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RAPPORTEUR'S REPORT

ON

ISSUES IN FORESTRY DEVELOPMENT IN INDIA

Rapporteur: Katar Singh*

I

INTRODUCTION

This subject was selected for discussion at this Conference in view of its importance in the context of current shortages of fuelwood, fodder, timber, and other forest based industrial raw materials as reflected in their continuously and steeply increasing prices. It was expected that a large number of papers would be contributed by economists, silviculturists and agro-forestry specialists on this subject for discussion at the Conference. The synopsis on the subject covered a wide range of issues and topics and hence permitted a wide choice to the contributors. However, the response of the contributors was far from encouraging: only 21 papers were selected for discussion at the Conference. Not only were the contributions fewer than expected, but, with a few exceptions, most represented neither a new methodological approach to the subject nor a rigorous analytical examination of the available data. No papers were contributed by silviculturists and agro-forestry specialists.

Eight themes were identified in the synopsis on the subject while inviting contributions. No papers were contributed on two of these themes, namely, evaluation of alternative approaches to involving people in social forestry projects, and relative economics of tree and agricultural crops. The distribution of the 21 papers selected for discussion at the Conference by the remaining six themes is as follows: seven papers on "Trends in area, production and productivity of forests and their determinants"; five papers on "Estimation and projection of demand for and supply of various forest products"; two papers on "Economics of afforestation"; one paper on "Marketing of forest produce"; two papers on "Forestry and the Rural poor"; and four papers on "Review of progress and problems of forestry". In the next six sections each of the papers selected is discussed briefly and commented upon theme by theme in the order mentioned earlier. In the last section, an attempt is made to consolidate the important conclusions of the discussion and identify issues for discussion at the Conference.

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II

TRENDS IN AREA, PRODUCTION, AND PRODUCTIVITY OF
FORESTS AND THEIR DETERMINANTS

Seven of the 21 papers selected for discussion at the Conference belong to this theme. Two of these papers are focused at the analysis of trends in the area, production, and productivity of forests at the national level and the remaining five deal with the State level analysis. None of the contributors attempts to explain the temporal and spatial differences in area, production and productivity of forests. To the extent that, for policy planning and management, it is the knowledge of determinants and of the nature and magnitude of their impacts which is more important than the knowledge of the trends themselves, there is a serious omission in the papers. The question as to what are the policy instruments that could be and should be used for increasing the area, production and productivity of forests in the country is left completely unattempted.

Shiv Ram Dass and A. K. Vashisht make an attempt to estimate, by States, the compound growth rates of area under forest and outturn of major forest products over the period 1960-61 to 1976-77 and of net domestic product originating in the forestry sector over the period 1970-71 to 1977-78. They find that, except the three States of Himachal Pradesh, Madhya Pradesh, and Orissa, all other States and the country as a whole have less area under forests than the minimum norm of 33 per cent prescribed by the National Forest Policy Resolution of 1952 and that, if the current trend continues, it will take another 74 years for the country to attain the prescribed minimum norm. They assert that the observed compound growth rate of 4.4 per cent for timber and of 1.9 per cent for fuelwood tend to favour the well-to-do sections of the society in that timber is largely used by the rich and fuelwood by the poor. The authors do not, however, suggest any policy measures for reversing this trend in the growth of forest products.

Using coefficient of variation as a measure of disparity, Hem Chandra Lal Das estimates, for India, the inter-State disparities and, for Bihar, the inter-district disparities in the distribution of forest area. He also computes the linear and compound growth rates of forest area and revenue for Bihar over the period 1957-58 to 1976-77. He finds that the inter-district disparities are higher than the inter-State disparities and that whereas there has been a declining trend in forest area in the State, forest revenue has registered an increasing trend over the study period. He believes that over-exploitation of forests by private contractors with the connivance of government officials and conversion of forest lands into agricultural lands are the major factors responsible for the declining trend in forest area. The author hopes that the recent introduction of social forestry and alternative energy sources programmes in the State under the New 20-Point Programme will reverse the declining trend in forest area. Although the author argues for enlisting

the people's participation in social forestry programmes, he does not specify how this should be done.

Using index numbers, S. Bandyopadhyay evaluates the direction and magnitude of change in the forest area, production, and productivity in India over the period 1960-1980 and in the contribution of the forestry sector to the gross domestic product over the period 1950-51 to 1979-80. He finds that whereas forest area, production and productivity have all increased over the reference period, per capita forest area and forest production have both registered a marginal decline due mainly to the rapid growth of population in the country. The author also makes an attempt to estimate a few correlation coefficients and regression equations but in the absence of any sound theoretical basis, these exercises seem to be of very little significance.

A. K. Bora studies the area under forests, by districts, in the State of Assam and by using index numbers, he estimates the trend in the forest area in the State over the period 1951-52 to 1977-78. He finds a marked decline in the forest area over the reference period and attributes this decline to the extension of cultivation to forest lands, illegal occupation of forest lands by immigrants, establishment of industries and townships in forest areas, use of forest lands for defence purposes, resettlement of landless and erosion-affected people on forest lands and the practice of jhuming (shifting cultivation). The author also studies the changes in the net product of the forestry sector in the State over the period 1970-71 to 1980-81 at both the current and the 1970-71 prices and the outturn of timber and firewood over the period 1971-72 to 1976-77 and finds that both have increased over the respective reference periods. The author concludes his paper with a suggestion that the social forestry programmes currently underway in the State should be intensified and that a separate agency be established for the management of unclassified forests. He does not, however, spell out as to what kind of agency and with what administrative and financial powers needs to be established. The paper contains a large number of assertions and suggestions that are not based on the analyses attempted in the paper.

S. G. Borude and J. M. Talathi classify 232 tehsils in the Maharashtra State into nine groups according to the percentage area under forests in the year 1977-78 and study the inter-regional and inter-district variations in the forest area by using the tools of standard deviation, coefficient of variation, Lorenz curve and Gini ratio. They find wide disparities in the area under forests among both the regions and the districts in the State. The authors do not make any attempt to identify the factors responsible for these disparities nor do they discuss the implications of the disparities for policy planning and management in the forestry sector in the State.

B. D. Bhole and P. N. Bidwai estimate both linear and quadratic trends in the area, production, and yield of timber and fuelwood trees in different agro-climatic zones in the Vidarbha region of Maharashtra over the period 1964-65 to 1978-79. They find the quadratic trend a better fit in terms of R^2 value. They find that the area, production, and yield of timber trees had all been increasing in one of the three zones studied and decreasing

in another over the study period and that the production and yield of fuelwood had an increasing trend in the initial years and a decreasing one in the later years of the study period in all the zones. The regression equation fitted by the authors to explain the changes in production of timber over time does not seem to be very plausible.

D. R. Chandra *et al.* estimate the compound growth rates of forest area and production by economic regions for the State of Uttar Pradesh over the period 1950-51 to 1978-79. They also present figures about the distribution of forest area by controlling agencies, composition of forests in terms of area under various tree species, progress of planting of different tree species during the period 1973-74 to 1978-79 and production of important species of timber trees for selected years from 1950-51 to 1978-79. Although a lot of valuable data are presented by the authors in their paper, no attempt is made to analyse these data rigorously.

III

ESTIMATION AND PROJECTION OF DEMAND FOR AND SUPPLY OF VARIOUS FOREST PRODUCTS

Five papers were selected for discussion on this theme. Of these five papers, two deal with the demand-supply analysis of various forest products at the national level and the remaining three with the State level analysis. In almost all the papers, the authors use the words demand and supply, to mean requirement and availability respectively.

K. N. Rai *et al.* make an attempt to estimate the compound growth rates of demand and supply, determine the demand and supply functions by using the transcendental production function approach, compute income and investment elasticities of demand and supply respectively and finally project the demand for and supply of major forest products in the country. Their analysis suffers from a number of conceptual and data limitations. First, the time-series used for the estimation of growth rates is rather short—only 12 years' data. Second, they use the term demand to refer to the quantity available for domestic use and not the quantity actually used, and the term supply to refer to total output and not the quantity offered for sale. Thirdly, their specification of the transcendental demand and supply functions also is not theoretically sound in terms of the choice of explanatory variables and because of non-inclusion of price variable. The authors, however, make a big and bold attempt in assembling an enormous mass of data on about some 20 forest products and in estimating and projecting their demand and supply for the country as a whole.

Tirath Gupta first analyses the problems and prospects of meeting the forest based raw material requirements of the paper industry in the country. Then, he raises a number of questions relating to the availability of data for formulating forecasting models, use of experience-based judgment in place of formal quantitative models for projecting future requirements and the

possibilities of using non-conventional raw materials for the paper industry. Finally, he stresses the need for evolving an economically rational, and financially and administratively feasible basis for pricing the raw materials for the paper industry and specifies a few factors for consideration in pricing a renewable natural resource. It seems that the author poses too many questions, albeit relevant, but does not make commensurate effort to find out possible answers.

N. S. Viswanath and H. B. Lokesha make an attempt to estimate and project the demand for and supply of eight important forest products for the Karnataka State. They also present the estimates of income elasticity of demand and time elasticity of supply of these products and finally propose a strategy for bridging the demand-supply gap. They use linear and exponential forms of equations for the estimation of demand and supply. Their specification of demand and supply functions lacks plausibility. Their justification for the non-inclusion of price variable in both the demand and supply functions, based on their belief that "production or supply response to price may be negligible for forest products" seems untenable. Similarly, the strategy proposed by the authors for bridging the demand-supply gap is devoid of any operational blueprint for action; the authors merely suggest a vigorous afforestation programme on barren and waste lands and a 50 per cent reduction in the construction activity in the State to bridge the demand-supply gap.

M. G. Chandrakanth and J. V. Venkataram also make an attempt to project the demand for and output of all major and minor forest products for the Karnataka State and propose a strategy for bridging the demand-supply gap. They, however, use a different technique, an input-output table, for projecting the demand for and supply of forest products. The strategy suggested by the authors for bridging the demand-supply gap consists of a suggestion for efficient utilization of existing wood resources. The authors also suggest an information system for the forestry sector but do not spell out its organizational and operational implications.

B. K. Sikka *et al.* make an attempt to project for the State of Himachal Pradesh the demand for and supply of wood for packing fruits and vegetables. They employ an elaborate procedure for the purpose. They find a marked gap between the requirement and availability of wood for packing purposes. They suggest a number of measures for bridging this gap but do not examine their technical, financial and organizational implications.

IV

ECONOMICS OF AFFORESTATION

Only two papers were contributed on this theme. Using the multi-objective linear programming approach, P. K. Joshi and A. K. Agnihotri formulate a plan for afforestation of waste and salt affected lands of a village panchayat in the Karnal district of Haryana. The plan is aimed at

maximizing the fuelwood production at least cost and of the employment opportunities in the village. The authors also attempt an *ex ante* assessment of some of the indirect benefits of the afforestation plan. In these benefits, they include saving of soil nutrients and consequent increase in food production due to increased use of dung manure made possible by the increased production of fuelwood, and reduction in income disparities. The authors do a commendable job in demonstrating the application of a new technique to a new area, *i.e.*, afforestation. Presentation of the estimates of fuelwood production, cost of afforestation, employment and increase in food production on a per hectare basis and discussion of the financial and organizational implications of the plan at a higher level would have further added to the quality of the paper.

Vijay Kumar attempts a benefit-cost analysis of forestry in the Uttar Pradesh hills. He considers both the direct and some of the indirect benefits and costs of forestry. He presents benefit-cost ratios and net present value figures by forest divisions and attributes the inter-divisional variations in the values of these two measures to the varying mix of high value and low value tree species, differences in altitude and other attributes of natural environment and variations in management practices. The author finds that afforestation is economically feasible at all altitudes in the study area but in general, profitability is higher at lower altitudes.

V

MARKETING OF FOREST PRODUCE

Only one paper was contributed on this theme. The author, Prakash Naidu, attempts to study the marketing costs and margins of *Tendu* leaves (used as wrappers in *beedi* making) in the Bilaspur district of Madhya Pradesh. *Tendu* leaves are collected by the tribals and sold to the State Co-operative Marketing Federation which is solely responsible for marketing the produce. The author finds that the share of tribals in the price realised by the Federation was 20 per cent in 1981 and 23 per cent in 1982. In 1981, the royalty to the State Government accounted for about 46 per cent of the price realised by the Federation and sales tax for another about 12 per cent. The author recommends that the tribals should be paid a remunerative price for their produce but does not specify what this price should be and what would be the implications of this 'remunerative' price for the various parties concerned.

VI

FORESTRY AND THE RURAL POOR

Only two papers were selected for discussion on this theme. In view of a large number of social forestry projects underway in the country, the response is extremely discouraging.

Kanwar Prakash Chand and Ranveer Singh study people's participation in social forestry in Himachal Pradesh. They propose a number of interesting hypotheses about the determinants of people's participation but do not test them rigorously. They conclude that the social forestry programmes in the State have not succeeded due partly to the failure of their delivery systems to provide needed inputs and services to the participants and partly to the constraints at the participants' level, namely, small land holdings and lack of capital. The authors suggest that the delivery systems be streamlined to facilitate people's participation but they do not spell out how this should be done.

A. D. N. Bajpai examines the need for social forestry, enumerates its economic, social and environmental benefits and identifies its major problems with reference to a predominantly tribal district, Dhar, in Madhya Pradesh. The author draws liberally upon a project report on social forestry in Dhar district but it is not clear from the paper whether the author was associated with the project. The author does not make any attempt to quantify the benefits attributed by him to social forestry nor does he study the distribution of these benefits between the rich and the poor. This is contrary to what one would expect by reading the title of his paper. The author observes that the lack of people's active participation in the social forestry programmes in the district is due partly to their apprehension that the land used for social forestry may be taken over by the Government, partly to their ignorance about the suitable tree species and the techniques of raising saplings, and partly to the lack of co-operation among them. The author blames the village panchayats for their reluctance to take up the social forestry programmes seriously and advocates the establishment of some co-operative institution for the purpose.

VII

REVIEW OF PROGRESS AND PROBLEMS OF FORESTRY

Four papers were selected for discussion on this theme. Ajit Kumar Mitra reviews the progress and problems of forestry in India during the last three decades of planning. He pleads for higher allocation of resources for the forestry sector than what has been allocated to this sector in the past. The paper seems to be primarily a survey article having very little analytical content.

Biman Kar examines various silvicultural and ecological issues in forestry in the North-East Region. He finds that there has been a drastic reduction in the area under forests in the Region and he attributes this decline to the increasing pressure of population on land and consequent extension of cultivation of crops to forest lands, increase in the extent and intensity of jhuming, over-exploitation of forests, and inefficient and corrupt management. Among the major problems of forestry in the Region, he lists soil erosion, silting of river beds, uneven distribution of rainfall, and denudation of forests. The author prescribes a few alternative measures for developing a vegetal cover for the hilly areas in the Region. The measures include extension of rubber

and coffee plantations, development of horticulture, adjustments in the existing land use pattern and better management. The author does not, however, specify any institutional mechanism for implementing these measures.

K. M. George attempts to assess the extent of denudation of forests and consequent difficulties experienced by the poor in a village in northern Kerala. From his survey of 100 poor households in the village, the author finds that the denudation of forests in the area is the result of increasing population and consequent food and fuelwood scarcity, and growing educated unemployment and that the denudation has made the life of the poor more miserable than what it was in the past. They now spend 114 per cent and 227 per cent more time in collecting firewood and fodder respectively than in 1971. The author concludes the paper by raising a couple of questions including one on how to arrest the denudation of forests.

D. K. Das presents pertinent facts and figures about forests in Papua New Guinea and discusses the problems and prospects of forestry there. The author observes that the extremely heterogeneous mix of tree species and the complex land tenure system obtaining in the country are the two major problems of forestry and that both these could be solved by active involvement and co-operation of the land owning group. The author does not discuss the implications of his findings for forestry development in India.

VIII

ISSUES FOR DISCUSSION

The following important issues emerge from the preceding review of the papers. These issues are either not adequately thrashed out or are not at all dealt with by the authors. It would be good if these issues are further discussed at the Conference.

1. Policy instruments for increasing area, production, and productivity of forests.
2. Major conceptual and empirical problems in estimating demand for and supply of forest products and an appropriate management information system for the forestry sector.
3. Alternative institutional/organizational structures for planning and management of afforestation of waste lands.
4. Major problems in marketing forest products and alternatives for their resolution.
5. Alternative institutional/organizational structures for involving people in social forestry programmes.
6. Major economic, social and ecological impacts of denudation of forests and shifts in land use and alternative strategies for minimizing the adverse impacts.