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RAPPORTEUR'S REPORT

ON

STRATEGY FOR AGRICULTURAL GROWTH AND EQUITY

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When I was asked to act as a Rapporteur for the session on Agricultural Growth and Equity, I accepted the invitation with a mixture of fear and hope. My fear was that, looking to the current concern over the problems of income distribution in agriculture, I will be flooded with papers and I might not do justice to the contributors due to sheer quantum of the work involved. My hope was that the perusal of various contributions would enable me and other participants of the Conference to learn something meaningful on this very important topic. While my fear was totally belied, the hope was only partially fulfilled. The number of papers submitted for discussion was just 10, not a large number for a Conference topic. But, with a few exceptions, the viewpoints they represent or empirical evidence they have marshalled, are hardly novel or thought-provoking. What follows is, firstly, brief comments on each of the papers considered for discussion and then some suggestion for organizing the group discussion on this theme.

I

The paper by J. P. Bhati and R. Swarup is more an effort to develop a framework for development planning than a discussion of the main theme of the subject as defined in the synopsis published in this *Journal* (Vol. XXIX, No. 1) for the guidance of the contributors. Even as an exercise in evolving a development plan their approach is rather text-bookish. The "optimality conditions" for resource allocation which they have outlined have already found a place in the text-books on the subject of agricultural production and resource use. They have not, at least, in this paper, gone even a step further. Nor have they tried to grapple with the real issues. For example, no mention is made of the application of principles of compensation once there is a conflict between the welfare and the production goals. The welfare economics has gone much beyond the days when Heady wrote his classical text-book on Agricultural Production and Resource Use. In the background of the marginalist approach as presented by the authors, their suggestion that the land reform measures should be taken to "introduce socialism in agriculture" sounds incongruous, if not illogical.

A. S. Charan in his paper on "Investment in Irrigation Projects and Its Impact on Pattern of Income Distribution" makes an interesting point inasmuch as he looks into the role of public investment in irrigation as a strategy variable in agricultural development and income distribution. Most

of the literature on this subject in our country suggest that the introduction of irrigation has aggravated income inequalities in the command areas. Charan's evidence points to the contrary. The methodological limitations in the paper, however, take away some of the creditability of the findings. For this type of study, a "before and after" approach is the only valid approach, while due to data constraints the author has to use "with and without" approach. His interpretation of the results obtained from the Lorenz curve and Gini ratios is rather mechanical. On the credit side, the author is careful in comparing income levels on the basis of number of persons (in different income groups) rather than households, to avoid large household bias among the high income groups. Also, the examination of the absolute level of poverty in the command and control areas makes the discussion more meaningful. The significant contribution of his paper is the reason which he provides to explain why no aggravation in income inequalities took place following the introduction of irrigation. The irrigation authority in this case put a ceiling of five acres of area under irrigation for each holding in the command area irrespective of the size of holdings. This enabled a large number of small farmers to have proportionately larger area under irrigation. Surprisingly, this important piece of information is tucked away in a footnote at the end of the paper !

Dayanatha Jha's paper on "Agricultural Growth, Technology and Equity" is a refreshing contribution in analysing the effects of agricultural research on factor productivity and factor shares in agriculture. Building on Evenson's and his own earlier researches, Jha has tried to demonstrate that the agricultural productivity gains are unevenly spread among different States; the contribution of land and labour in the incremental production in different States is dissimilar ; the research efforts in agriculture can explain to a large measure the growth in agricultural productivity in different States; there is scope for inducing technical change in desired directions, the latter being indicated by the resource endowment of different States. All this he has tried to support with some kind of empirical evidence. While the basic logic underlying his thesis is convincing, one can question some of the empirical evidence, particularly because enough care is not taken to ascertain the statistical significance of the differences between different series of data. Another methodological weakness of the paper is that the results arrived at on the basis of trends fitted on production data pertaining to a few years have been reported uncritically. In all such exercises occurrence of one or few abnormal years can distort the results. A glaring example is the case of Rajasthan during the period 1963-65 to 1969-71. It is only because of a phenominally good year of 1970-71 that Rajasthan's growth rate during this period looks so encouraging. In view of the short reference period and the large incidence of weather induced fluctuations, some caution in interpretation of results is clearly indicated.

The paper on "Strategy for Agricultural Development for Tribal Regions of Madhya Pradesh" by M. L. Patel discusses developmental problems of

backward districts of Madhya Pradesh dominated by the tribal population. There is little explicit discussion on income distribution. But if one assumes that the tribal population as a whole is poor and that the resource distribution among them is largely equitable, not much is lost by concentrating on the discussion of the problems of agricultural development in tribal agriculture. Patel has adopted the framework for regional growth provided by Mosher, which places emphasis on provision of infra-structure at strategic locations. However, the author's translation of these concepts in the context of the tribal regions of Madhya Pradesh leaves much to be desired. His main emphasis is on a comparison of the plan expenditure in the backward and non-backward districts. Apart from the fact that it is not only the total outlay but its distribution in different programmes or activities which is important, the results given by him do not show any marked disparity between the backward and advanced areas in this respect, at least not during the First and the Second Plans. A more careful use of the data on public outlay could have given a better insight into the role of public investment in creating production potential in the agricultural sector. The author's identification of growth potential on the basis of the difference between cultivable land and land actually cropped raises many questions, not only because land is only one of the several factors of production, but also the quality of land differs from district to district and the tenurial arrangements under which the land is cultivated also vary.

S. M. Patil's paper titled, "Strategy for Agricultural Growth and Equity," is a catalogue of all desirable activities. His suggestions range from scientific breeding of animals to the application of Gamma radiation for preservation of seafood. In between hardly any worthwhile programme of agricultural development is left out. The difficulty with such type of listing is that one never knows the cost—social or private—of individual programmes nor is there any clue to prioratise in the use of scarce resources. The author is also silent on the distributional aspect of various developmental measures. His suggestions on the role of agricultural universities in the development of the surrounding regions could have been presented more rigorously as a model of development emphasizing the role of research and extension.

P. C. Shukla's paper on "Policy Programme for Agricultural Development and Welfare at Home," notwithstanding its rather confusing title makes certain valid points on the role of institutions, particularly the relationship in land, in the process of agricultural development. Some of the important points made by the author, for example, that not only there is over-capitalisation on the small farms but also the rate of return is lower compared to that on the large farms, are lost in a plethora of well-worn cliches. If the author would have concentrated on the aspect of relationship in land and agricultural development, it could have been an interesting contribution.

In one of the few case studies, Daulat Singh and Ram Iqbal Singh have described the experience of Green Revolution in Uttar Pradesh. The authors maintain that what is known as the Green Revolution is in fact an outcome of agronomic revolution, chemical revolution, engineering revolu-

tion and management revolution. The supporting evidence to prove that a remarkable increase has taken place in agricultural production in areas where the High-Yielding Varieties (HYVs) have become popular is quite convincing. However, what is intriguing is the fact that the additional production in different crops does not bear a direct and proportional relationship with the additional area under the HYVs of the same crop. For example, while the additional area under HYV wheat increased by 12,63,000 hectares and additional production by 25,99,000 tonnes bearing roughly a ratio of 1 : 2, in the case of paddy the ratio between additional area under HYV and additional production is more than 1 : 8. How does one account for such wide divergence ? The authors' impression that the supporting policy measures like price policy, credit policy, input supply policy are well designed and that the institutional impediments are no longer bottlenecks sound overenthusiastic, especially so if one were to look into the performance of the State in the sphere of food production during last few years. The types of imbalances following in the wake of HYV programme which they point out, *viz.*, imbalance among different crops, among different regions and among different socio-economic classes are well-known, but the merit of their presentation is that at least in regard to the first two, they have produced supporting evidence.

In a well written and well documented paper, Harpal Singh is pleading a case for middle peasantry which, according to him, will satisfy the needs of growth as well as equity. The illustrations provided from the farm management studies do not necessarily strengthen the author's case. The weakness of the aggregated farm management data has been aptly brought out by Ashok Rudra and others. In any case, the conclusions derived from one year's data are highly suspect. Even with all these limitations, if one were to concentrate on the size-group of 9 to 14 hectares, the levels at which the author wants to apply the ceiling, from the data presented one does not see any merit in taking this size-group as a cut-off point. This size-group does not come out to be consistently superior in terms of the incomes and productivity criteria discussed by the author. One or the other size-group fares better in respect of some of these indicators. Unless and until the author has a weighting device by which he could construct a composite scale and could prove that judged on that scale the particular size-group satisfies the growth and equity criteria, there is no logical reason to suggest why the ceiling should be at the level the author has given. In any event, no State in the country has suggested a ceiling below 14 hectares of the average quality of land. It is not clear, therefore, what the author or the persons he quotes approvingly are objecting to ? This is about Punjab. For Uttar Pradesh, the author is even more on weak grounds since on the basis of a number of indicators the small holdings seem to be as efficient as, if not more than, the medium sized holdings. Once one agrees to the legitimacy of a ceiling on land to avail economies of scale, one will have to seriously look into the economies and dis-economies of scale in the whole range of activities. It is doubtful if such examination will produce many soft options as the author seems to imply.

In their paper on "Disparities in Agricultural Growth and Equity in India," C. B. Singh and A. S. Sirohi have maintained that the regional imbalances in foodgrains production have aggravated with the spread of the green revolution. The authors use the compound growth rates in area, production and productivity for different States during the pre-and post-HYV period, as the principal tool of anaylsis. Their use of the tool, as well as interpretation of the results, is rather mechanical. As pointed out earlier, the growth rates for a short period of, say, 7 or 8 years can be grossly affected if either of the terminal years, or an year in between, is abnormal. This seems to have affected the authors' analysis as the base year for the assessment of the impact of the so-called green revolution is 1965-66, which was drought year for a large part of the country. Although the authors have given the levels of significance for different results tabulated by them, while interpreting the results in the text no importance is attached to the statistical significance, or lack of it, of the results quoted. The interpretation is mechanical also in the sense that some of the wayward results are given in the text without any explanation. For example, what one can make out of a 30 per cent *per annum* increase in productivity and 72 per cent *per annum* increase in production in maize in a State like Karnataka? The title of the paper suggests that the authors will be discussing the trends in total agricultural production, they have, however, restricted their discussion to four major foodgrains crops, though towards the end of the paper the figures of the per capita food production for two years, 1964-65 and 1972-73 are also given. The least that they could have attempted was to examine the trends in per capita availability of foodgrains in the pre- and post-green revolution periods in different States.

S. M. Soham in this paper, "Technological Advance in the Agriculture of Rajasthan State," attempts to depict the level of technical advance in the agricultural sectors of different districts of Rajasthan on the basis of four indices, *i.e.*, irrigation, high-yielding varieties of seeds, chemical fertilizers and chemical plant protection measures. It should have been known to him that all these variables are highly correlated. In fact, he could have easily selected one indicator, namely, irrigation, and arrived at more or less the same ranking. The most pertinent question to ask is as to why rapid expansion of irrigation could take place in some areas and why not in others. If the study would have been focussed to answer such questions, it could have at least partly fulfilled the purpose of this discussion.

II

A perusal of the synopsis on this topic published in the Journal would suggest that the contributors were expected to discuss various models of agricultural growth, policy instruments wielded to achieve growth under these various strategies, and their implications in the sphere of equity. The latter was understood primarily in terms of income distribution within the agricultural sector and between agricultural and non-agricultural sectors. Discussing equity in terms of a move towards more egalitarian distribution of incomes

is not much of a disadvantage, although the purists from the public finance area may resent such "narrow" interpretation. But restricting the discussions to the agricultural sector alone, as practically all the contributors have done, assumes away the serious problem of inter-sector equity, *i.e.*, between the producers of agricultural produce and the consumers of these products.

While no systematic attempt is made to present a model of growth and derive its implications in terms of income distribution, several contributors have attempted to highlight one or the other key variables such as research (Jha), irrigation (Soham, Charan), or public investment (Patel). Many more have looked into the strategy revolving round the high-yielding varieties of seeds (Singh and Singh, Harpal Singh, Singh and Sirohi, etc.). And at least two authors (Harpal Singh and Shukla) have referred to the likely impact of a land reforms programme. Yet, one major source of growth, the investment in human beings, has received the least attention. Similarly, the price policy and the credit policy deserve much fuller treatment from the contributors in this field. The geographical coverage by the contributors is also restricted, except in two cases where the authors are using States as the primary units of their analysis (Jha, Singh and Sirohi). Only Uttar Pradesh, Rajasthan and Madhya Pradesh have figured as the case studies. Omission of the southern and the eastern States is particularly glaring.

The Group may consider discussing the topic on following lines. It will be instructive, first, to be clear about the areas of conflict between growth and equity in the agricultural sector. But instead of discussing in general terms, it will be helpful to pinpoint the discussion around a few well defined strategies for agricultural growth. In this connection we may like to discuss which of the models of agricultural growth we consider relevant in our circumstances. The Group can, next, look into the role of policy measures, especially price and fiscal policy measures, in ensuring the success of different strategies of growth. The third area of discussion would be to understand the income distribution implications of various strategies of agricultural development with the policy packages appended to such strategies. The fourth, and to my mind the most relevant, aspect is that if for the reason of immediate gains in production, we opt for a strategy of growth which by itself is likely to aggravate the equity problem, what type of transfer mechanism can be devised by which the gains in productivity are shared within the agricultural sector and between agricultural and non-agricultural sectors in a more equitable way. If we reach the conclusion that the present organization of agriculture cannot adopt such mechanism, the case for massive public outlay to supplement individual efforts and far-reaching institutional changes directed towards a rational system of ownership and use of land becomes strong.

The Group may like to concentrate on more recent experience in this country as an illustration. Since 1966-67 Indian planners have given major emphasis to the High-Yielding Varieties Programme as the main strategy for increasing agricultural production. A whole system of policy instruments

were devised to extend the area under HYV. These included an elaborate establishment for fundamental and adaptive research and its extension in the favoured areas, a system for preferential supply of scarce inputs to the HYV areas, an income protection programme for HYV growers mainly operated through high relative prices and State's assurance to purchase the market supplies should the market fail to clear at the minimum guaranteed prices. Two elements explicitly missing from the package were, (*a*) investment in public infra-structure including that in credit and supply system to enable areas and sections of farming community which were initially found handicapped, to avail of the technological break-through symbolised by the HYV programme, and (*b*) institutional arrangements to see that the gains in productivity are equitably shared between the wage labourers and the cultivators, on the one hand, and producers and the consumers of the HYV cereals, on the other. Implicit in the whole approach was some notion of "percolation," *i.e.*, the good things started at one point eventually seep through the whole system.

All available evidence, including the evidence of most of the contributors to this session suggest that there are no clear indications of such percolation of benefits either among the agricultural labourers or among the consumers of the agricultural produce. To crown it all, after a quinquennium of remarkable success the vigour of the new strategy already seems to be spent out. The specific questions that one has to ask, therefore, are : (*a*) Is the present halt in the progress in HYV essentially a technical phenomenon, *e.g.*, the vigour of the hybrid has diminished, or the varieties suitable for newer areas have not yet been evolved, or the immunity from the pests and diseases has been reduced ? (*b*) Are the public policy measures, particularly price and distribution policy measures coming in the way of the expansion of HYV programme (although if one takes this stand, one will have to prove that over the period the per hectare net income—or should it be farm business income ?—from alternative crops is higher than that from the crops for which the HYV are being popularised, and also that the scope for large-scale shifts in the cropping pattern does exist) ? (*c*) Are the areas and sections who have adopted the HYV at the initial stages are by now more or less saturated and therefore we will have to move to new areas and popularise these varieties among different sections of cultivators, with all that such shifts imply in terms of investment in human beings, resource development, and institutional change ? (*d*) Will such shifts, together with the necessary ancillary measures make the strategy of HYV better vehicle for ensuring agricultural growth with more egalitarian income distribution at least in the areas where there are no physical constraints to the spread of the high-yielding varieties ? Finally, (*e*) what in the short and in the long runs are the best strategies for the dry areas if we wish that the agriculture in these areas should move forward without bringing distortions in income distribution in the wake of such progress ?