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SUMMARIES OF GROUP DISCUSSION

SUBJECT I

CHANGING STRUCTURE OF OWNERSHIP OF LAND AND ASSOCIATED ASSETS AND RURAL LABOUR FORCE ABSORPTION IN DIFFERENT REGIONS

Rapporteur: K. Subbarao*

(a) *Changing Structure of Rural Assets*

The Group noted at the outset the main findings of the keynote paper,¹ e.g., (i) the steady fall in the average size of operational holdings; (ii) the relatively lower skewness in the concentration ratio (CR) of all rural assets as compared to the CR of the land asset, and the relative stability of the former ratio in most parts of the country; and (iii) the rise in the share of durable household assets. In the discussion that followed it was stressed that, by and large, land distribution (structure) virtually determined the control over non-land assets as well in rural India. Even though demographic pressures and political compulsions reduced the feasibility of radical land reform as a means for expanding livelihood, the Group felt it was essential for other reasons such as proper maintenance of community assets (which was easier when everybody had a roughly equal stake) and also as an alternative to fiscal intermediation in the agricultural sector. It was also necessary for more equitable distribution of benefits of public investments under newly completed major irrigation projects.

The Group noted the phenomenon of rising share of durable household assets and felt that it could in part be the result of growing commercialisation and shifts in the consumption patterns (via the demonstration effect) especially after public functionaries began to shift to the rural areas. It was, however, felt that there were significant inter-State differences in the rising share of durable assets which needed more rigorous analysis. For example, while the sharp rise noted in Kerala could be explained by remittances from abroad, it was difficult to explain the increasing share of durable assets in Tamil Nadu and Assam.

The Group discussed the emerging Statewise patterns in both land concentration and tenurial changes. First, the Group noted lack of correspondence between the findings of different papers for the same State. For instance, while one paper noted a decline in the concentration ratio for Karnataka, another paper found the opposite based on a different data set.

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1. M. L. Dantwala, "Rural Assets Distribution and Composition of Labour Force", *Indian Journal of Agricultural Economics*, Vol. XLII, No. 3 (Conference Number), July-September 1987, pp. 275-285.

It was stressed that there was a need to reconcile these findings. The Group also noted that more care was undoubtedly required in making temporal comparisons from large surveys.

The inter-State differences in the trends in average size of operational holdings and the emerging tenurial relations and its implications were discussed at length. The Group took note of the important finding of a rise in the average size of operational holding in the Punjab, in contrast to the declining trend noted in most other parts of the country. In this context, the circumstances under which the pure tenant disappeared in the Punjab in the North and Thanjavur in the South were discussed. It was noted that while the demise of the pure tenant in the Punjab was largely due to market forces and technology, in Thanjavur (Tamil Nadu) pure tenants became owner cultivators by legislation which proved effective due to the particularly favourable situation prevailing in that region (such as the landlords being absentee Brahmins from whom land could be easily taken, the relatively more articulate tenant organisations, etc.). By contrast, the pure tenants survived in West Godavari albeit under onerous conditions.

The Group spent some time on an interesting paper dealing with the determinants of net household income (crop + non-crop + wage) inequality in the Punjab² which was circulated at the Conference. While noting the interesting results of this decomposition exercise which attributed a large proportion of observed inequality to land asset distribution, the Group felt that there was considerable scope for improvement in the handling of both data and methodology.

(b) *Labour Absorption*

The Group discussion on this issue centred around the main points noted in the keynote paper,³ *e. g.*, the decline in self-employment, rise in casual wage employment, alongside sectoral shifts towards non-agricultural sectors. The Group felt that these tendencies could be better understood only when time-series data on labour absorption in agriculture were carefully analysed. This was done in the second keynote paper on labour absorption⁴ which was presented and discussed. The Group noted the sharp decline in the average (all-India) per hectare employment elasticities for the cereal crops and the association of yield growth with labour-saving technology for wheat after the mid-1970s. Special concern was expressed about the fact that labour absorption was slowing down precisely in those regions where acceleration in labour use was essential from the point of view of poverty alleviation. The Group, however, felt that a necessary condition for the adoption of new technology was a rise in operating surplus, and that if the latter did not rise there was hardly any scope for additional labour use. It was, therefore, necessary to

2. A. C. Julka and R. N. Soni, "Inequalities of Income, Land Ownership and Associated Assets among Cultivating Households of the Punjab: Results of an Exercise in Determinant Decomposition" (mimeo.).

3. Dantwala, *op. cit.*

4. Sheila Bhalla, "Trends in Employment in Indian Agriculture, Land and Asset Distribution", published in this issue of the *Journal*.

know the inter-State variations in the behaviour of the operating surplus. The Group also stressed that labour absorption could not be an end by itself; it should be accompanied by productivity growth. The Group was divided on the characterisation of mechanical energy use as labour-saving technology. Some felt that the technology was essentially land-augmenting to begin with, but capital substitution was encouraged via capital subsidies, subsidised institutional credit for tractor purchases, coupled with a rise in the real wage in the green revolution belt. Others felt that the use of mechanical energy (such as threshers) saved time and enabled quick preparation of the soil for the second crop, so that cropping intensity rose which facilitated greater labour use per hectare per annum; consequently it could not be characterised as labour-saving.

The Group felt that important changes occurring in labour-hiring practices (such as a shift from 'time' to 'piece' rates) should be considered in studies dealing with labour absorption. The Group also noted that labour management problems were partly responsible for the observed tendencies towards mechanisation. It was, therefore, important to encourage changes in labour-hiring practices, so that capital was not substituted for labour.

(c) *Policy Options for Increasing Labour Use*

The Group considered the various alternatives for quickly enlarging the scope for additional remunerative labour use in the Indian economy. It was noted that where semi-feudal relations adversely affected full utilisation of scarce resources such as irrigation water and constrained the expansion of cropping intensities and additional labour use (*e.g.*, as in some parts of Eastern India), there was an urgent need for effective implementation of structural reforms so as to abolish such semi-feudal relations. Reforms such as 'Operation Barga' as in West Bengal were absolutely essential to maintain the livelihood of the share-croppers and pure tenants. While these institutional reforms were important, the Group felt that it was equally important to accelerate the rate of economic growth for reducing poverty incidence in the long run. Generalised prescriptions for relaxing the constraints to growth might not help as the constraints differed across regions. For instance, in some regions (*e.g.*, Eastern India) the growth of agriculture and labour use could indeed be constrained by the existing institutional rigidities in which case there was an urgent need for appropriate intervention. In other regions such as Tamil Nadu where structural conditions were much less inhibitive, agricultural growth was constrained by other factors (such as slow growth of investment in irrigation and technology). Thus the primacy of a particular intervention to accelerate the growth could differ from one region to another. The Group felt that in the meantime (*i.e.*, until growth accelerates sufficiently so as to absorb the additions to the workforce), there was no option but to expand wage employment opportunities for the very poor households, who could not be expected to hold on to assets or face the vagaries of the market. Considering the massive increase in the marginal holdings and the expected additions to them by the turn of the century and the growing landlessness,

the Group felt that measures for improving the productivity of their limited and depleting assets and for augmenting the non-land asset base of the landless via plugging the leakages in the Integrated Rural Development Programme would go a long way in the prevention of casualisation of labour by preserving as well as expanding the opportunities for self-employment.

SUBJECT II

IMPACT OF AGRICULTURAL DEVELOPMENT ON ECOLOGY AND ENVIRONMENT

Rapporteur: I. J. Singh*

The salient features of the keynote paper on "Developing Renewable Resources: A Case Study from Karnataka Western Ghats" were presented by its author, Madhav Gadgil. The paper has highlighted the problems of over-harvest of renewable resources of a micro catchment area Sirsimakki on the hill range of Western Ghats with respect to the social dynamics of access of these resources. The crops grown in this catchment area included paddy, sugarcane, coconut plantation, mulberry cultivation and arecanut orchards, besides trees and grasses. Land holdings are fragmented and the soppinabetta lands which are Government lands under the control of arecanut orchard owners, are primarily accessible for collection of leafy matter (soppu=leaf and betta=hill in Kannada), small timber, and to meet the fuel and fodder needs of orchard owners.

Renewable resources are those resources whose capital stock can increase or decrease through natural process. These include plant biomass and soil which is made up of a number of components such as mineral or humus, each of which is a renewable resource. The findings in the paper revealed that the ecological imbalances have increased in crop land, orchards, streams, soppinabetta, minor forest and ponds. The imbalances related to the pattern of ownership; the privately owned crop lands and orchards did better than the streams, soppinabetta, minor forest and ponds which were under public ownership. The ecological balance for the privately owned lands was being maintained at the cost of public or common property resources. Gadgil reported over-grazing of forest lands leading to fire hazards. In addition, soil erosion from the forest lands has silted up perennial irrigation ponds and reduced the irrigated area resulting in ecological imbalances.

The Group discussed at length the social, economic and ecological aspects of constructing dams and reservoirs, forest reserves and livestock raising. The need to include population and other factors causing ecological imbalances in the planning process for better policy formulation was also discussed by the Group. It was also pointed out that many times dams and reservoirs were constructed on political considerations rather than on ecological and environmental considerations.

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One of the authors of the paper entitled "Degradation of Agro-Ecosystem—An Exploratory Study on Cotton Farming" reported that on cotton farms in Guntur and Prakasam districts of Andhra Pradesh, excessive application of chemical fertilisers and pesticides seriously damaged the agro-ecosystem resulting in nutritional disorder, new pest outbreak and decline in cotton yield to the extent of about 60 to 75 per cent over a short period of three years. Similarly, one of the authors of the paper on "Impact of Irrigation Development Programme in Western Maharashtra" reported a relatively low benefit-cost ratio of 1.19:1 as well as a considerable disruption in the social and economic life of the families displaced by the irrigation projects. The Group observed that such irrigation projects are Pareto sub-optimal and indeed ecological balance is a myth.

Adverse ecological effects of using more than the recommended levels of nitrogen and irrigation water on a few selected paddy farms in Punjab and Haryana were discussed at length. As a result of the excessive use of nitrogenous fertilisers and irrigation water, not only wildlife and medicinal plants were adversely affected but the underground water also got polluted. These were, however, a few isolated cases and did not reflect the general trend on the farming community as a whole. Withdrawal of subsidies on fertilisers to check excessive fertiliser use was not considered a practical proposition.

Finally, the Group discussed the issues raised by the Rapporteur in his report. These issues are as follows:

1. The Problem of Measurement and Evaluation of Ecological and Environmental Effects of Agricultural Development

In measuring and evaluating economic effects of agricultural development, it was noted that both ecological and environmental aspects should be considered. The Group recognised that although it was not necessary for an economist to become an ecological protagonist, ecological considerations could always be accommodated in the analytical framework of an economist for optimum use of the society's resources including the economic and ecological interests of future generations. In this context, it was emphasised that traditional tools of economic analysis would not be adequate. However, conventional social cost-benefit analysis, in spite of its inherent conceptual deficiency, could be used with care to measure and evaluate ecological and environmental problems.

An analytical framework to analyse ecological and environmental problems was discussed. The model would be useful in identifying ecological and environmental problems as it would include resources, technology and environmental matrix emphasising multi-disciplinary approach to solve the ecological and environmental problems.

2. Problems Relating to Institutional Mechanisms for Ecological Conservation

With regard to the problems relating to institutional mechanism for ecological conservation, it was pointed out that privately owned farms caused less damage to ecology and environment than the share-croppers. Detailed

discussion also took place on jhum cultivation and its adverse ecological effect. With regard to the displacement of tribals from the forest area to protect the environment, the institutional network has failed and the solution has become the problem. The change in the life-style of tribals through democratic means and their integration with local forest economy as well as ecological preservation in drought-prone areas was stressed. It was stressed that urgent attention was needed to initiate research studies on the role of property rights and land tenure systems in soil erosion, institutional and economic constraints in reversing land degradation and socio-economic aspects of alternative land use including farm technologies.

3. *Problem of Agricultural Technology Research Appropriate to Eco-Conservation*

Farming system research involving crop rotation, multiple cropping and mixed farming currently being done at different Agricultural Universities and institutions was seen as a means to develop output maximising technology. The Group felt that the researches on environmental and ecological aspects of irrigation, fertilisation, pesticides use, etc., should form an integral part of the farming system research.

SUBJECT III

HORTICULTURAL DEVELOPMENT

*Rapporteur: S. C. Tewari**

At the outset, the Group discussed the scope of horticulture as a discipline, concept of an orchard, and as to who should be designated as an 'orchardist'. After detailed discussion, the Group felt that the scope and definition are likely to vary depending on the objectives and purpose for which these are to be delineated. Therefore, researchers should define them according to the purpose of their study and mention it in the body of the report.

As for horticultural statistics, the Group felt really concerned about the matter. It was pointed out that the time-series data in respect of area, production and productivity were not available for most of the fruits and vegetable crops and the information that was available in some of the States was inadequate and conflicting. In Himachal Pradesh, the area under fruits and vegetables is reported by agencies such as the Directorate of Agriculture, Horticulture and Land Records. The methods adopted for collection of data by these organisations differed significantly. Area statistics in respect of fruits was based on supply of seedling and mortality rates and the quantity of vegetable seeds distributed by the Department of Agriculture in the case of vegetables whereas the Land Record office would not record the area under particular fruit crop so long as it was not intercropped with seasonal crops. And in the case of vegetables, the data were not entered if the area under

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them was less than half a bigha. The production figures were not based on crop cutting experiments. Generally, production estimates were based on the quantity exported to other States. Under such a situation policy formation for horticulture development became difficult. It would, therefore, be necessary that various agencies involved in the collection of data on area, production and productivity should sit together and reconcile to a common strategy to avoid discrepancies. No scientific survey has so far been carried out to estimate the number of trees under different varieties and age groups. Not much has been done by way of fruit harvesting experiments to find out the varietywise productivity rates for different locations. This perhaps was due to the fact that no forecasting was done for the majority of fruit and vegetable crops. The participants expressed that since the situation with regard to foodgrains, oilseeds and other crops has of late improved considerably, horticultural crops should not be ignored anymore. It was also specifically suggested that in areas of low rainfall, horticultural crops would play a major role in times to come. Several examples—cultivation of pomegranate near Poona, citrus and mango cultivation in Punjab and production of arid fruits in Rajasthan and Haryana—were cited in the discussion. The participants from Punjab also emphasised that labour being scarce in that area and horticultural crops being high pay-off crops, great potential existed there for growing fruit crops. Plantation of fruit crops in those areas where jhum cultivation is in vogue could prove immensely helpful in ameliorating not only the socio-economic status of the people but also the ecosystem.

The Group also suggested that multi-locational projects and sample surveys particularly for fruits and vegetables should be conducted for getting reliable information regarding production, productivity and marketing of such crops.

While the methodology for calculating the cost of production of fruit crops was now well known, there was need to sharpen the tools in the context of the peculiar nature of these enterprises. The selection of discount rate should be based on the choice of investor, resulting in better cost-benefit ratio. Methods should be devised for accounting the value of output and input costs of intercropping done in orchard area. Also, the productivity curves needed to be standardised for various perennial crops on the basis of empirical studies.

Post-harvest management, it was felt, included pre-harvest management as well. This would obviously include all processes and functions right from picking/harvesting of fruits/vegetables upto the retailing and eventually to the final consumers. The Group discussed the role of all the marketing functions in relation to horticultural development and the problems faced by the producers and consumers. It was also observed that even though standard grades under 'Agmark' have been in vogue for a large number of fruits and vegetables, many of the producers did not adopt them. Lack of knowledge about the grade standards and no legal obligation on the part of the producers to enforce them were the main reasons for non-adoption of standard grades. The Group felt that the producers should be educated about the grading, and its economic advantages.

Any developmental effort for the extension of vegetable and fruit crops in the potential areas would be a complete failure until or unless the area was linked with motorable roads. The Group suggested that in future, horticultural developmental programme should be taken up only in areas which would be accessible by motorable roads and have the requisite infrastructure. As all the fruits and vegetables are not consumed in the production area, adding place utility to the produce is essential to ensure better returns to the growers. Fruits and vegetables being highly perishable, they required efficient transportation system to minimise quantitative losses and quality deterioration. Non-availability of trucks during the peak season, exorbitant fare charges, enroute transshipment of produce and checking at various barriers were pointed to be some of the factors responsible for deterioration in the quality of the produce resulting in poor returns to the producers. The Group thought that the problem of transportation could be solved by forming co-operative societies with a view to organise transportation of the produce from their operational areas. It was also suggested that truck transport charges should be regularised by the government and fruits and vegetables should be given priority at the check posts and barriers. Railways should also give preferential treatment to the transport of fruits and vegetables.

Like other agricultural crops, production of horticultural crops is also seasonal in nature and the demand for it is generally throughout the year. Due to the non-availability of cold storage facilities in the producing areas and weak financial condition of the growers, they are deprived of the remunerative prices which they would have otherwise received in the lean season. The Group advocated that the cold storages should be established in the producing areas on co-operative lines. It was suggested that non-refrigerated air cooled storages might be tried in hilly areas of the country. The Group opined that for better utilisation of culled and low grade fruits, medium sized processing plants should be established in the producing areas to manufacture semi-processed products which could be transported more conveniently and economically to large consuming centres located in the cities.

Regulation of markets, it was brought out by the participants, has not solved any of the problems of fruits and vegetable marketing. Similarly, various Corporations, Boards or similar other bodies established for the benefit of fruits and vegetable producers have not been able to come upto the expectations. This has been so mainly because of political intervention, high over-head costs, recruitment of inefficient persons, etc. However, there are exceptions to this statement. The Himachal Pradesh Horticultural Produce Marketing and Processing Corporation established with World Bank aid has successfully established prices of apples in metropolitan towns.

While discussing Government policy on prices, the Group was informed of the support prices fixed for culled and low grade apples, citrus and guava in Himachal Pradesh. This has provided relief to the fruit producers though it may not be in the interests of the final consumers. The dependence on forests for the supply of the much needed wooden packing cases was discussed in detail. The Group was informed that this dependence was being reduced

gradually at least in Himachal Pradesh with the supply of corrugated card board cartons at subsidised rates.

Finally, the Group emphasised that research studies in the field of production and marketing of fruits and vegetables on all-India basis should be undertaken. The priority areas identified by the Group were as follows:—

1. Feasibility of growing of various fruits. This may include cost of production, comparative study between fruit cultivation and field crops and economic viability of fruit crops cultivation.

2. Comprehensive study on the marketing of fruits and vegetables. This may include the following components: (i) Trends of areas and production varietywise and locationwise. This would need horticultural census and fruits and vegetables experiments; (ii) Exports and imports; (iii) Consumption pattern of fruits and vegetables among urban and rural people as well as their preference for variety and grade; (iv) Marketing system, efficiency, channels, costs and margins, and quantitative and qualitative losses incurred in marketing channels; (v) Pricing pattern and behaviour of fruits in major markets: spatial and temporal analysis; (vi) Study of processing and storage of fruits; and (vii) Role of pre-harvest contractors.

3. Grading and standardisation of fruits and vegetables: This will include grades and standards used in practice and those prescribed, economics of grading, problems involved, etc. Studies should also be conducted to find out the economic feasibility and peoples' acceptance as well as impact on returns to mechanical grading and packing houses.

4. Availability of packing cases has already become a very serious problem. In this direction, research should be taken up in a concerted way on: (i) Alternative designs and sizes of packing cases which might consume less wood per unit of commodity packed; (ii) Desirability of using wood in the form of plywood, corrugated board, etc., for packing cases; (iii) Possibility of substitution of and/or supplementing wood by other suitable materials for the manufacture of packing cases; (iv) Selection of suitable species for packing cases and research on their silviculture and management; (v) Economic viability of establishing integrated units of various industrial components utilising all types of wood and by-products of wood-based industries; (vi) Determining the correct stage of plucking different fruits and vegetables in relation to packaging; and (vii) Post-harvest physiology of fruits and vegetables with regard to their packing needs.

The Group strongly felt the need to educate the fruit and vegetable growers on the various aspects of production and post-harvest handling so that they could adopt the latest technologies of production and various techniques in the field of marketing which would ultimately lead to the improvement of the economic conditions of the growers.