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SUMMARIES OF GROUP DISCUSSION*

Sub-theme 1: Science and Technology Policy

Chairman: A. Vaidyanathan†

The discussions under this theme were divided into three sessions under the general chairmanship of A. Vaidyanathan.

Session 1. Technology for Dryland Farming (Rapporteur: P. Rangaswamy).

Session 2. Fertiliser Use (Rapporteur: D. K. Desai).

Session 3. Irrigation and Water Management (Rapporteur: B. D. Dhawan).

Each of the above topics was introduced by the concerned theme-paper-writer who highlighted the major issues emerging from the papers bearing on the subject. Subsequent discussion was largely focussed on elaborating and clarifying these issues and also in suggesting directions of further research by economists. It is impossible in this brief space to do justice to the observations and suggestions made by the participants. The following summary only highlights the main points emerging from the discussions.

I

TECHNOLOGY FOR DRYLAND FARMING

Regarding the current state of improved technology for dryland farming, it was noted that while considerable success was evident in breeding high-yielding varieties of some major dryland crops, there were no striking achievements in the case of crops like pulses, oilseeds and especially, numerous minor crops. The latter varied from region to region and have an important place in the local cropping system. In the case of resource-centred technologies, such as soil and moisture conservation, economically viable and widely adoptable options to suit different environments were lacking.

To enhance the effectiveness on new seed-based technologies, the following aspects were emphasised:

(a) Paying greater attention to increasing the resistance of new varieties to pests and diseases to avoid the repetition of experience of hybrid bajra in Gujarat and other areas during the early 1970s when the whole programme collapsed due to diseases.

(b) It would be necessary to give much greater attention to cropping systems rather than individual crops in breeding and agronomic work with particular concern for the relatively minor crops which have an important

* This does not include the Summaries of Group Discussion on "Prices, and Subsidies and Taxation" and "Special Programmes for the Alleviation of Rural Poverty" under Sub-theme 3: Macro Policies, as their final versions were not received from the respective Rapporteurs [Editor].

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place in dryland cropping systems but have not received enough attention in the past.

(c) Effectiveness of better varieties and cropping systems depended critically on the development of economic and practical techniques for soil and moisture conservation for improving the nutrient use efficiency of dryland crops.

(d) It was stressed that in view of the great heterogeneity of climate, soil and other environmental factors, it would be more appropriate to follow an approach which can help to generate a range of options in terms of improved techniques, varieties, agronomic practices and crop combinations to the farmers. It should be left to the farmer to adopt what is best suited to his particular conditions. The importance of strengthening adaptive research by local institutions like agricultural research stations and colleges was also emphasised.

In respect of soil and moisture conservation, it was pointed out that the adoption of improved techniques required considerable changes in the existing institutional arrangements to facilitate collective action by groups of farmers and sometimes by groups of villages. The institutional requirements for integrated programmes (such as the National Watershed Development) are particularly demanding. While these efforts should continue, the difficulties in getting collective action for comprehensive regional planning use and conservation of land need to be recognised. It was therefore desirable to see how far and in what respects the elements of the integrated package of measures can be broken down into components which can be adopted by individual holdings.

The role of small farm ponds as a means of moisture conservation was discussed. While they seemed to work well in some conditions, they may not be viable in all situations. Also their construction and management required collective effort which often proved to be a stumbling block.

The possibilities of researchers benefitting from the close observation of local practices evolved through a long process of trial and error to fit local environments was emphasised.

It was also pointed out that the economic viability of some of the new varieties of crops would need to be strengthened through diversification of their end uses and through better facilities for processing.

In terms of future research by agricultural economists, the following suggestions were made:

(a) More detailed analyses of the reasons behind differences in the performance of different components of available technologies in different crops and regions.

(b) Much greater emphasis on studying institutional constraints to implementation of soil and moisture conservation technology. In this context it was suggested that a critical study of the historical experience of soil moisture conservation programmes in areas like Maharashtra and Gujarat, where they have been tried for over four to five decades, may provide useful practical ideas.

(c) Careful and continuing analysis of the data generated through experimental work as well as through the farmers' field trials on performance of new technologies.

II

FERTILISER USE

The discussion on fertiliser use centred around the main propositions advanced in the theme paper, namely, that (a) the diffusion and intensity of fertiliser use on irrigated areas, which has been the main source of growth on fertiliser demand in the past, had reached close to a saturation stage; (b) therefore, efforts to sustain continued rapid growth in fertiliser use should concentrate much more on exploiting the considerable untapped potential in rainfed agriculture; and (c) this should be done through greater attention to non-price factors such as improving efficiency of fertiliser use, strengthening research and extension activities and extending and strengthening of supply-distribution-credit system.

Some participants questioned the basis for the assessment of the magnitude of untapped potential for fertiliser in the unirrigated areas. Mention was made in this context of the low level as well as high degree variability of fertiliser response in the unirrigated areas.

There was also considerable discussion on the role of supply and demand factors in stimulating consumption of fertilisers. Some questioned the manner in which the role of supply and demand factors was assessed. Difficulties in identifying the relative role of each of them were indicated. The argument that rapid growth of fertiliser use in the relatively dry States of Gujarat and Maharashtra has been primarily due to good supply management was contested on the ground that the rate of growth in these States has been only 6 to 7 per cent per annum compared to 11 to 16 per cent annual growth in various eastern States of India where the supply network has not been so well developed.

There were references to variations in the intensity of fertiliser use between regions and farmers and in particular to the fact that some of them used fertilisers much above the recommended level. It was pointed out that this was consistent with the large variation in the marginal value product of fertilisers observed between regions and even within a region. Under these conditions, recommended doses for a region cannot be a meaningful basis for judging the optimality of fertiliser use for all parts of a region.

In the course of discussion, the importance on variation between farms in soil, drainage and irrigation conditions, and in particular, the close interaction between the quality of irrigation and fertiliser response was emphasised. Reference was also made to the need to view fertiliser use in conjunction with manures inasmuch as the latter contributed a sizable fraction of total plant nutrient supply. The extent of complementarity/substitution between the two needed study.

It was noted that many of the issues concerning the determinants of fertiliser response raised in the discussion have been repeatedly brought out on numerous occasions. The necessary information for answering these questions was available in plenty through model agronomical experiments, fertiliser trials on the farmers' fields, various ICAR research projects including Operational Research Projects and Lab to Land Programmes, and the cost of cultivation surveys. Proper analysis of these data would help in answering many of the questions concerning fertiliser use. But such analysis was seriously lacking at present. Besides emphasising the necessity on the part of concerned government agencies to organise such analysis on a continuing basis, there was also a strong feeling that the Society should take up with the concerned authorities the issue of making such data more readily accessible to research workers; the Society should also consider sponsoring research projects involving use of such data.

III

IRRIGATION AND WATER MANAGEMENT

The discussion on irrigation and water management centred on the extent and causes of under-utilisation of irrigation potential, the role of conjunctive use of surface and ground water, and the desirable crop pattern in the irrigated areas.

On the question of under-utilisation, while recognising conventional explanations (such as over-extended command area due to political pressure, lack of field channels, biases in reporting irrigated areas), it was pointed out that the concept of 'potential irrigable area' itself was quite ill defined and that comparison of actual irrigated area with estimated potential was meaningless when there was large divergence between planned and actual crop patterns.

Regarding the macro policy goal of maximising farm productivity per unit of water—first recommended by the Indian Irrigation Commission in the early seventies for regions where water endowment is much more scarce than the land resources—, some participants felt that curbing the cultivation of heavily irrigated crops like sugarcane and paddy with the help of public irrigation water was desirable for this purpose. In fact, a regime of irrigation oriented to cultivation of water-light crops would not only give more output per unit of water but also spread the benefits more widely. Another view was that while direct cultivation of water intensive crops using canal water may be curbed, such cultivation based on water from wells recharged with seepage from canal/tank waters may be preferable from the standpoint of aggregate crop production, spatial equity in sharing gains of development and stabilisation of agricultural output and rural incomes over time.

Some perceptive participants expressed misgivings on the latter proposal on two counts. Their main concern centred round the following points: (i) how the growing demand for these crops would be met if their cultivation

is restricted in water-scarce regions; and (ii) whether and how farmers can be persuaded to grow lightly irrigated and low value crops in place of heavily irrigated, high value crops. This brought the group, though only briefly, to the larger question of comparative advantages in crop production between water-scarce and water-abundant regions of the nation. On this, it was felt, more systematic work would be necessary and useful.

The group evinced keen interest in another allied issue, namely, promotion of conjunctive use of groundwater and surface water. In this context, attention was drawn to the favourable experience in Punjab, Haryana and Tamil Nadu. It was felt that in low and medium rainfall regions, which are not underlain with bodies of saline/brackish water, the conjunctive use can go a long way in preventing waterlogging (through vertical drainage) and depletion of groundwater (via added recharge from canal seepage).

The need for agricultural economists to pay more attention to the environmental impact of irrigation projects as well as to the problems of rehabilitation and resettlement of people displaced by them was highlighted by some participants.

In the course of discussions concerning the equitable distribution of irrigation benefits, reference was made to a suggestion made by M. Visveswarayya, nearly a century back in the context of planning some Deccan Irrigation Works, that when a canal passing through a village benefitted only a part of the land of that village, the villagers must be required, as a pre-condition for release of water, to readjust their holdings so that every farmer is given land, pro-rata, in the ayacut.

On the question of irrigated crop patterns, it was pointed out that planning for an optimum crop pattern was one thing; enforcing it was another. The latter was not merely a matter of proper engineering design and formulating rules, but raised vital questions of the way institutions involved in water resource planning and management in fact functioned. Reference was made to many instances of divergence of the actual from planned crop patterns and the inability of authorities to enforce them even when they were empowered to do so. The necessity for economists to pay greater attention to the institutional aspects of water control and management was strongly emphasised by some speakers.

The role of power tariff policy—and in particular the wisdom of having a fixed tariff per pump—for pumping groundwater was discussed. The fixed tariff was opposed as it encouraged over-exploitation and wasteful use of groundwater. The necessity for more effective regulation of the spacing of wells on the basis of a proper mapping of groundwater resources in different regions was also emphasised.

Some participants felt that proper planning of water and its efficient use were being hampered because of inter-State conflicts over river waters and suggested that nationalisation of river waters was necessary for rational planning.

*Sub-theme 2: Policies Pertaining to Agrarian Structure
and Agrarian Institutions*

*Chairman: C. H. Shah**

The discussions under this theme were organised in four group sessions under the chairmanship of C. H. Shah. The chairman helped in framing the issues and in conducting the discussions on (a) Land Reforms, (b) Credit, (c) Marketing and (d) Extension and Input Supply.

LAND REFORMS†

Based on the Rapporteur's (P. C. Joshi's) report, the group agreed to take up the general issues of (i) ceiling on land holdings and (ii) floor on land holding. Problems of reverse tenancy featured as a part of adoption of floor on land holding.

It was pointed out that implementation of ceiling laws was weak. Much less land has been acquired and still less distributed. Issues were raised regarding (i) land quality and (ii) irrigation and locational proximity. It was mentioned that though non-uniform ceiling on land was intended to take care of land quality and irrigated land, soil variability was much greater not only within a region but also in a village as well. If adequate account is to be taken of soil variations, a wider range of ceilings on land holding may have to be adopted.

Deficiency in land records made the implementation of existing laws difficult. Further changes in laws would make implementation still more difficult. A need for updating of land records was mentioned since the status of land regarding irrigation, ownership, occupation and crop use tended to change. Effective implementation was impeded in the absence of up-to-date land records. Ceiling laws should be effective not only regarding a historical position but these laws should serve the basic goal of preventing excessive concentration in land holding for years to come as well.

Should ceiling be applied on ownership or occupation of land? This question was raised for consideration. Existing laws were also not uniform regarding application of ceiling on ownership or occupied holdings.

A view was expressed that with changing technological base the ceiling on land holding may become unnecessary, for modern agriculture is likely to be practised effectively on middle size farms.

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† Since the Rapporteur for this topic was not present, the Chairman undertook the additional responsibility of preparing the report of the discussion on land reforms.

In Eastern States of India, excessive sub-division was observed which, it was feared, would lead to inefficient use of valuable land resources. In this connection, it was felt by the participants that the poor and less endowed farmers should not be dispossessed of their only worthwhile asset. They may be trained to use the small pieces of land more intensively to grow high value crops. It was also suggested that where the farmers were unable to handle small plots but who were willing to temporarily lease out their land, in such cases 'reverse tenancy' should be permitted by law. Such facility would provide an opportunity to the small farmers to undertake self-cultivation at a later date when their financial position improves.

The problem of compensation for acquisition of surplus land was mentioned but not discussed in all aspects.

Alternative forms of structure of land holdings, either in the form of joint or collective farming especially for the Scheduled Caste/Scheduled Tribe farmers settled on new land or on common property land privatised in their favour, was mentioned. The full implications of the suggestion were not explored.

CREDIT

*Rapporteur: B. M. Desai**

The discussions on agricultural credit began with the presentation of the lead paper by M. V. Gadgil on "Agricultural Credit in India: A Review of Performance and Policies." The chairman, C. H. Shah, suggested that various issues raised by Gadgil and by H. B. Shivamaggi, the Rapporteur, who could not be present, may be discussed around the following three aspects: (1) Role of Institutional Credit in Economic Growth and Programmes like IRDP, (2) Multi-agency Approach to Supplying Institutional Credit, and (3) Viability of Credit Institutions.

A summary of discussions held under each aspect is presented below:

(1) Role of Institutional Credit

The share of institutional credit has now increased substantially, it being 62.6 per cent in 1981 as against 31.7 per cent in 1971 and 18.6 per cent in 1961. The two-fold objectives of this credit are growth and equity (both inter-regional and inter-class). In this context, it was thought that the supply of this credit should result in growth in agricultural production and value added. For the purpose of judging inter-regional and inter-class equity, it was thought that credit widening by way of covering as many regions and as many classes as possible may be considered as one of the indicators.

Institutional credit had quite reasonably contributed to its growth role in India except in the Eastern region and in dry farming areas. In these areas the marginal productivity of capital was considered to be low. This was mainly due to certain technological, institutional and infrastructural constraints.

As regards the equity goal, it was thought that credit widening had not taken place to the desired extent. For example, the proportion of cultivator households reporting institutional debt in total outstanding debt had declined to 13 per cent in 1981 from 14.7 per cent in 1971 and 15.4 per cent in 1961. But considering the share of small farmers (*i. e.*, upto 2 hectares) in production and investment credit, it was found that they had received more than their fair share of credit. This was because of the policy on credit allocation for small farmers and the involvement of credit institutions in poverty alleviation programmes such as IRDP. Further discussion on the equity role of credit could not be explored.

* Professor, Indian Institute of Management, Ahmedabad.

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(2) *Multi-agency Approach*

This approach came to be adopted ever since the nationalisation of 14 major commercial banks in 1969. These banks were required to provide agricultural credit because it was thought that the cooperatives' performance was not satisfactory and that the demand for credit had grown considerably on the advent of green revolution. In mid-1970s Regional Rural Banks (RRBs) were introduced mainly because of high costs of operations of commercial banks. It was also recommended that these banks would be established only in those areas where district central co-operative banks were weak. But, in actual practice it would seem that they were being opened in other areas too. In future, policy guidelines in this connection should not be ignored. This was because the emergence of such banks in these areas would result in the neglect of co-operative banks.

One of the other problems of multi-agency approach was that the required co-ordination between various agencies did not seem to take place at the grass-root level. This was mainly because District Consultative Committee as an instrument for bringing about co-ordination restricted itself only to the Annual Action Plan prepared by the lead bank.

Yet another issue raised was that in some areas loans upto Rs. 5,000 could now be given without obtaining no overdue certificate. This had led to such problems as default and multiple lending. However, the general impression was that the multi-agency approach had not led to multiple loaning on a wide scale.

It was further thought that in some areas farmers were still required to approach more than one agency as the credit institution concerned could not provide all types of loans. This resulted in high transaction costs for the borrowers, besides causing inconvenience to them. A case in point is the State Co-operative Land Development Banks which cannot provide crop loans or short-term loans. Similar seemed to be the case for some of the commercial banks which faced constraint of funds in providing working capital loans. It was maintained that the multi-agency approach may be continued, though measures to overcome the above mentioned problems should be intensified. An important merit of this approach is that it has a potential to generate healthy competition among credit institutions.

(3) *Viability of Credit Institutions*

Two features of viability of credit institutions were raised for discussion. One of these related to high servicing costs together with the inadequate margin between lending and borrowing rates to meet these costs. And the other feature related to the higher costs arising from poor loan recoveries.

Servicing costs were high due to the very nature of the function of supplying agricultural credit. Moreover, they were directly related to the nature of services provided with a view to improving the quality of lending. But such services resulted in better loan recovery and better credit widening and deepening. It was further reported that some banks, particularly com-

mercial banks, passed on some of the servicing costs to the borrowers. Inadequate spread between the interest rates at which lenders borrowed and lent seemed to result in such a practice. This raised the question of how servicing costs could be reduced without altering the margin between these two rates. This issue could not be discussed due to lack of time.

Yet another issue which came up for discussion was that the discriminatory rates for different sized loans and for different purposes could be one possible way to improve the margin. In this connection, it was also thought that if the co-operative banks, commercial banks and RRBs could systematically provide indirect agricultural credit, it would improve the viability of their branches. This was because such credit was provided at commercial rates varying from 14 to 18 per cent. At present, this type of credit is defined to include credit for inputs distribution, rural electrification, custom servicing, produce marketing and processing by co-operatives and so on. This type of credit by encouraging the supply of inputs and services could also improve the productivity of capital at the farm level and thereby improve loan repayment performance of the borrowers of direct rural credit. As regards the margin for the primary level credit co-operatives, it was indicated that it could be improved through the diversification of their functions other than direct rural credit. Such diversification would have potential to improve even the internal resources of these co-operatives.

On the second feature of overdues, the issues of wilful and non-wilful default were discussed. Due to lack of time, their relative magnitudes were not discussed. For the non-wilful default various factors were considered as possible reasons. These were: (a) natural factors like drought and floods, (b) inadequate increases in production and marketable surplus, (c) mismatch between the time schedule fixed for loan recovery and the time at which farmers can repay the loans, (d) inadequate financing resulting from the age-old formula to determine the scale of finance, and inadequate basis to calculate the unit cost of investment, (e) non-availability of complementary credit like production credit for efficiently utilising investment credit, and (f) concessional interest rate on direct agricultural credit. The relative importance of these factors could not be explored.

MARKETING

Rapporteur: D. S. Sidhu*

The group discussed the following main issues emerging out of the keynote paper and the papers accepted for discussion at the Conference under this theme: (1) Role of marketing infrastructure and the strategy for agricultural development for the next stage; (2) Role of para-statal agencies in agricultural marketing; and (3) Role of specialised technical personnel vis-a-vis administrators in agricultural marketing.

The Rapporteur pin-pointed the emerging constraints in agricultural marketing infrastructure against the back drop of increasing marketable surpluses, particularly in regard to transportation, storage and processing. The need for speedy movement of surpluses from the producing to the consuming regions of the country was emphasised. Connected with this, the issue of regional locations of storage capacity was also discussed. Presently, about 30 per cent of the procured foodgrains were being stored under CAP. The storage and transit losses incurred by the Food Corporation of India in a single year 1984-85 were estimated at Rs. 122 crores. The group felt that in view of the overall shortage of storage capacity, there was a need to augment this capacity both in the producing and the consuming States because even the deficit States were also fast catching up in production. The problems in regard to the marketing of perishable commodities, particularly fruits and vegetables, poultry and dairy products were also discussed. Spoilage losses in the distribution of fruits and vegetables were reported to range from 30 to 40 per cent. So the need for creating/augmenting processing facilities was emphasised to promote orderly marketing of the produce.

It was also recognised that although significant progress had been made in the establishment of regulated markets in the country, yet there were vast differentials in the density of regulated markets across the States. Whereas a farmer has to travel about 20 km to sell his produce in a regulated market in a State like Rajasthan, a farmer in Punjab has to travel only about 5 km. The need to augment the number of regulated markets in low market density States like Rajasthan, Madhya Pradesh, Gujarat, Andhra Pradesh, etc., was, therefore, pin-pointed.

The role of para-statal agencies like the Food Corporation of India, State Co-operative Marketing Federations and Civil Supplies Corporations was also discussed.

It was recognised that the para-statal agencies had played a useful role in providing competition to the private agencies and in stabilising the prices

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both to the producers and the consumers. These agencies had played a pivotal role in implementing the support price policy of the Government for the farmers and in operating the public distribution system to protect the consumers, particularly in the food deficit areas. However, a lot of scope existed for improving their operational efficiency as their cost structure was rather top heavy.

The group also felt that there was a snag in the procurement price policy. It was noted that the procurement prices were fixed at a uniform level for the whole year which resulted in a glut in the market during the post-harvest months for the respective crops. This created multiple problems as the marketing season was reduced to just a few months. The producers rushed their produce to the market immediately after harvest when its moisture content was excessive and much above the tolerance limits fixed in the quality standards prescribed by these agencies. The para-statal agencies were constrained to apply quality discounts to the detriment of the producer-sellers. It also added to the congestion in the market and consequent increase in spoilage losses. The farmers did not have incentive to stagger the marketing of their produce. The concentrated sale of the produce in the post-harvest period added to the problems of storage faced by the para-statal agencies. The group, therefore, felt that the Government should recommend a graded price for the procurement of the produce which should take into account the storage cost so that the farmers got some incentives to store their produce at their own level in the rural areas.

The group also discussed the role of monopoly procurement of cotton in Maharashtra. It was recognised that the experience of the monopoly procurement of cotton had been quite dampening. Monopoly trading in cotton was not found successful in Maharashtra due to the introduction of distortions as a consequence of procurement prices fixed by the State Co-operative Marketing Federation, which were much above the support prices announced by the Government of India.

The group also examined the role of co-operative organisations in the marketing of agricultural produce. It was recognised that the commodity specific co-operatives for fruits and vegetables, dairy, poultry and sugarcane had been successful in certain States and such success stories needed to be replicated.

The group also discussed the relative efficacy of technocrats and administrators in the management of regulated markets. It was felt that the technocrats with specialised training and expertise in agricultural marketing could better perform the marketing functions which increasingly demanded a high level of professional competence.

EXTENSION AND INPUT SUPPLY

Rapporteur: Suresh Kumar*

In the discussion on this topic, the participants mentioned different aspects that required detailed consideration.

Adequacy of Extension Staff

There was a widespread feeling that extension staff was inadequate. The adequacy of extension staff for performing the role assigned to them needed to be assessed. Such an assessment might be made through actual study of the working of extension staff by an independent agency. As a part of the study various feasible extension options with the existing extension staff might also be determined. These studies would enable to take policy decisions regarding the strength of extension staff as well as reorganisation of extension work through the existing staff.

Role of Contact Farmers

Transfer of extension recommendations from contact farmers to other farmers is central to the success of Training and Visit System of extension. There was therefore a need for detailed studies into the actual process and extent of transfer of extension recommendations from contact farmers to other farmers. The studies should identify factors conducive to transfer of technology as well as constraints to transfer. This should enable suitable corrective actions to maximise transfer of technology. Such assessment should be in-built into the regular monitoring and evaluation system of the training and visit system of extension.

Selection of contact farmers is an important factor governing the flow of extension recommendations from contact farmers to non-contact farmers. This flow normally took place through the normal course of interaction in day-to-day life rather than through conscious effort. This interaction took place within the same socio-economic group. Representative selection of contact farmers is, therefore, essential for transfer of extension messages from contact farmers to non-contact farmers. The representative selection could be ensured by the proportion of contact farmers from the various vulnerable groups being in the same ratio as their population in the general farming population. Some of the vulnerable groups could be small and marginal farmers, backward class farmers and dryland farmers. If the contact farmer is suitably equipped by provision of teaching aids, he could

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be a valuable agent for conscious flow of recommendations. Provision of these aids by conferring status and recognition on the contact farmers would also motivate them to make conscious attempt to transfer extension recommendations to other farmers.

Multi-agency Approach to Farmers

At present, a multiplicity of agencies meet the various needs of farmers for extension, input supply and other supporting services. The present system of the farmer being required to approach a large number of agencies for his needs needed to be reviewed to ensure integrated and convenient delivery. This would avoid hardship and waste of time of the farmers. It would, besides, prevent confusion and conflicting signals regarding land use because of the multiplicity of agencies dealing with extension. Feasibility of a single window for meeting the various needs of farmers should be examined in this regard.

Extension staff should be very closely associated with input assessment. They should have complete information about input availability and should give feed-back about input location and demand. They may not, however, be asked to physically handle the inputs as it may seriously interfere with the time bound extension programme. All efforts would have to be made for devising and effective implementation of a co-ordination mechanism between input and extension agencies.

In the first stage from the present multiple window approach a two-window approach could be tried. The extension staff could advise the farmers about optimum land use including tree farming, fodder production and horticulture. The other village level agent could deal with the schemes and inputs for various programmes of different departments in the light of land use plans prepared by extension staff. This may not, however, include highly specialised advice such as veterinary care which could continue to be provided by veterinary staff. The village level agent could, however, provide veterinary inputs.

Even if a single window approach is not introduced, the delivery system could be rationalised and reorganised for maximum effectiveness. The jurisdiction of staff of extension input and other agencies could be synchronised to the extent possible. Housing the staff of all agencies in one place would also improve co-ordination. Introduction of a single card for recording recommendations of various agencies including extension and input would improve the linkages. Its utility and feasibility may be assessed.

Even after allowing for the need for single line of command in extension, there was need to provide effective administrative linkages and control for integration of extension and input supply at various levels.

Krishi Pandhari Scheme in Maharashtra

The scheme aimed at integrated development of small and marginal rainfed farmers in one village per tahsil. Evaluation of the scheme in a few

villages showed positive gains. Further improvements in working and follow up were needed.

Effectiveness of All India Radio in Extension

In Karnataka the effectiveness of daily Krishi Ranga Programme for advising the farmers was being enhanced by daily information broadcast through the All India Radio about the occurrence of pests and diseases, contingency planning and input supply. Dairy and Fisheries are also included in this programme. Its impact in the field needed to be evaluated.

Study of Extension in Gujarat

A detailed study of adequacy and effectiveness of extension system in Gujarat was undertaken by Sardar Patel Institute of Economic and Social Research, Ahmedabad. It compared the present administrative system with the system originally contemplated. It also reviewed the different aspects of working of extension system to find out whether they helped or hindered effectiveness. The utility and need for such studies on a regular basis was appreciated.