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SUMMARIES OF GROUP DISCUSSION

SUBJECT I

LONG-TERM PROSPECTS OF AGRICULTURAL GROWTH VIEWED IN THE LIGHT OF SOIL-CLIMATIC, TECHNOLOGICAL AND INSTITUTIONAL CONSTRAINTS, AND COSTS INVOLVED IN THEIR REMOVAL

Rapporteur : V. Rajagopalan*

The discussions on long-term prospects of agricultural growth focus generally on the major roles of agriculture, *viz.*, providing food, clothing and shelter; earning foreign exchange for agricultural and industrial growth through export of agricultural surplus; and through capital transfer and demand creation to sustain growth in secondary and tertiary sectors. The basic linkages between agricultural growth and changes in rural sector, particularly with reference to reducing rural poverty, unemployment and inequity, have been assumed rather than analysing their determinants, magnitudes and patterns. While considering the prospects of agricultural growth it would be necessary to examine these linkages and their impacts on growth. This interdependency is important. The Group had noted the emerging resource bottlenecks for sustained growth particularly of closing frontiers of land and water resources and increasing cost of augmentation of their supply. However, if potentialities of technological improvement are considered, one need not take a pessimistic view of the situation. Nevertheless, there are constraints for agricultural growth which are not formidable and what is required seems to be a careful analysis of these constraints, which are soil, climatic, institutional and technological, and identify suitable measures for relaxation of them. Thus, the long-term prospects of agricultural growth would depend much, for some years to come, on relaxation of its constraints. In this process, technologies are developed and adapted to location specific problems, forms of organization and management strategies are continuously evolved.

The Group had noted the regional imbalances in agricultural development between States, forcibly brought out by the President of the Conference in his thought-provoking address. The factors which could have contributed to yield differentials of crops and their growth over the period, yield differential of the identified crops between States, between regions within the State, between seasons and between sizes of farms were discussed. The soil-climatic factors were analysed in detail with background experience of participants. Variations in quality and

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quantum of land resources were considered somewhat distressing and they could be minimized only through investment in land development including conservation, reclamation and improvements in soil capability. Another line of approach pertains to land consolidation, and structural changes in the ownership and operatorship adequately back-stopped by facilitating institutional infrastructure. Furthermore, as land becomes scarcer, it would be necessary to consider land use planning at watershed/regional levels. This would perhaps involve conflicts of interests between private and public goals which needs careful analysis of welfare implications.

It was agreed that water was the scarcest and limiting input. A national perspective of water resources—surface and groundwater—should be evolved and the related policy measures and operational strategies for optimal use should carefully be specified. The water management problems pertain to operation and maintenance of irrigation system upto head reaches and then on to farm irrigation down below. The former involves scheduling the supply of water whereas the latter includes choice of crops, techniques of irrigation and field level organization. Finally, it would be necessary to conserve water by arresting the run-off through a series of check dams or percolation ponds so that irrigation coverage and intensity could be increased. In developing water resource, unless combined with hydel power generation, it should be based on small watersheds. Improving the efficiency of tank irrigation system, whether rainfed or system tanks, through optimum management would seem to have larger pay off.

The Group considered the problems of rainfed agriculture. Three major issues were discussed. First, it was noted that risk and uncertainty factors had deprived the farmers not only of returns to investment but investment itself. Risk management had become the dominating goal of individual farmers, a condition not very conducive for stability and growth of agriculture. Social action and sharing of risks through State participation in insurance would be necessary. Apart from this institutional framework, technology must be brought in to condition and minimize production risks.

Then, the availability, adequacy and relevance of technologies were discussed in detail. Though the existing sets of technologies were considered adequate, the transfer of such technologies was rather tardy and stumbling. Input delivery system was considered to be imperfect. For sustained growth it would be necessary to build research support and extension approaches relevant and appropriate to local conditions. Since much of the growth in agriculture should come from this weak but vital sector, any investment would be worth pursuing because of vast social benefits that would accrue.

Another issue of considerable importance related to awareness and adoption of technologies. The gap could be explained in terms of lack

of relevancy of technology, and inadequacy of investible funds to meet additional cash requirements. In this context, on-farm research, based on feed-back and adaptation, was commended because such field-tested technologies would considerably reduce risks in innovation. It would be a multi-disciplinary research.

The discussions about technological and institutional constraints were all pervasive to be meshed through all along the discussions on resource development, planning and use.

Nevertheless, the need for their orientation to solve location specific problems could hardly be over-emphasized. The basic question of building programmes to generate field information for developing proper perspectives was stressed. Institutional innovation, as a social technological complement to biological and chemical technologies, had remained hitherto unexplored, and would be an area requiring close attention in the future.

The discussions about the nature, magnitude and impact of constraints to agricultural growth were helpful to identify policy options. The basic proposition could be stated as follows: Agricultural growth in the coming decades would depend much upon (i) increasing the capacity of farmers to invest and grow and (ii) providing the organizational and institutional support for increasing their capacity through building physical and human assets. In the long run, macro decisions to provide the needed support and information back-up for such micro decisions would be essential. Considering the latter, the Group attempted to list out a set of research topics. These varied from farm level studies on resource allocation, risk management and adoption of technologies to regional and national problems of planning and development. While micro level studies could be important and urgent in their own way, it was considered that macro level research on broader policy and planning issues should be given priority. This would imply a systems approach to macro planning within which micro studies would relate to the sub-systems with emphasis on the linkage.

In the Rapporteur's Report five issues were listed for discussions. They are:

- (a) How to optimize crop pattern in the country in the future?
- (b) What strategies will help in achieving optimum crop-mix in the context of national goals, regional disparities and growing scarcity of land, water and energy resources?
- (c) How to account for risk in farm income in formulating strategies for future growth in agriculture?
- (d) How can we make use of studies in growth trends for policy decisions?
- (e) How important is the location specific research in removing constraints for agricultural growth?

In addition, the issues which had emerged from the discussions suggested the following:

- (i) For long-term growth, the performance of micro units has to be studied along with the backward and forward linkages involved among them. Therefore, it will be useful if the agricultural system as a whole could be studied and the interdependency estimated, evaluated and sensitized to various extra economic alternatives.
- (ii) Regional specialisation and optimum activity sets, though not a familiar concept in use at present, deserves research in long-term planning to optimize resources use efficiency, overall. Interregional competition models must emerge as future scenarios of alternate growth paths.
- (iii) Research on structure, conduct and performance of markets under alternate intervention and control systems must be taken up to analyse and understand the likely response of markets for alternate policy option decisions.
- (iv) The structure of factor markets, particularly of labour employment, wages and income, migration and market imperfections and distortions and work attitudes, skills and knowledge in the context of changes in agriculture induced by technology is an area which needs careful and concerted research efforts.
- (v) A multi-regional study of forms of energy, projected demand for and supply of energy, alternate sources of energy, costs and returns of energy development and substitution should be organized.
- (vi) In the area of resource development and planning, particularly of land and water, co-ordinated research at regional and watershed level is recommended.

A recurrent theme that came up frequently was related to price policy and its welfare implications. A suggestion was made that the problem of marketable surplus vis-a-vis administered prices should be studied in depth. While the emphasis so far has been on the need to administer prices of farm products to protect both the farmers and the consumers from exploitative markets, the time has come to evaluate the real effect of such a policy. To be specific, it is necessary to study closely the relationship between administered prices and real market prices of farm products and inputs. Perhaps this can be one of the subjects for discussion in the next Annual Conference of the Society.

Research efforts could be organized on the pattern of All India Co-ordinated Research Projects available to other biological scientists. The important point is that the above research programmes have to be co-ordinated at the national level such that one can get a perspective of the problems and their solution in a fairly comprehensive way.

SUBJECT II

SPECIAL PROGRAMMES FOR WEAKER SECTIONS AS A
STRATEGY FOR IMPROVING INCOME DISTRIBUTION

Rapporteur : S. M. Shah*

The attention of the Group was drawn to the eight issues raised for discussion in the Rapporteur's Report. These were: (1) the definition of 'weaker sections' with reference to the target groups under various special programmes; (2) the method of identification; (3) the adoption of 'Antyodaya' approach to help the poorest of the poor first; (4) the relative efficacy of schemes that provide direct employment to the weaker sections; (5) the organization of the rural poor; (6) the provision of equal access to the weaker sections in regard to (a) information, (b) extension, and (c) credit; (7) the inadequacies in the organization, co-ordination and implementation of the programmes at the field level; and (8) evaluation of the programmes to provide the necessary feedback to the policy makers.

The question of defining the 'weaker sections' was taken up first. Several approaches were suggested for defining the weaker sections, such as the criteria of social class, per capita income, per capita value of asset, per capita consumption, etc. Some participants suggested that a combined criterion of income and asset may well be adopted for defining the weaker sections. By and large, a large number of persons belonging to the Scheduled Castes, Scheduled Tribes, agricultural labourers, etc., constitute the weaker sections of the society. A suggestion was made that per capita energy use may be adopted as a criterion to identify the weaker sections. A caution was raised that since different regions are at different levels of economic development, the definition of weaker sections should be with reference to the prevailing conditions in a region rather than applying a uniform definition of the weaker sections for the country as whole. It was also suggested that an individual rather than a family may be taken as a unit for such identification.

The Group recognized that a clear definition of the term 'weaker sections' was necessary in order that the benefits of the special programmes do reach the desired target groups of the population. It was mentioned that any criterion that may be followed should enable an easy identification of these groups.

It was suggested that the identification of the weaker sections may not be left to the individual village official, but may better be done by the village assembly.

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The question of the assessment of economic viability of special schemes was discussed next. This was necessary both from the standpoint of investment made in the schemes as also for enabling the intended beneficiaries to avail of permanent benefits under these schemes. Several participants mentioned that such schemes should not be relief-oriented but development-oriented. It was felt that these various individual schemes should be properly integrated with other schemes of development in the district in order to provide a better linkage and other facilities. While the need for economic, financial and management feasibility studies was emphasized, it was felt that this by itself was not a guarantee for the successful implementation of such programmes. The success of any scheme in the field depends heavily on the type of administrative structure prevalent in these areas. In this context, the role of District Co-ordination Committees for providing effective supervision of the programmes was emphasized. Also, there should be a built-in mechanism for the follow-up action on the programme and its supporting infrastructure. Furthermore, proper arrangements should be devised not only for co-ordination but also for monitoring and evaluation of the programmes from time to time.

The Group then considered certain schemes of providing direct employment generation to the rural people such as the rural works programme, the Food for Work Programme, the Employment Guarantee Scheme, etc. The point debated was whether, in the light of the experience gained, direct employment generation schemes should be preferred to the subsidy oriented schemes such as the SFDA, DPAP, etc. It was felt that under the Food for Work Programme, the beneficiaries who were given direct employment belonged, by and large, to the weaker sections of the society. The majority of beneficiaries were Scheduled Castes, Scheduled Tribes, agricultural labourers. Such schemes were, therefore, better suited to meet their needs. There was quite an interesting debate on the subject.

The problem of creating durable assets through such direct employment generating schemes was then taken up. Some participants felt that the benefits of the durable assets created under the programme went more to the better off sections of the society than to the weaker sections. However, it was mentioned that since the community assets created in the rural areas were for the general use of the population, no such mechanism existed to ensure that the benefits of the durable assets thus created be availed largely by the weaker sections. However, this point may be kept in mind while selecting the programmes.

A point was made that these schemes developed not only the economy of the area but also the human resource. Often, these schemes have provided supplementary incomes to the families of the weaker sections.

The need for injecting employment generating type of schemes in far off areas such as the North-east and the very backward pockets in certain regions was emphasized. These rural works would benefit also the tribal population who have no other occupation at times. The participants were, therefore, of the view that such rural works programme should be continued and extended.

It was, however, mentioned that direct employment generating schemes should not be ad hoc or temporary in nature but be well designed on the basis of a shelf of blue prints or projects for the development of the area. The need for proper maintenance of the assets was also pointed out.

Bonded labour constituted one of the weakest sections of the society. Besides social disability, the bonded labour is not free to seek any other employment. Hence, they should be properly rehabilitated. Voluntary agencies have a special role to play in order to arouse social consciousness among the bonded labour.

The Group then discussed the delivery system of public services. It was felt that creating a proper stage of preparedness was necessary before launching special schemes. The recruitment and deployment of the staff, their training and the supply of equipment, materials, etc., should be immediately taken up well before initiating such schemes.

It was further observed that the District Co-ordination Committees set up under the special programmes were working more or less in a perfunctory manner. There was, therefore, a need to energize them in order to enable effective supervision and monitoring of the programmes. It was also emphasized that the time lag between the identification of the beneficiaries and the actual flow of benefits to them under various programmes should be reduced as far as possible. The beneficiaries should be provided better access to (a) information, (b) extension and (c) credit. In the absence of these requisites, the poorest of the poor would continue to be left behind. The organization of the rural poor would go a long way in meeting these needs.

The co-operatives have a vital role to play in giving the necessary organizational support to the weaker sections. Also, the *Panchayat Samities* could be very fruitfully utilized in the implementation of the programme.

The need for proper cost-benefit analysis of the special programmes both at the micro and at the macro level was underlined. However, it was necessary to have the requisite data for conducting any meaningful analysis. Furthermore, it was observed that often the intended benefits envisaged in the project reports do not materialise in the field on account of several other reasons such as the inefficiency of the economic system, the existing agrarian structure, etc. Nevertheless, the desirability for undertaking such benefit-cost analysis was duly recognized.

There was stimulating discussion on the question of raising the incomes of the weaker sections. In this connection, the use of certain models including the production function analysis was explored. It was possible to demonstrate in this model the likely wastage under the various programmes. The need for recognizing the multiplier effect of the programmes was emphasized. The question of assessing production per unit of investment and per unit of labour used was also raised. The debate raised certain methodological issues which need to be attended to.

In conclusion, it was felt that concurrent evaluation of the special programmes for the weaker sections would go a long way in providing the necessary feed-back to the policy makers and planners for the improvement of the programmes from time to time.

SUBJECT III

ECONOMICS OF LIVESTOCK ENTERPRISE WITH SPECIAL REFERENCE TO ITS EMPLOYMENT POTENTIAL

Rapporteur : R. K. Patel*

Advances of international importance have taken place in the output of foodgrains and some other crops in India. However, in spite of possessing the largest cattle, buffalo and goat population, India's share in world milk production is a paltry 6.5 per cent. The current production of around 28 million tonnes of milk in the country allows a per capita availability of about 98 gm. per day which is far short of both the nutritional requirements and economic demand for milk. More alarming is the fact that the per capita milk availability in the country is on the decline. Further, large inequalities are observed in the consumption pattern of milk between different regions and income and occupation groups. Improvements in livestock production are not only necessary in meeting the demand for milk for a large proportion of the vegetarian population but it could also play an important role in augmenting the employment and income potential of small and marginal farmers and the landless.

Data Base

Between the first livestock census (1919-1920) and the latest census undertaken in 1977 although considerable improvements have taken place, adequate and reliable basic data on livestock resources are still not available. The Group delineated the data gaps in the livestock sector and suggested improvements needed. The schedules for the census

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provided recording of data covering all the important livestock species but breedwise data and information on detailed age and sex groups were not available. The Group felt that the data on livestock products such as milk, milk products, meat, eggs, wool, hides, skins, bones, etc., were scanty and outdated. It became apparent that for formulation of development programmes and for their monitoring, the data on production characteristics of animals, such as age at first calving, lactation length, lactation yield, calving interval were not available under rural conditions. Although the livestock census provides information on sheep and goat population in the country, the number under migratory and stationary categories was not separately available. Data gap also existed for age specific mortality and fertility rates which the Group considered as important for the successful implementation of livestock insurance programme. Further, it also emerged that there was great paucity of reliable data on fodder crop area allocations, both under irrigated and unirrigated conditions, and for grazing lands and feed availability to various categories of livestock.

It was agreed that it would be desirable to have farm size-groupwise data on livestock maintained by rural households for realistic planning at the micro level. The Group felt that the possibilities of integration of livestock census with Agricultural Census should be examined to the extent possible. The National Dairy Development Board and State Dairy Development Corporations could also play an important role in carrying out livestock surveys and bridging the gap in information system on livestock resources.

Economics of Milk Production Technology

The Group discussed in detail the economics of buffalo, indigenous cow and cross-bred cow milk production technologies. Out of the 28 million tonnes of estimated milk production in India, 17 million tonnes are contributed by buffaloes. Considering that the population of females above three years of age is estimated as 30 million in the case of buffaloes and 55 million in the case of cattle, the Group felt that on an average, a buffalo is much more productive than an indigenous cow. This tends to highlight the present status of the buffalo in the dairy situation in India. It was conceded that the feed-milk conversion attribute of the buffalo was superior to that of the indigenous cow milk production technology and the investment in research efforts for bringing the desired improvement in buffaloes did not appear to be commensurate with its potential.

The cross-breeding programme for the cattle was introduced in the country with a view to improving the milk production efficiency of the indigenous cows. The results obtained, so far, on the organized farms and research stations are quite encouraging. However, very few systematic studies have been conducted in the country to objectively evaluate

the economic performance of the cross-bred cows under field conditions. The Group felt that the introduction of cross-breeding programme in the rural areas may result in (i) inefficient draught cattle, (ii) higher mortality and morbidity of animals, (iii) accentuating feed and fodder scarcity, and (iv) marketing problems. It became apparent that it would be extremely difficult for small and marginal farmers to provide high feeding and management regimes prescribed for cross-bred cows. The Group, however, felt that in areas with high potential for cultivated fodder and in some hilly areas the programme had a good chance of success if an incentive price for cow milk was made available.

Production Functions

The Group discussed in detail the problems encountered in and approaches used for estimating milk production functions. The complexity of the production process made it difficult to estimate a realistic functional relationship. It was suggested that the model used should attempt to identify and correctly specify all the important feed, labour, physiological and management variables. It became apparent that it would be extremely difficult to specify a manageable empirical model. The Group felt that a proper understanding of the physiological basis of milk production coupled with appropriate classification of data (by breed, lactation, etc.) would perhaps be a more appropriate approach as compared to attempting to pool all observations and including a large number of variables in one production function.

The Group also spent some time on the models and functional forms. It was agreed that the model should include residual effects of feeding and more appropriate functional forms need to be explored.

The importance of management input in livestock production and its measurement and inclusion in the model also engaged the attention of the Group. This is an area which was recognized to be important for future research.

Crop-Livestock Integration

The Group felt that, by and large, the programming approach was appropriate to tackle the problems in this area. It was now necessary to undertake such studies in different farming systems/zones. It was also necessary to make the programming models more realistic. Risk programming and multi-period programming approaches were considered promising tools in this regard.

It also emerged that it was extremely important to investigate the impact of this integration on risk and stability of income. It was pointed out that though this integration has been traditionally accepted as an income stabilising device, there was need to undertake rigorous studies, particularly in the context of the modern livestock production

technology which was relatively more dependent on purchased inputs and market involvement. The Group felt that this issue deserved urgent attention particularly in view of the fact that livestock enterprise was an important component of most of the programmes aimed at the rural poor.

Employment

The Group discussed at length the significance of small holder livestock production in the rural economy. It was felt that a mere less skewed overall distribution of milch bovines than the distribution of land among rural households, may not ensure a more equitable distribution of the incremental benefits and income. The Group felt that livestock based development approach may generate additional employment but may not augment income. Barring a few exceptions, the rural poor have not realised the expected benefits from the implementation of livestock based development programmes in most parts of the country. It became apparent that to develop the livestock resource into an income generating enterprise, the solution lies in improving the genetic potential of the indigenous stock, their maintenance in sound health and provision of balanced feeding to enable them to portray their genetic potentiality. It was argued that proper infrastructure, inputs and services for the programme will have to be streamlined and desired price incentive will have to be provided.

The importance of conducting detailed studies on the estimation of potential employment in various farming systems of the country also engaged the attention of the Group. Further, the mix of different kinds of animal stock and their age and sex composition, etc., on different farms would warrant that livestock population be first reduced to homogeneous 'Adult Cattle Units' for any meaningful comparison. Since the procurement of feed and fodder, its preparation and distribution claim a major share of labour utilization in care and management of bovines, the Group suggested that the ratio of feed intake could be considered as a fairly accurate valid basis for standardisation of animal units. The relative contribution of women in livestock rearing was also highlighted.

Due to serious time constraint, and the limited number of contributed papers, the Group was unable to devote much serious attention to the economics of poultry enterprise and the impact of dairy development projects on the rural economy. The Group felt that the returns from small scale poultry enterprise, especially with landless beneficiaries of SFDA programmes, did not appear to be high in view of feed and marketing constraints. The programme did not generate sufficient income to effect flock replacements after meeting loan repayments and some household expenditure.

The Group also spent some time on the assessment of the impact of dairy development programmes. It was agreed that serious limita-

tions of data base and a uniformly acceptable methodology have constrained the quantitative measurement of economic, technical, nutritional and social returns. Fears were expressed that as in the case of High-Yielding Varieties Programme in crops, the livestock improvement programmes are likely to benefit the medium and large farmers and relatively well irrigated regions.

It also emerged that the dairy industry should provide an incentive price for milk to the rural poor producer over and above his cost of production safeguarding at the same time the interests of the vulnerable city consumer. Keeping in view the parity between the fat and solid-non-fat components of milk, the two-axis pricing policy should be implemented to protect the interests of the milk producers. The Group also felt that considerable potential did exist in exercising economies in the cost of procurement, processing and marketing functions of the milk plants.