involved in the protection of good forest also. There may be biotic interference and degradation in the good forest area including parks and sanctuaries. Since village communities collect resources from these areas and are an integral part of the area in terms of their employment as guides or rickshaw pullers, they should not be restricted from entering into the preview of PFM.

III.3.2 Conflict with Ongoing Government Programmes and PFM

The government has also initiated various programmes like Integrated Rural Development Programme, Soil Conservation Programme, Jawahar Rojgar Yojna etc. for the upliftment and welfare of masses in all the villages. Here is an externality: people get influenced by such programmes/policies because they make direct payments and there is a natural tendency on the part of people to prefer short term gains over long term gains. In Kutch (Gujarat), people are attracted towards the relief money paid to them after the droughts and famine because they get cash money and other benefits under these programmes. PFM, in such situations as well as otherwise holds a back seat. Also, multiplicity of different agencies working in these areas, for the ongoing government initiated programmes come into direct conflict with the village protection committees.

[14] The politicians in Orissa often favour the village communities by providing 1-2 cartload of firewood free of cost.

III.3.3 Integration of Micro Plans with Working Plans and PFM

The micro plans have been planned on the basis of participatory exercise. The micro plans developed for a forest patch under the village plan are not integrated with the working plans (government initiated) made for forest block, range and division. In the former, emphasis is more on the biomass suitable for local communities while the latter focuses on maximization of timber production (Saxena and Gulati, 1993). Because of conflicting needs/priorities of the state and the community, a proper integration of both the documents is necessary to have a positive impact on PFM. So far, only Madhya Pradesh forest department has integrated both the documents by suspending the working plan prescription in areas where FPC begins to protect a forest patch to be included in micro plan.

III.3.4 Village Panchayats and PFM

The PFM, as compared to self-governing village panchayat institutions being recognized as a third tier of the government, has not received political recognition and therefore it holds an insignificant status on the national agenda. This also means that PFM does not have adequate funds to achieve its objectives. They are inevitably at the mercy of FD for funds as well as supply of seedlings. On the other hand, panchayat institutions, considered as developmental and political institutions, deal with various issues at grass roots level including social and farm forestry, minor forest products, fuel and fodder and maintenance of community assets as per the 73rd and 74th Constitutional Amendment Act passed in 1992. It can be proposed that a positive externality is possible if the funds available under the panchayat are also used for PFM activities. However, in doing so, a conflict between PFM and panchayat bodies may also be anticipated at the functional level.

III.3.5 Asymmetry of Relationship between Agencies in PFM

The forest officials involved under the programme receive salaries from the State Government. On the other hand, people involved in PFM hardly receive any direct monetary gains. Rather they are expected to contribute their labour time as well as

The political externalities indicate divergences in the planning and actual implementation of the PFM. Various legal and institutional issues like, undefined status of institutional groups working in forest management, non-involvement of communities at all stages of programme, low decision taking power of people in FPC, limited demarcation of boundaries under PFM, delayed monetary gains to tribals, non-integration of micro plans with working plans and frequent transfers of officers involved in PFM, may affect the programme negatively. Further, lack of adequate funds and no political recognition to PFM as compared to village panchayats and conflict with other ongoing government programmes may act as hindrances in achieving the desired goals under PFM.

indigenous knowledge for protection of forests. It may be pointed out here that people who are the direct beneficiaries have fundamental right over the resources. Even if the programme is based on perfect relationship of providing basic needs in terms of collection of fuelwood etc. by the FD to the people, the latter should be compensated extra for their overall contribution. The case can be justified. As a result of the programme, there is reduction in the forest staff and hence decline in policing cost of the government. It may be proposed that the funds that are saved due to reduction in the staff can be utilized to provide wages to villagers participating in the programme.

III. 4 Natural and Man-made Externalities

The natural and man made externalities cover (1) incidences of fire and grazing incidences and flood (2) Eco-development programmes.

III.4.1 Fire, Grazing Incidence, Floods and PFM

Among many factors resulting in decreased stock of forest, fires, floods and landslides constitute the most significant ones having impact on the character and composition of forest vegetation. At all India level, nearly 35 million ha of forest area is said to be adversely affected by repeated fires from time to time. Fire makes soil compact, infertile and impervious due to destruction of organic matter. Also, seeds of many species stop germinating. Besides, biodiversity gets affected leading to the growth of scrub type of vegetation[15]. At times, fire is caused by villagers for getting new flush of grass for better grazing as well as to facilitate flower collection under Mahua trees.

Similarly, natural regeneration is either absent or inadequate in nearly 53 percent of forests where grazing pressure is excessive (Mukerji, 1994). Repeated grazing by animals (cattle) beyond the carrying capacity of the forest area destroys vegetation which results in soil erosion, land slides in hilly areas and recurrent floods in the plain areas. Since cattle are also selective in grazing, it adversely affects the species composition and the forests degrade slowly from dense to open to scrub. The compactness of soil resulting from continuos grazing affects infiltration rate and moisture availability and consequently regeneration is inhibited. Poor regeneration disrupts normal growth of forest, annual increment and finally the productivity gets affected adversely.

Though the programme has promoted fire control system and stall feeding of cattle to reduce grazing pressure, the progress in this regard is not as much desired. Since villagers are responsible for protecting forests, there are no inbuilt cushions and money to manage these natural factors and the problems arising out of these under the PFM programme. As a result, van panchayats are breaking down in some places. The only exception is the Harda forest Division in Madhya Pradesh. The fire management programme here since 1990-91 has internalized this natural externality by ensuring significant recovery of bamboo (Bahuguna, 1992). Reliable data on forest fire and grazing if complied, can be an added advantage for the programme's success.

Fig. 3
POLITICAL EXTERNALITIES

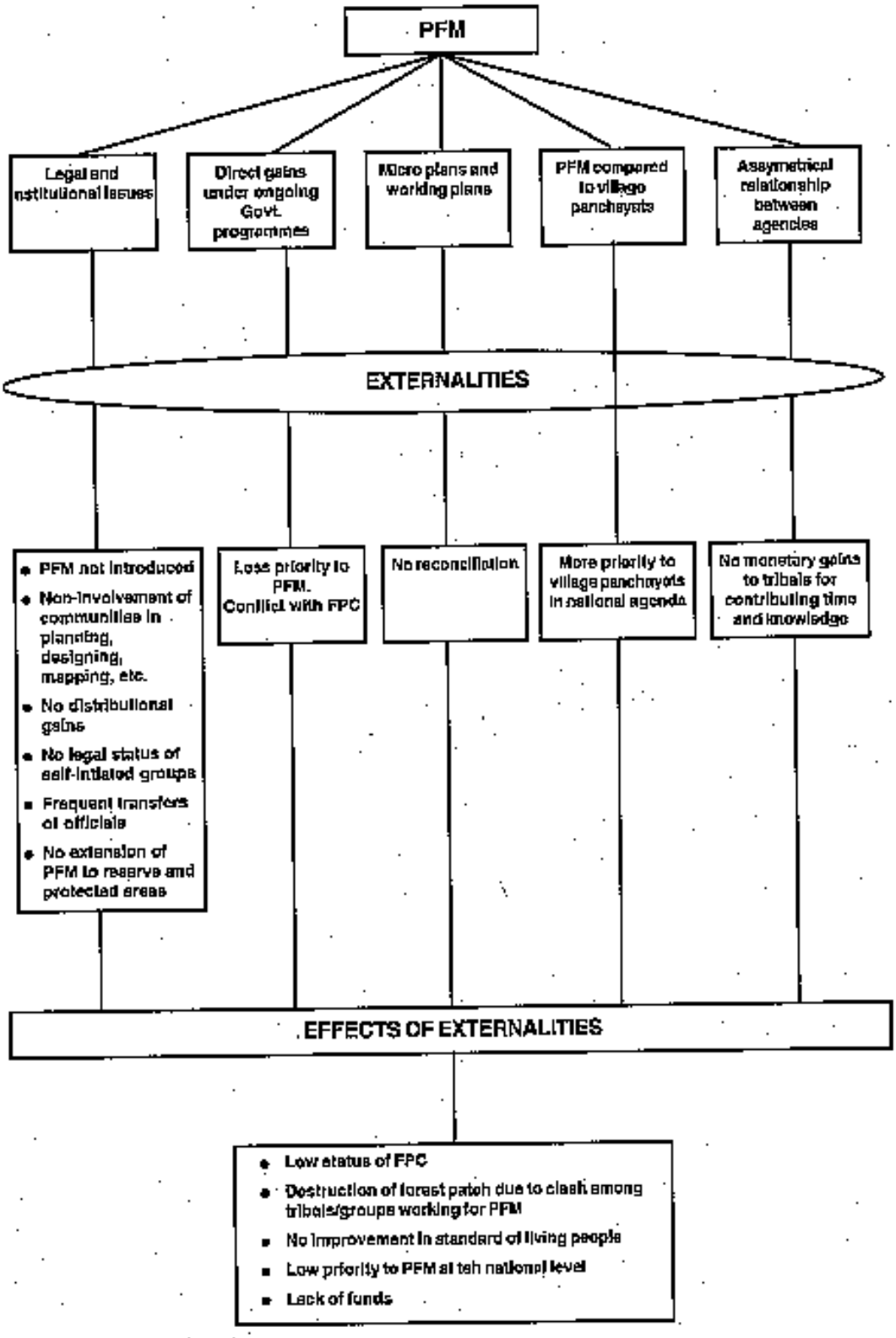
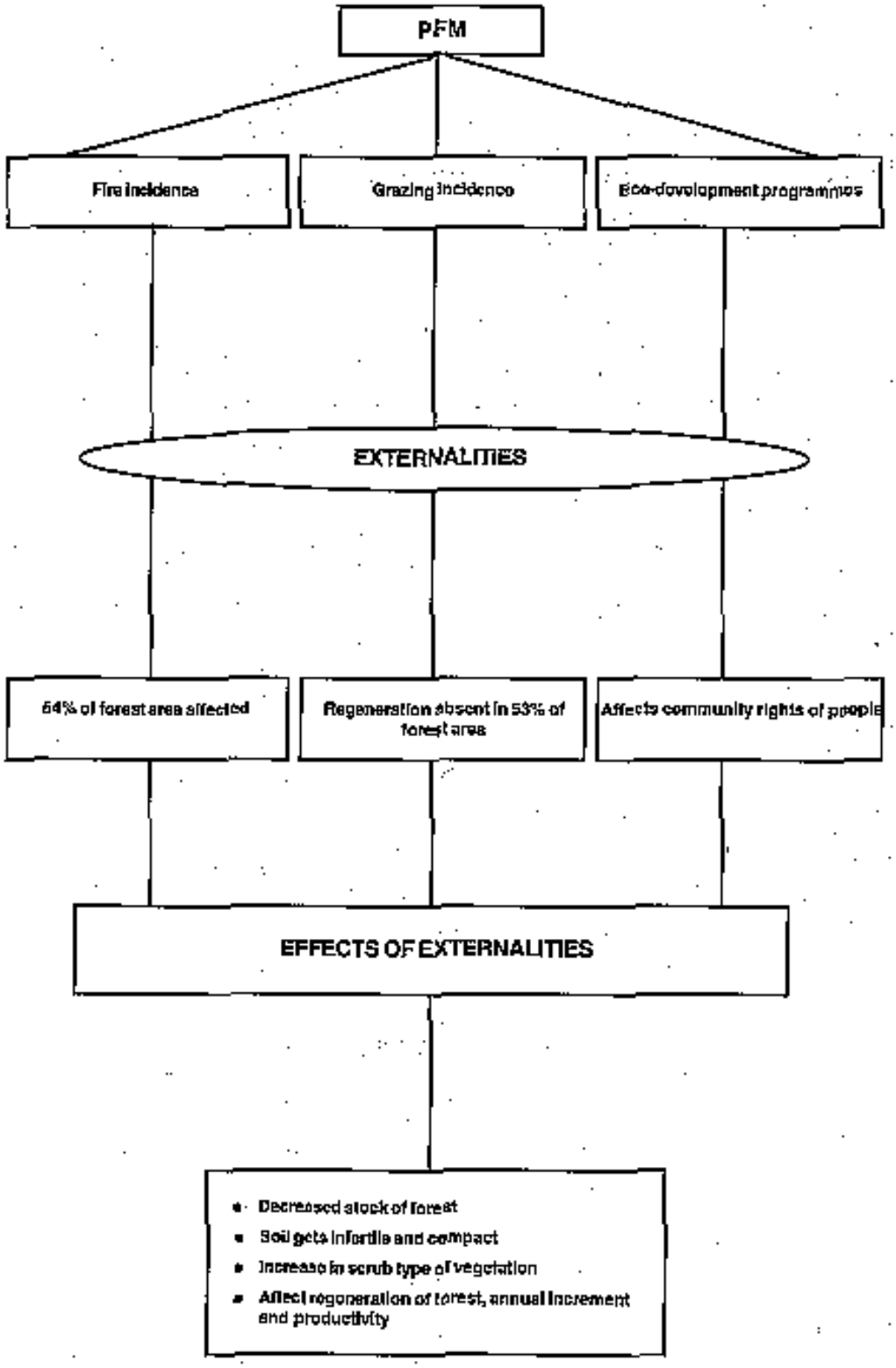


Fig. 4
NATURAL EXTERNALITIES



III.4.2 Eco-Development Programmes and PFM

To meet the requirements of one section of society for roads, power lines and eco- parks, some parts of the forest get destroyed. Due to this man made externality, people living in the forests have to evict that particular area. This affects their basic rights on forests, subsistence needs on which their life depends and confidence in the management programmes.

The natural and man made externalities focus on fire and grazing incidences and floods and Eco development programmes, like road building, laying of power lines and making Eco parks etc. These natural and developmental works obstructs the growth in stock of forests, vegetation, annual increment, productivity, soil fertility and the spirit of communities to participate in the PFM. Enough measures or insurance schemes have not been initiated under PFM to tackle with these issues.

III. 5 Technical Externalities

The technical externalities can be grouped as (1) unbalanced silvicultural practices and, (2) lack of research and technical training.

III.5.1 Unbalanced Silvicultural Practices and PFM

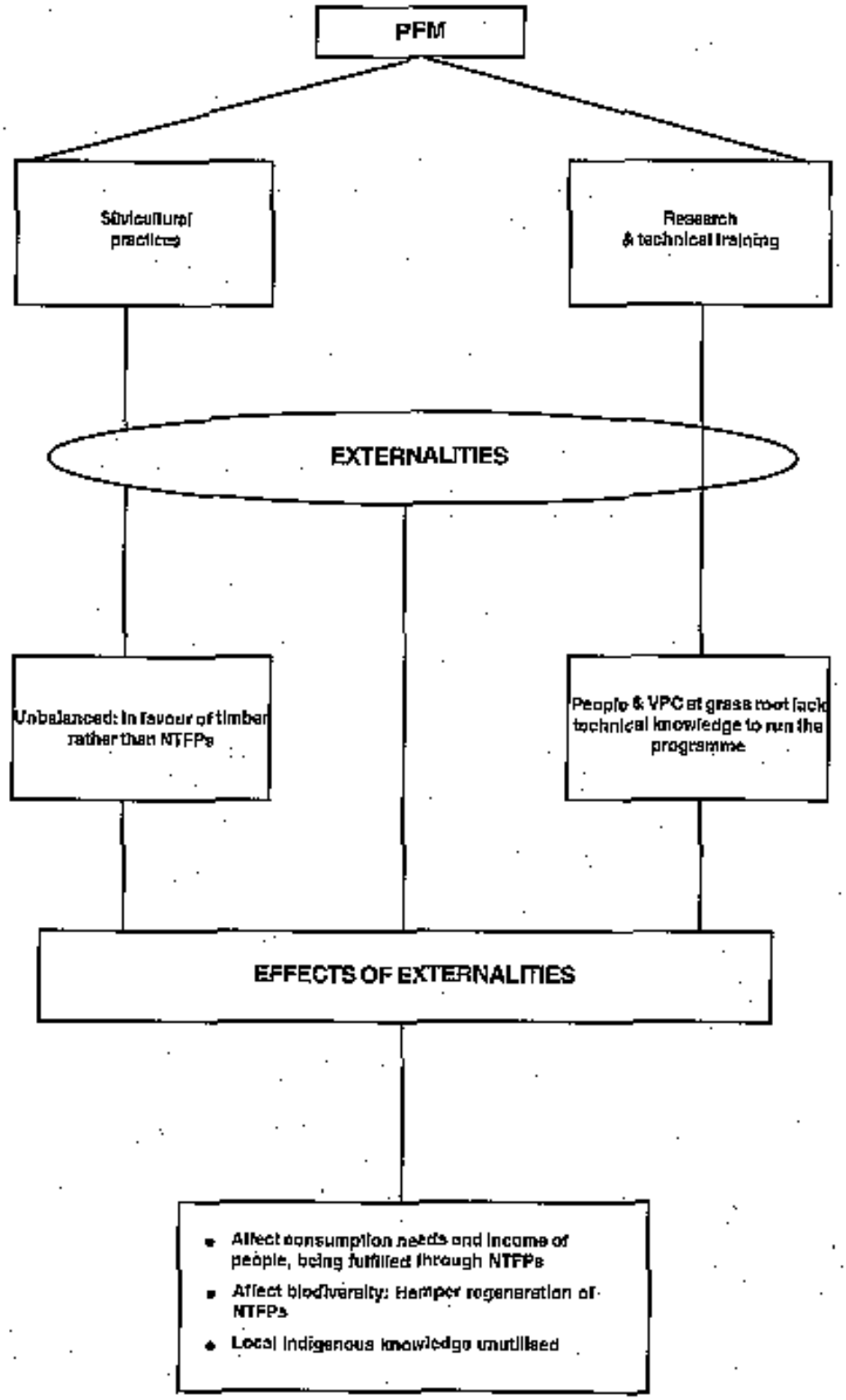
Due to high value of timber, the focus of FD has always been on silviculture of timber trees rather than on NTFPs. Much realization about the high economic value of NTFPs as well as their role in the preservation of bio-diversity has arisen. Since the PFM programme is for the benefit of community, silvicultural practices should largely be in favour of usufruct-based trees and multiple outputs. The use of minor forest products should be taken as main intended products from forestland and timber as a byproduct from large trees. Measures have hardly been taken to promote NTFPs and to increase their productivity. Generally, agencies involved do not tap local indigenous knowledge in this regard.

III.5.2 Lack of Research and Technical Training and PFM

Though there exist a number of forestry related research institutes like Indian Institute of Forest Management, Bhopal, Forest Guard Training Institute etc., adequate attention has never been paid to train village protection committees

The technical externalities emphasize on the unbalanced silvicultural practices through promotion of timber. Adequate measures have not been taken to promote NTFPs as well as to improve their productivity. Attention has not been paid to impart technical training/education to village protection committees and communities about the objectives/benefits of PFM. These factors may impinge on the rights, subsistence needs and decision taking power of communities dependent on forests.

Fig. 5
TECHNICAL EXTERNALITIES



working at the grassroots. It may be proposed that to over come these internal constraints in the programme, forest training centres or PFM schools be opened in the villages or nearby town and a PFM cadre be formed like village level workers. To start with, the youngsters in the village may be given technical training for PFM so that they educate the community regarding the economic and ecological benefits from preservation of forests.

IV Externalities and PFM: Some Lessons and Solutions

This paper focused on the functioning of PFM in India and raised certain inadequacies on its part at the design and implementation levels. Although PFM programme has made notable success in protecting the forestland, in particular degraded land, much more is required to make PFM an ideal participatory model. While highlighting the main objectives of PFM, this paper critically examined the divergences and/or externalities , which seem to be impinging upon the functioning of PFM.

Various externalities identified in the paper were - socio-cultural, economic, political, legal and institutional, natural and man made and technical. Briefly, we argued that under socio-cultural externalities, inequity, caste differences, gender bias and inappropriate distribution of benefits hinder the progress of PFM. The users as well as their rights have not been properly defined and no compensation has been given to people living in the proximity of forests for losing their livelihood. The PFM has ignored the question of increased participation of women and weaker sections. Within economic externalities, it was pointed out that there is a divergence in the perception of value of forest to different people. The real value of forest has not been placed and realized in the National Accounts Statistics leading to value or price externality. The economic value of services provided by forests far outweighs the revenues obtained otherwise. Not much research has been done in the area of physical and economic accounting of forest resources and services. In the absence of accounting, the contributions of forestry sector remains undervalued by the policy makers. A divergence has also arisen due to unsustainable extraction of forest resources and the consequent depletion.

Further, there is lack of in-depth research and knowledge on the economics of NTFPs, inadequate marketing structure and the resultant low share of producers, value-added benefits, price instability etc. Lack of marketing avenues and bringing in of middlemen has diluted the real contribution of PFM to the local people. These market related externalities affect the working of PFM negatively. In the programme, adequate attention has not been given to the subsistence needs of the tribals.

Under political externalities, inappropriate legal and institutional framework of village protection committees like faulty policies of FD and conflict with the ongoing Government programmes, are feared to make PFM a failure. Some of them directly affecting the livelihood of poor and obstructing the working of PFM are non-involvement of communities at initial stages of programme, undefined

status of institutional groups working on community basis, no distributional gains, lack of incentive in the form of wages and non-integration of forest working plans with micro plans.

The negative effects of natural and man made factors are enhanced due to lack of fire control system, grazing and floods incidences and eco development programmes like road building etc. This adversely affects the forest areas as well rights and subsistence needs of tribals living in the fringes of forests. Lastly, technical externalities point out the unbalanced silvicultural practices and the absence of education and training among the masses about the objectives of PFM and the benefits accruing to the communities from it.

It can be asserted that if adequate attention is paid to overcome or minimize the negative externalities, PFM would show tremendous progress. The situation demands among the various factors, well defined property rights, full participation of all people in the PFM programme, sound data base on regeneration, extraction and productivity of forest goods under micro plans and their reconciliation with the working plans, valuation and accounting of forest resources and their functions for policy purposes and adequate funding. Setting up of NTFP research and training units under PFM for information on economic models required to be followed for sustainable management of NTFPs, value added benefits, appropriate prices and marketing avenues, like cooperatives of NTFPs, feasibility of increase in share of FPC in nationalized NTFPs, institutional credit technical training will be an added advantage.

Over and above these, some kind of insurance schemes or compensation should be provided for to minimize loss to people due to social and natural/man made factors. Alternatively, PFM should also focus on promoting employment generation activities through setting up of small units within the village, (e.g., rope making unit), so as to raise income levels of villagers. Priority ought to be given to subsistence needs of the village community. The funds available under village panchayats or other government programmes for developmental purposes should be utilized jointly by PFM and the government agencies. This requires efforts to reduce conflicts between the two institutions.

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APPENDIX

TABLE 1

	Orissa	West Bengal	Bihar	Gujarat	Rajasthan
Date of Issue of Resolution	14-12-88	12-7-89	8-11-90	13-8-91	16-3.91
Forest category	Reserve	Degraded	Degraded (protected)	Degraded	Degraded
Participants	Adjoining villagers	Economically backward people	1 person from each family	Persons interseted in forest development	Willing villagers
Management Unit	1 forest compartment	Forest beat	Village	Village	Maximum 50 ha. *1 village, if* possible
Executive committee					
People's representative	3 or less	6 or less	Dependent on forest	Minimum 2 women, any other	–
Forest dept. representative	Forester	Beat officer	Vanpal	–	According to state government rules

APPENDIX

TABLE 1 (*Contd*)

	Orissa	West Bengal	Bihar	Gujarat	Rajasthan
Power of Committee					
Punish/fine	–	–	Yes	–	–
Cancel membership	–	–	Yes	–	–
Set rules	–	–	Yes	–	–
Distributive benefits	Yes	No	Yes	–	–
Power of F.D.					
Cancel memebership	–	Yes	–	Yes	–
Dissolve F.P.C.	–	Yes	–	Yes	Issue notice before cancellation
Share of members					
A. Non-timber forest products (NTFPs)	–	Cashew, 25% sal seed, Tendu leaves on approved tariff, rest free	Dry branches, grass, leaves free; other produce available at market price	Dry branches and NTFP free	Grass & fodder (after 5 yrs) free NTFP (except bamboo) collection according to provisions of management plan
B. Timber	All bonafide subsistence needs of timber and fuelwood free	25% of net income except in certain areas	1/3 share of income deposited as village development fund	If state financed, 25%, otherwise 80%	60% of net income after deducting all government expenditures

APPENDIX

TABLE 1 (*Contd*)

	Madhya Pradesh	Tripura	Maharashtra	J & K	Haryana	Andhra Pradesh
Date of issue of resolution	10-12-91	20-12-91	16-3-92	19-3-92	13-6-90	28-8-92
Forest category	Sensitive to Damage & degraded	Degraded	Degraded & barren lands	Degraded	Demarcated protected	Degraded DPAP areas of watershed
Participants	Willing Villagers	Families with at least one Wage earner	Panchayat & FPC consisting of all villagers	1 person from each family of adjoining villages	Either actual users or right holders	Adjoining villages
Management Unit	1 village	Natural reg. 500 ha. Plantation 300 he.	Not defined	Not defined	Hamlet or village or panchayat	1 village less than 500 m normally deep
Executive Committee						
People's representative	5 or more	5 or less	6 (2 women & 2 SC/ST)	11 (2 women & 2 SC/ST)	7-9 members	6 to 10 at least 3 women
Forest dept. Representative	Rangers	Beat officer	Forester	Ranger	–	Forester/RO/FG

APPENDIX

TABLE 1 (*Contd*)

	Madhya Pradesh	Tripura	Maharashtra	J & K	Haryana	Andhra Pradesh
Power of Committee						
Punish/fine	No	No	No	No	Yes	–
Cancel membership	No	No	No	Yes	–	–
Set rules	No	No	No	No	Yes	Yes
Distributive benefits	Yes	No	No	Yes	Yes	Yes
Power of F.D.						
Cancel memebership	Yes	Yes	Yes	Yes	–	–
Dissolve F.P.C.	Yes	Yes	Yes	Yes	–	Consult distt. SF Comm.
Share of members						
A. Non-timber forest Products (NTFPs)	All forest produce & 30% of net income of Nationalised NTFPs	All NTFPs free	All NTFPs except cashew & Tendu free	All forest produce free	–	Unreserved NTFPs

APPENDIX

TABLE 1 (*Contd*)

	Madhya Pradesh	Tripura	Maharashtra	J & K	Haryana	Andhra Pradesh
B. Timber	Entire quantity 30% of net revenue; 20% for damage sensitive areas	All bonafide needs met & 50 % of net surplus revenue	Different methods of distribution in different areas such as block plantation scheme, nistar etc.	25% of net revenue from final harvest in cash/kind	Commercial produce lease to HRMS, other income to be shared with HRMS	25% of produce + 1/3 of revenue

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Externalities Impinging on Participatory Forest Management in India

With the failure of market mechanisms in the management of common pool resources and ineffectiveness of the state to control degradation and regenerate degraded resources, community forms of control have become the mainstay for protection of common pool resources. In a similar vein, participatory forest management programmes have come into existence in order to address the problem of degradation of common pool resources of forest land.

The management of forests through participatory forest management and in particular Joint Forest Management (JFM), has recently been the focus of research. The ways in which these institutions have made notable success in many states in India, in terms of achieving an increased forest area and provision of fuelwood and fodder have been a central strand of such work. Yet, various aspects of the programme for instance, ill-defined rights of the communities, management and composition of forest and its variation from state to state, gender bias, unsustainable use of forests, economics of non-timber forest products, valuation of forest and its integration with the National Accounts Statistics etc. are only slowly coming into focus.

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