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Rapporteur's Report on Forestry and Related Issues

Rapporteur: Vishwa Ballabh*

Forests play a crucial role in providing basic human needs and contribute to economic development and ecological balance. The importance of the forests is well recognised by our Society. 'Forestry and Related Issues' have been chosen for discussion in the annual Conference for the third time in less than two decades. Significant changes have occurred in the forestry sector since 1983 and 1988, the previous two occasions, when forestry related issues were discussed. The New Forest Policy was adopted in 1988 replacing the Forest Policy of 1952. In the wake of the new policy, many State Governments have banned clear felling in ecologically fragile areas. The forests are not to be considered as revenue generating and commercially exploitable resources for industrial purposes. In fact, the New Forest Policy gives primacy to people's livelihood system and restoration of ecosystem through people's participation. It was in this context that the Government of India in 1990 notified that people should be involved in protection and management of natural forests albeit only on degraded areas through Joint Forest Management (JFM) and tried to bring a paradigmatic shift in the forestry sector.

The issues identified in the synopsis for the subject reflected these changes. The responses of the researchers to these changing dimensions were somewhat mixed. Several authors contributed papers on the role of forests in people's life support systems particularly Minor Forest Products (MFPs). In the following six sections, the results and arguments of papers selected for discussion are briefly described. The issues emerging from the discussion and findings are identified in the last section for deliberation during the Conference. Of the seven issues under the theme, the maximum number of papers contributed have dealt with the trends in area and distribution of forests and their contribution to economic development, followed by economics of plantation on private and common lands. Some of the issues have remained unexplored such as building and nurturing people's institutions at the grassroot level and the relationship between people's institutions, the Forest Department and Non-Governmental Organisations (NGOs) particularly in implementing JFM. There was only one paper on gender relations and forest management.

I

FOREST AREA, PRODUCTION AND REVENUE

Of the forty-four papers selected for discussion at the Conference, twelve papers belong to this theme. The coverage of these twelve papers widely varies and includes

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discussion on deteriorating condition of forest cover, revenue generations, contributions to the gross domestic product (GDP) and backward and forward linkages between forestry and non-forestry sectors.

Almost all the contributors find that the quality of forest is declining over time. Though the reported area under forests did not change significantly since 1980 (Vijaya Venkatesh; R.S. Nandal and Arjun Singh), fluctuations have been observed in absolute area as well as in growth rate of forest area over time (Venkatesh). Using time-series analysis R.K. Sharma *et al.* reported that the forest area is declining at the rate of 1.28 per cent per annum. The rate of deforestation is greater than afforestation in 13 states of the country (Bindhyachal Singh *et al.*). Besides, they also observed that the composition of forest cover at the all-India level has been moving more towards non-conifer forests. Most of the conifer forests are found in the hill areas of Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh. These states have banned clear felling since the 1980s. What inferences should we draw. Are these policies not helping in reversing degradation of forest cover? If so, why? It was presumed, with complete restrictions on extractions that the local need of fuelwood and fodder have to be met from the common and private land; the selected felling and auctioning of dead and valuable trees would then constitute the only valuable source of income besides minor forest produces. The analysis of L.P. Swaminathan and Seema Purushothaman does not confirm these expectations. They found that wood products constitute a major source of revenue even in the sanctuary areas.

The decline in the area under forest is further confirmed by state level data analysis. For example, Deepak Shah reports that the area under forest has declined in Maharashtra. Similar findings were reported by M.L. Sharma *et al.* for the state of Himachal Pradesh. The population growth is mentioned by many authors as the main causal factor. The forest area shrinks when nearby farmers increase the size of their fields in order to meet the growing family need (R.P. Singh and S.K. Singh), while others argued that commercialisation is equally responsible for deforestation. For example, M.L. Sharma *et al.* argued that the apple cultivation in Himachal Pradesh can only be sustained by good forest covers. He argued that one acre of apple orchard needs 10 acres of forest to support it.

At the state level a more disaggregated data analysis shows wide variability in the forest cover among the districts of Madhya Pradesh and Rajasthan (A.R. Verma and A.M. Rajput; R.M. Sahu *et al.* and Khem Chand *et al.*). The authors have argued that the social forestry and woodlot programmes need to be implemented more vigorously to increase the area under forest cover. For this, land is not a constraint since ample amount of wasteland is available in both the states. A question may be raised as to the nature of the experience of woodlot and social forestry programme. What are the factors due to which the programme has suffered in these and other states after 1990? On the other, Khem Chand *et al.* observed that the forest cover in arid and semi-arid areas of Rajasthan has increased by 150 per cent between 1960-61 and 1997-98.

Over time, production of almost all forest produce has increased both in value terms and physical quantities except plywood. The revenue and expenditure both have increased but the growth rate in expenditure has gone up by 17 per cent between 1979-80 and 1993-94, whereas revenue has increased only by 10 per cent during the same period. However, the contribution of the forestry sector to Gross State Domestic Product is declining both in relative as well as absolute terms (R.K. Sharma *et al.*; Deepak Shah). From these data, two possible but contradictory inferences could be drawn. First, the states have increased investment in the forestry sector and it is no more considered as source of revenue and hence the increasing capital formation in the forestry sector. Second, the expenditure in the forestry sector has increased due to increased personnel and establishment cost. Lack of disaggregated data about expenditure items prevents a firm conclusion.

II

CONTRIBUTION TO ECONOMY AND INTERLINKAGES

Forests play an important role in preserving the culture and livelihood system of the people living in and around forest areas. The decline in forest cover and forest area could lead to unemployment and distress migration. It is argued that neglect of forest would mean a decline in the standard of living (S. Natchathira Jothi). Forests contribute to income and employment mainly through backward and forward linkages with other sectors of the economy. Besides, it helps maintain water systems (K. Elumalai *et al.*).

N.V. Namboodiri and S.R. Asokan using National Account Statistics analysed the value addition from forestry sector, net state domestic product and gross flows from forestry and non-forestry sectors and the interlinkages between forestry and non-forestry sectors at three different points, viz., 1973-74, 1983-84 and 1989-90. Their analysis shows that in all states, except Nagaland and Rajasthan, the share of forestry and logging in net state domestic product has declined. The value of industrial wood has declined which is reflected in the decline of output from forestry sector in real terms (Bindhyachal Singh *et al.*). Although, there has been growth in the value of firewood and minor forest produce, the increase was not sufficient to compensate for the decline of revenue from industrial wood. The coefficient of backward linkages indicates that it has improved during the period of study while forward linkages are weakened. This may be due to the shift in the forest management system. During 1970s and early 1980s, the forest based industries were provided dedicated supply of forest products, which is restricted since the new forest policy of 1988.

At the village and household levels similar results were obtained. D.C. Pradhan *et al.* found that non-timber forest products (NTFPs) have weak interlinkages within the household production systems in the tribal areas of Orissa. The external trade and seasonal migration are the important factors determining income, employment and consumption pattern and NTFPs contribute 37 per cent of export earnings from the

village. NTFPs do not require inputs from other household production system except labour, nor they contribute to other production systems except livestock. NTFPs, however, have reduced income disparity and contributed much more to the income and consumption of the poor households than their rich counterparts.

One of the weaknesses of these analyses is with regard to consideration of market price which in reality is the state administered price. Besides, such a market price does not reflect the real resource values. The total economic value of forests can only be determined by consideration of both direct and indirect uses as well as non-use values of forests (Harish Chandra). Linkages with forestry and non-forestry sectors therefore need to consider use and non-use value of forest resources. Further this also raises the issue of how to determine contribution of the forestry sector to the national and village economy and its linkages with other sectors.

III

MINOR FOREST PRODUCTS (MFPs) AND LIVELIHOOD SUPPORT SYSTEM

MFPs sustain livelihoods of millions of people, particularly the tribals. The deterioration of forests, therefore, makes an adverse impact on the lives of forest dependent communities. Ten papers submitted for the discussion examined the role of MFPs in generating income and employment.

Almost all the papers confirm the general perception that MFPs contribute significantly to the household food security, and they are additional source of income and employment opportunities. The extent to which MFPs contribute to income, food security and employment varies from region to region and depends on the nature and status of forests, type of MFPs and overall linkages with the non-forestry sector. Thus K.G. Sharma *et al.* found that MFPs contribute 7 to 22 per cent of household income in Madhya Pradesh; R.M. Mallik reported that the contribution of MFPs to the household income is as high as 60 per cent in some of the villages he studied in Orissa. Y.S. Negi and Pankaj Bhalla reported that MFPs contribute 13-17 per cent of household income in Himachal Pradesh. Besides contributing to the income and food security, several MFPs are used as input for the agriculture and livestock production systems at village and household levels. Some tree species are integrated so much in the village economy that it is difficult to imagine life without them in the region; for example, khejri in Rajasthan (S.S. Burark *et al.*) and sal trees in West Bengal and Orissa. Similarly, bamboo can contribute about Rs. 20-50 thousand per hectare in Chhattisgarh region (Bhag Chandra Jain). As a result, these trees and plants are protected and conserved even on farm lands.

The above observation failed to support in the more rigorous social accounting matrix and input and output analysis (D.C. Pradhan *et al.*). In fact, this study showed poor linkages of MFPs with other production systems at household and village level. The collectors of MFPs who gather them either consume at the household level or supply them to the commission agents and contractors. These communities do not involve themselves in the processing and marketing of MFPs.

However, these papers have not analysed the reasons for non-integration of MFPs at the household level with other production system. But, some clues could be found from the available data and evidence provided in the papers. First, MFPs can be classified into two categories. One category is the MFP collected for household consumption and sold, if any, only in small quantity to supplement household income. These MFPs generally have low values. The second category is MFPs which are collected largely for commercial purposes. These MFPs generally have higher values and these are sold to the commission agents and contractors by the collectors of the produce. There is evidence which suggests that collectors of these MFPs receive less than one-third amount paid by the consumers of these MFPs, the prices are distorted, and the market structure is highly imperfect for MFPs (Negi and Bhalla; Mallik).

There are some inherent structural problems in the collection and marketing of MFPs. Individual MFP collectors can gather very small quantity of produce and the product is also scattered throughout forest areas (Md. Alibaba *et al.*). As a result, the collection of MFPs is a labour intensive activity which favours poor households. Since each individual household collects small quantities and these households are also dispersed, assembling cost for processing industry is also very high. As a result, agencies established to support the tribals and collectors of minor forest produce often work with commission agents and contractors. This in turn distorts the market instead of helping MFP collectors to realise better prices for their produce. Thus TRIFED in Madhya Pradesh deals with only 15 products out of 60 collected by the tribals (Brahm Prakash). The prices of MFPs fixed by the Forest Development Corporation is often lower than the market prices and the Forest Development Corporation and other agencies have not been able to help reduce year to year variations in the prices of MFPs, which are quite volatile (Mallik; Negi and Bhalla; Brahm Prakash). The income generated from MFP varies over the years and part of the variation could be accounted by variations in the prices of MFPs (S.K. Gupta *et al.*; Mallik). The nationalisation of valuable forest produce further distorts the market for MFPs and as a result collectors of these produce are subject to harassment by corrupt officials of the Forest Department and marketing agencies. Thus it seems that the nationalisation of valuable MFPs is not helping primary collectors of this produce. This distortion is further compounded by restrictions on collections and transportation of MFPs that create rent-seeking attitude among officials (Negi and Bhalla; Mallik; Swaminathan and Purushothaman). One of the important findings which almost all the papers on MFPs have highlighted is that there is very little information about MFPs as regards their number, quantity available in the area, method of collection, procurement, processing and their uses. The value addition at the level of primary collectors of MFPs is almost negligible and there is huge potential to increase income and employment through value addition, although none of the papers actually estimates these potentials. Since value addition at the level of household and village is almost negligible, the forward linkage is also weak.

It is also argued that minor forest produce can also play a greater role in sustaining forest conservation due to low ecological externalities and greater community stake (Swaminathan and Purushothaman; Mallik). A comparative study, however, shows that non-extractive reserves and sanctuaries may not be financially sustainable without subsidies. The major source of revenue both in extractive reserves and sanctuaries is wood product and minor forest produce continues to contribute a small fraction of the total revenue generated. It is suggested that revenue from minor forest produce and tourism can be substantially increased through appropriate pricing and quantity checks (Swaminathan and Purushothaman).

IV

PEOPLE'S PARTICIPATION, BIODIVERSITY CONSERVATION AND CONFLICTS IN FOREST MANAGEMENT

People's participation is considered *sine qua non* for effective and sustained forest management. Almost all papers are in conformity with this general ideologue. Moving from the simple rhetoric to actual people's involvement in forest management needs considerable amount of effort and resources. Failure of public system and difficulty in assigning private property rights further reinforce the need for involvement of people in management of forest resources; building a robust people's institution, therefore, is the most challenging task in the forestry sector. Assigning enforceable property right to an individual is difficult due to a large number of stakeholders, multiple products, team production externality, and public good characteristics of many forest produces. The failure of government and public system management and difficulty in assigning private property rights due to the above factors entail the need for search of appropriate property rights through participatory approaches and collective actions. If the collective management of forests has to succeed, the institutional arrangement should be so designed as to avoid 'free rider problem'. The first pre-requisite for this to happen is to distinguish between free and open access, where *de facto* or *de jure* there are no rules and regulation for resource use and the common property resources, where a group of individuals have developed formal or informal rules specifying the joint use of resources.

In such institutional arrangements, the rewards are linked to contributors in provisioning of the resources which in turn are linked to the governance and management of resources. It is argued that JFM would succeed only if it is more democratised and the Forest Department participates as an equal partner. In spite of claims by several researchers that involvement of people in forest management in JFM programme has improved the condition of forest (G. Sreedhar and K. Bhaskar; Kasthuri Bai Dhanasekaran; Subodh Dhawan; R.P. Singh and S.K. Singh; O.P. Shukla), it seems that the conditions which are conducive for effective people's participation and management of forest have not been created. The Forest Protection Committees and Van Surakhsha Samiti are under a constant threat from the Forest

Department. Their boards and management committees have nominated members whose words and opinion count more than the members of forest protection committees (Sreedhar and Bhaskar; Dhanasekaran; V.M. Rao). The locus of control substantially differs from the actual users; the presence of nominated members diverts attention from real issues. Sometimes, as in the case of West Bengal and Arunachal Pradesh, the Forest Guard or Forester is also *ex officio* Secretary of the Forest Protection Committees, which delays holding of general body and executive committee meetings (Rao). As a result, the decision-making remains confined in the hands of a few selected people and development of democratic people's institution does not take place.

Why do some people's institutions succeed and others fail? Often, it is argued in favour of people's institutions that they are well adopted to the particular resource constraints facing the villages and groups. A comparative study of such groups and their attempts helps to delineate the factors responsible for successful management of forest resources and identify conditions in which people actively participate in the management of forest resources. Katar Singh made a comparative study of social forestry programmes promoted by the Gujarat State Forest Department, by an NGO and by the National Tree Growers' Co-operative Federation (NTGCF) in Gujarat. He found that people's participation was the highest in the programmes of the Tree Growers Co-operative Society (TGCS), supported by the NTGCF and followed by the NGO. The Forest Department-supported programme had the least involvement of people. The TGCs are autonomous organisations whose governance and management are completely controlled by their members. An almost similar situation prevailed in the NGO-supported programmes. The plantation was done on private farm wastelands and an internal demand was created. The Forest Department-supported programme, in contrast, was completely controlled by the Department officials who also made such crucial decisions as selection of tree species, method of plantation and mode of watch and ward. The Village Panchayats had a very limited role in plantation and management of forest, especially in the beginning. This also determined their relative performance in terms of efficiency, equity and sustainability of resource management. Katar Singh suggests that the role of the Forest Department should be confined to creating a congenial environment, and providing technical and financial support to people's institutions. The three models of social forestry are judged by developing a composite index having efficiency, equity, sustainability and people's participation as its constituents. The merits and demerits of such an index need to be explored.

There is no one-to-one correspondence between the interests of people and the objectives of forest management. This is particularly true for the management of park and sanctuaries and protection of biodiversity. How to involve people in the management of forests for larger social goals such as protection of biodiversity, wild life, etc. There seem to be two contrasting opinions. First, people are also part of a larger ecosystem along with repositories of biodiversity and wild life and hence they

have to be an integral part of larger ecosystem. Secondly, the nature, environment and some of the wild animals are in real danger of extinction and, therefore, they need to be protected even if costs are substantial. There is evidence to support that the number of plant species, their composition have changed over time in several ecosystems due to human interference. These processes cannot be reverted unless a drastic step is taken (Hulas Pathak and A.K. Gauraha). Two studies focused on the aspects of forest, animal and people's conflicts. Both of these studies are related to the Gir Sanctuary in Gujarat. The Gir National Park has received worldwide acclaim for protecting Asiatic lions, their number has gone up so have the other wild animals and plant species (Shiyani *et al.*; Amita Shah). But there have been constant conflicts between *Maldharis*, a traditional pastoralist community living inside the sanctuary and the Forest Department. Efforts to settle these *Maldharis* outside the Park and Sanctuary have met with considerable resistance. The *Maldharis* resettled outside the forest areas are worse off than they were before. These *Maldharis* could not cultivate land allocated to them due to lack of input support and resources, scattered land holding and overall breakdown of their production and cultural systems (Amita Shah). Therefore, these *Maldharis* are suspicious about eco-development programme and hence, reluctant to participate in it. The eco-development programme envisages protection of biodiversity and ecosystem through people's participation. This includes not only development of Park and Sanctuary but also the peripheral areas so as to sustain people's livelihood system. What kind of people's institutions are needed to achieve the objectives of conservation and also sustain people's life support system?

When people's interests are incorporated in the goals of conservation and protection of biodiversity, the conflict is almost negligible. When the Dhauladhar Nature Park in the North-Western Himalayan Region was created it sparked protest from villagers living in and around the park area. However, once they were taken into confidence and they realised that it may contribute to employment and income generation, they supported the idea of creating natural park (S.K. Chauhan and Suresh Kumar). Similarly, Rachhpal Singh and Nirmal Singh found that the plant density, number of tree species and gross cover have increased considerably in the integrated watershed management project areas of Punjab Shivalik supported by the World Bank. In this project people are being involved from the beginning in the formulation and implementation of the project, particularly during the second phase of the project.

V

WOMEN'S PARTICIPATION AND EMPOWERMENT

It is generally believed that women are more dependent on forests than their male counterpart. They also suffer more drudgery when forests deplete. Due to these reasons, perhaps, they have participated more in forestry related movements. Therefore, the focus now is on developing mechanism to empower women to control

and have access to forest resources. Most of the papers submitted for the Conference made only passing remarks that women are more dependent on forest resources, hence they need to be involved in the management of forest resources. Some even remarked that their representation needs to be increased in Forest Protection Committees, etc. The only paper that explored women's empowerment and interventions in forestry sector by Smitha Mishra Panda. Empowerment, as she defined, depends on a number of key elements such as power, autonomy, self-reliance and entitlement, etc. How far an intervention in the forestry sector improves the empowerment of women is determined by a set of factors such as contextual as well as macro-environment, user-specific factors and factors associated with intervening agencies. It is demonstrated that a composite index could be prepared to determine the level of empowerment due to interventions. The two case studies she used to demonstrate the usefulness of the method indicate that the level of women's empowerment remain weak even after interventions.

VI

ECONOMICS OF AFFORESTATION ON PRIVATE AND COMMON LANDS

Eight papers submitted for the discussion are devoted to the economic analysis of afforestation on private and common lands, and agro-forestry systems. Of these, four papers are concerned with the determination of cost and benefits of poplar cultivation in Haryana and Punjab alone. One paper is on the economics of plantation on private lands in the World Bank-supported integrated watershed project in hill regions of Haryana. Another paper is about U.P. hills about different combination of plant species, and another paper about acasia plantation in U.P. plains and one on naturally regenerated teak in Maharashtra State. All these studies point out that there are very high rates of return on block, mixed as well as agro-forestry plantations. Ashok Dhillon *et al.* estimated discounted net returns per acre of sole and intercropped poplar plantation in Yamunanagar district as Rs. 33,095 and Rs. 70,493 respectively. Similarly, D.P. Malik *et al.* estimated discounted net returns for sole and intercropped poplar plantation as Rs. 53,476 and Rs. 88,749 respectively. For Punjab, Sukhjinder Singh and H.S. Dhaliwal estimated over 50 per cent financial rate of return from poplar in Ludhiana and Ropar districts and net present value of over Rs. one lakh (opportunity cost of land included). Almost similar findings are reported by T.S. Chahal and N.D. Singh for the districts of Amritsar and Ludhiana. Given these high rates of returns from agro-forestry and plantations, the question arises as to why the farmers of these two states do not plant poplar trees.

The financial viability of agro-forestry and plantation on common land is not confined to plain areas. K.K. Kundu *et al.* found that the plantation of sisham, eucalyptus, khair and kikar is financially viable in the hill areas of Haryana. Similarly, R.B. Singh *et al.* stated that bhimal, chir and pine plantation is financially viable in the Ramganga catchment area of U.P. hills. Teak plantation may give a rate of return which is above 30 per cent in Nagpur areas of Maharashtra (H.N. Patil *et*

al.). A.P. Singh *et al.* worked out internal rate of return of 40 per cent for acasia under agro-forestry systems in Sultanpur district of Uttar Pradesh. In spite of high rate of estimated return from agro-forestry plantation, farmers are unwilling to reallocate their land to agro-forestry. A crucial question then need to be explored is why farmers do not plant and protect trees on their farmland. What are the constraints to popularise tree farming on private land and how can we remove these constraints?

VII

ISSUES FOR DISCUSSION

The preceding review of papers brings out the following issues for discussion:

1. The data on area, productivity and revenue generated from forest have wide differences depending upon the source of data. There is a need to discuss quality of these data and also quality of forests. Possibility of using geographic information system data for identification, area and quality of forests may be explored.
2. There seems to be general agreement that the area under forests is declining. The factors identified for this decline are population growth, commercialisation and extension of agriculture, etc. The causal link between forest area and these factors has not been clearly established and needs to be explored further.
3. Many contributors determined the value of forest produce using market prices. As highlighted in the papers, markets for forest produce (both timber and non-timber) are imperfect. Besides, forests and their products have use and non-use values. Under these circumstances, it is questionable to use market prices for valuation. We need to explore alternative approaches for valuation of forest and their products, so that we can realistically determine the contribution of forest in national and village economy.
4. Since the markets for minor forest produce is distorted and that nationalisation of MFPs have not helped primary collectors, they have been in a disadvantageous position during adverse environment. However, alternative mechanisms to support primary collectors of these products have not been looked into. There is a need to develop some mechanism to strengthen the life support system of primary collectors.
5. The positive role of minor forest produces in the village and household economy has been clearly established. But due to weak backward and forward linkages very little processing and value addition takes place at household and village level. We need to examine the constraints in value addition and the nature of support needed to integrate minor forest produce in household and village economy. Apparently, not much thought has been given as to the type of information and data required to explore such possibilities.
6. Emphasis on people's involvement in forest management is absolutely essential. Almost every contributor has identified this. But the conditions and factors that

are necessary in ensuring overwhelming people's participation have not been identified. Similarly, the factors that determine the success of people's institutions also need to be discussed particularly in situations when people's immediate interests are in conflict with larger social goals of protection of wild life, biodiversity, etc.

7. Gender relations in forest management have been barely touched upon by the papers submitted for the conference. It is necessary to look into the factors which have sparked off interests in the area of women and forest. Some focus areas for discussion during the Conference are: conditions for women's participation in forest management, measurement of women's empowerment and participation and barriers for women's involvement in the forestry issues.
8. Plantation on private and common lands appears to have large economic returns. Yet, only a few farmers seem to take up agro-forestry plantations. There is a need to discuss the farmers' attitude and response towards agro- and farm forestry. Discussion on agro- and farm forestry may help identify relevant policies to promote plantation on private and common lands.