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SUMMARIES OF GROUP DISCUSSION

SUBJECT I

WATER RESOURCES MANAGEMENT

Rapporteur: Kanchan Chopra*

The theme 'water resources management' has, as expected, yielded a rich harvest of contributions that cover the varied aspects of water use and management. Papers received refer to different regions of the country and draw on micro and macro level data both published and unpublished. The outcome is that the different issues, that have arisen as a consequence of the emergence of irrigated agriculture as the major reality of Indian agriculture, get due attention in the cross-section of papers contributed. The themes covered in the papers and discussed at the sessions can be divided broadly into the following areas:

1. Optimal use of water, in particular the issues of under-utilisation of irrigation potential and distributional inequity, and over-exploitation of groundwater.
2. Issues of drainage, waterlogging and salinity.
3. Watershed management.
4. Organisational issues and people's participation.
5. Pricing and cost of irrigation water.
6. Environmental effects of irrigation projects and consequent implications for project evaluation methodology.

The discussions reflected this wide canvas. Two sessions were devoted to issues that dealt with the optimum use of irrigation water and related aspects such as under-utilisation, over-irrigation and distribution in particular between the head-reach and tail-end of canal systems. There was some discussion on the conceptual aspects of under-utilisation. Empirically, under-utilisation of potential created by different categories of irrigation projects was reported to vary from 35 to 50 per cent on an average. Another view expressed was, however, that under-utilisation was found to vary from 15 to 20 per cent. One of the major causes of this under-utilisation was stated to be deviation from the assumed cropping pattern. Alternatively, either non-availability of power or breakdown of tubewells could be responsible for it in the case of minor irrigation.

The design of irrigation networks, among other things, has resulted in inequitous distribution of water between head-reach and tail-end farmers. It was stated that this would tilt the cropping pattern in favour of water intensive crops and results in over-irrigation in particular in the head-reach creating problems of wastage of water, waterlogging and salinity. The need for drainage particularly in Eastern India and coastal districts of Orissa and Andhra Pradesh was discussed. In spite of the seemingly large costs involved, investment in drainage works was found to be viable.

In the context of groundwater development, the Haryana case was cited. It was pointed out that eight of the 10 blocks of Karnal district have been declared dark, *i.e.*, areas where groundwater is over-exploited. In this context, water-saving technologies like sprinkler and drip irrigation were discussed. Though it was stated that efficiency per unit of water should be the determining criterion, cost effectiveness was also stated to be important.

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I am thankful to Dr. Ashok Gulati and Shri K.J.S. Satya Sai for maintaining a record of the discussion in the subject group sessions.

The deliberations on watershed management emphasised the fact that existing case studies reiterate that such projects are economically feasible. Experiments in Karnataka and Maharashtra and the semi-arid tropics in general were quoted in this context. The significance of people's participation was highlighted by several participants. It was stated that in view of the non-quantifiable benefits, economic feasibility should not be over-stressed.

The importance of replication was pointed out and in this context the Karnataka and Haryana experiences were referred to. It was pointed out that replication was possible with existing resources. However, high variability in the cost of watershed management per hectare existed due to differences in agro-climatic conditions and the extent of effectiveness of people's participation. The role of NGOs was discussed and a note of caution was sounded not to view them as the panacea for all organisational problems. Some participants suggested that the voluntary agency should withdraw once the project had established itself. The projects should be made into people's projects which can sustain themselves without outside support. A significant suggestion in this area maintained that water use should be viewed in conjunction with land use to result in wholistic planning.

In the session on pricing and cost of irrigation water, most participants agreed that canal water was heavily under-priced and did not cover even operation and maintenance costs in most States and there was a case for raising them. This was however qualified by the statement that farmers should be assured of a certain water supply and uncertainty in accrual of benefits should be taken account of. Otherwise, the present situation of effective cost of water to the farmer being high in spite of its being subsidised would continue. Although volumetric pricing was agreed to in principle, apprehensions on its practical feasibility were expressed. It was stated by some participants, however, that such apprehensions were unwarranted.

In particular, it was suggested that compulsory formation of water co-operatives below the distributive head could help in implementing volumetric pricing and managing the subsequent distribution of water. The co-operative sphere of influence could also be extended to construction, maintenance and distribution below the distributive head. It was pointed out, however, that rules defining individual rights may need to be worked out in order to ensure proper functioning of societies. Another dimension of water pricing that was discussed pertained to heavily subsidised prices of electricity for water. Both volumetric pricing and distribution through compulsory co-operatives were recommended again in the context of electricity pricing. In the context of management of irrigation water, a view was expressed that private management may contribute towards optimal use of scarce investible funds, in particular in areas under the Eastern Himalayas.

In the last session, environmental aspects of water management were discussed. The view was expressed that the extension of methodology of evaluating large irrigation projects using benefit-cost analysis to incorporate the environmental aspect of such projects needs to be examined carefully. It was pointed out that there has been considerable improvement in planning of irrigation projects as attempts are now made to evaluate the value of forests lost, land submerged and cost of rehabilitation. Implementation, however, still leaves much to be desired. One suggestion was that the oustees should be rehabilitated, desirably as a group, within the command of the new irrigation project. The beneficiaries should bear the cost of it in terms of surrendering a part of their land. Doubts were raised, however, with regard to the availability of land, both for rehabilitation and compensatory afforestation. Some discussion took place on the appropriate methods for evaluating the value of forest land cost. Difference of opinion also existed on the relative area submerged by large and

small dams. Several participants agreed that an information gap existed in the context of environmental planning of projects. Government reports were not easily accessible and a need for openness existed in this area.

In conclusion, the deliberations of the academic sessions devoted to water resources management covered most areas that are occupying the attention of irrigation planners. Several fields of study were also identified. Some of these are: Scope for watershed management in water resources management in the country, the viability of new water-saving technologies such as drip and sprinkler irrigation and alternative methodologies for evaluating large irrigation projects. It is hoped that these deliberations would lead to more intensive work in this large and expanding area.

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SUBJECT II

AGRO-PROCESSING INDUSTRIES

Chairman: U.K. Srivastava* *Rapporteur:* S.P. Seetharaman†

I

OVERVIEW

Agro-industries play a crucial role in accelerating agricultural development by creating backward linkages (supply of credit, inputs and other production enhancement services) and forward linkages (processing and marketing), adding value to the farmer's produce, generating employment, increasing the farmer's incomes and opening up possibilities for exports. As the products of agro-industry are both edible and non-edible, the agro-industries include both agro-food industries and agro-non-food industries. It was expected that papers as well as discussion would analyse the experience of existing units, review the constraints in accelerating agro-processing activities and indicate the areas of policy action.

In all, 56 papers were accepted discussion on the subject. Out of them, 13 covered general issues and the remaining 43 papers covered 10 commodities. The commodities covered were sugar, khandsari and gur (16), edible oil (9), fruits and vegetables (7), paddy (4), jute (2), and milk, spices, pulses, lac, minor forest produce (one each). Except jute and lac, non-food agro-industries did not attract any papers. The general papers can be broadly classified into four categories, namely, regional agro-industry profiles (5), definition and linkages (6), export (1) and policy environment (1).

Issues Covered

The papers broadly covered production, backward linkages, processing and marketing. In production, the need for increasing productivity and stabilising supplies was highlighted. In processing, the papers dealt in detail the issues relating to the need for technological upgrading, utilisation of capacity, efficiency in processing, mismatch of quality of raw material with processing technology and poor quality. In marketing, the role of channels, price spread, producer's share and problem areas were presented. In this context, the performance of various forms of organisations have been studied. To a limited extent, the problems relating to export marketing, mostly due to poor quality of raw material, were discussed.

Structuring of Discussion in Various Sessions

On the basis of the consensus arrived in the first session, it was decided to start commodity-wise discussion, keeping in focus the issues relating to the production of raw material, processing and marketing. This was followed by discussion on general issues that cut across commodities. The major aspects covered here included appropriate organisational

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form for agro-processing with the farmer's interest as the key variable, data base for policy and planning of agro-processing units in various agro-climatic zones, tax burden, working capital requirements and finance.

II

SUMMARY OF DISCUSSION

Sugar, Gur and Khandsari

Sugar industry is the second largest agro-industry in the country. It also has a large element of sickness. For instance, in Maharashtra, nearly 50 per cent of the sugar factories are reported to be sick. One major reason identified for sickness was the lack of adequate availability of sugarcane. The problem often starts even at the first initiation stage where the factory is located at the place where adequate efforts for sugarcane development have not been taken up. There are regions (for example, the Punjab) where, the availability of cane and recovery percentage of sugar are favourable but capacity has stagnated. In certain regions sugarcane is diverted to gur and khandsari industry, affecting the installed capacity of the sugar plant. In certain cases, to utilise the cane in the absence of processing capacity cane is diverted to gur and khandsari. Transport was also a major bottleneck in certain regions.

In the matter of processing, traditional gur and khandsari technology continues to be popular side by side with modern sugar mills. Over the years, the economic size of the sugar factories has gone up but a large number of old mills are below the economic size. Though sugar mills can improve their profitability by by-product processing, they are quite often constrained in planning investments for such utilisation due to Government policies.

The participants also discussed the implications of sugar levy policy, which plays a crucial role in the financial viability of the mills. Though problems were reported in the marketing of gur and khandsari, no problems were encountered in disposing sugar in the open market.

Paddy-Rice

Raw material availability for rice mills was not considered as a significant problem. The major focus of discussion was on technology related issues. In paddy processing, huller as well modern rice milling units are bound to coexist for valid reasons. Huller mills have the advantage of decentralised location, ability to provide custom milling services, and other reasons of proximity to production centres. But they are inefficient in terms of recovery of rice, and also rice bran, which has scope for further processing into edible oil and cake for cattle feed. For financial viability reasons, hullers may continue to coexist with large mills but in terms of national interest, they are not viable (social cost-benefit ratio-wise). The trend world over is to promote integrated processing complexes, which utilise all products of paddy plants like straw for paper, bran for oil, husk for furfural and briquettes, rice for human consumption and cattle feed.

Fruits and Vegetables

Backward linkages was considered as the key element for the success of fruit processing units. This is because of the specificity of varietal needs for processing and adequacy of

supply. Processing capacity in the case of fruits and vegetables is generally fixed at peak supply quantity. Given the fluctuations in the availability of raw materials, often the capacity may remain under-utilised. There is, therefore, need for multi-product processing to cope with the problem of seasonality.

Larger units often face the problem of severe under-utilisation of capacity due to inadequate and unsuitable supply of raw materials. This compels even private processing units to forge backward linkage with the farmers for ensuring supplies. Medium and smaller units generally do not face this constraint. But by the same logic, the problem of marketing affects the units of different capacities differently. Due to economies of scale larger units can brand and promote products whereas the medium and smaller units face the problem of marketing. The case of Lijjat papad and Bedekar pickles are examples, where the production is decentralised in small units but marketing is centralised with emphasis on quality and branding. They meet the employment objective as well as maintain financial viability.

Encouraging home preservation techniques can also increase the absorption of fruits and vegetables during peak seasons. This is, however, not a substitute for the commonly understood processing industry.

Milk

A concern was expressed whether the procurement and marketing by the milk co-operatives affected the consumption of milk in the rural households. Evidence showed that the dairy increases the income of the rural poor including the landless. In the short run the consumption of milk at the household level may decline. However, in the long run, with the increase in productivity (as a result of strong backward linkage), the consumption would increase. Moreover, it is necessary to recognise that the rural consumer is also a rational person. It was highlighted that backward integration by the dairy (mostly co-operatives) helped the farmers in increasing productivity, upgrading cattle care and thereby minimising loss of production. Dairies provided the opportunity for participation in production, processing and marketing to even small producers living in remote areas.

Questions were raised on product-mix decisions of co-operative dairies. Liquid milk is subjected to price control whereas milk products are not. They also offer greater returns due to value addition. The Group debated on the trade-off between providing liquid milk to the consumers and the profitability of the unit. It was pointed out that in some seasons the producers may get a good price in the local market, but not throughout the year. Processing to the extent enhanced time and farm utility, offered greater scope of stabilising incomes to the farmers. In recent years, the emerging surpluses in winter has highlighted the need for diversification of high value added products. Further, in dairy as well as similar industries, one has to remember the need for building indigenous production capabilities so as to avoid dependence on import.

Oilseeds

In oilseeds it is the farm level production technology which needs attention. Oilseed growers' co-operative federations, sponsored by National Dairy Development Board (NDDB) have strengthened the backward linkages with salutary results. But the coverage of area by these co-operatives is still very small. Oilseed processing units in the private sector do not have such backward integration efforts. The oilseed technology mission has done a commendable job in stimulating the linkages between research centres' extension

and input supply organisations. It is reported that this has resulted in a substantial increase in area and yield in oilseeds. The role assigned to NDDB to protect the farmers by offering support price and a fixed price to consumers in standard consumer packs, has added a new dimension in the oilseed sector.

The installed capacity of oilseeds processing is quite high and there is under-utilisation of capacity, primarily due to shortage of raw material. This situation may improve as a result of the several corrective measures already initiated. The traditional village ghani would continue due to the consumers' preference for their products despite their inefficiencies in processing.

Spices and Pulses

Very little discussion took place on these two commodities. It was pointed out that there is need to stabilise their production. The scope for identifying and producing the value added products particularly in spices was highlighted.

Non-food Commodities

In the case of jute it was pointed out that the market for its products was shrinking due to competition from synthetic substitutes and so it was suggested that government should reserve some market for this product. It was also suggested that there is need for new product identification and development using jute.

Although there were no papers on leather, paper and sericulture, it was briefly mentioned that all of them have problems in getting raw materials for producing the quality acceptable in the market. In all these commodities, there is tremendous scope for producing value added products which needs to be exploited for domestic as well as export market.

General Issues

Data base: Data base on agro-processing units was found to be very weak. The major source of data for the factory sector is the Annual Survey of Industries (ASI) document. This provides State-wise commodity group-wise aggregate data. It does not provide district-wise data. In the case of data relating to the unorganised sector, which is very large in the agro-processing sector, data comparable to ASI are not available. The census data are supposed to indicate the number of units but this has not been published along with the 1981 census. Questions were raised as to the agency for collecting the critical minimum information. In this context the Karnataka experience of generating relevant data at the district level by the District Planning Board was cited. Similarly, the participants also mentioned about the work of the Directorates of Statistics in compiling this data at the State level. It was emphasised that strengthening of the data base going down to the taluk and district level is necessary in view of the proposed planning measures based on agro-climatic zones.

Organisational forms: At the first degree of processing, farmers' co-operatives have certainly an edge over other organisational forms since the value of raw material constitutes 70 to 80 per cent of the input costs. As such, the processing units management has to take an integrated planning of farm production as well as processing. In secondary and tertiary processing, the share of agricultural raw material in the overall cost declines substantially

while the managerial complexity increases. In these cases, the co-operatives do not have the same level of advantage as in the case of first degree of processing. This implies that there is scope for all other forms of organisations to play a role in agro-processing.

The private agro-processing units would gain if they could forge closer links with the farmer-producers. It was felt that though the co-operatives may offer a good opportunity to benefit the farmers as producers of raw material, the experience of organising and managing them has not been uniformly good.

Taxation and working capital: It was mentioned that the traditional view that processed food items form a part of the consumption basket of the rich, needs rethinking. The emerging middle class urban consumers would constitute the major buyers. To reach this segment, the indirect tax burden is considered to be an inhibiting factor.

On the basis of the data provided in the keynote paper, the working capital requirements in relation to fixed capital were much larger compared to non-agro-industries. A plea was made that a larger portion of the working capital should be capitalised for funding from long-term sources. This would bring down the cost of capital for these units.

Rural entrepreneurship: The Group felt the need for identifving and developing rural entrepreneurs from amongst the farming community to take up these agro-processing industries.

III

RECOMMENDATIONS

1) Location of sugar factories should be based on a thorough scrutiny of the potential for sugarcane cultivation. The licensing policy should be reviewed to bring about a match between the availability of cane and location of factories.
2) Government regulatory policies with regard to the utilisation of by-products need reconsideration to ensure the profitability of sugar units.
3) Levy sugar policy needs close examination in view of the increase in the manufacturing cost and the need to provide remunerative prices to the farmers.
4) If possible, technology of the huller units should be upgraded, otherwise they need to be phased out through incentive and regulatory measures. Special schemes are needed tc promote integrated paddy-rice complexes using the main product and by-products.
5) Fruit and vegetable processing units need to be encouraged for enhancing and stabi-ilising the income of farmers. Government may have to provide suitable incentives to these units for forging backward linkages with the farmers. Research efforts need to be strengthened to evolve suitable varieties for processing.
6) Manufacture of value added products should be encouraged so that the financial liability of the dairy limits and their capacity to pay better price to the farmers are enhanced.
7) In the oilseed sector the involvement of co-operatives in production enhancement efforts need to be strengthened.
8) Price stabilisation efforts of NDDB should be continued.
9) In jute research efforts for product development needs immediate attention.
10) In the case of non-food agro-processing industries like leather, paper, sericulture, the production of raw material needs to be enhanced.
11) ASI data for factory sector need to be presented district-wise.

12) Using the same format, the data for the unorganised sector should be generated at district level, at least on sample basis.
13) The role of co-operatives in agro-processing needs to be strengthened.
14) Private sector units should be encouraged to build backward linkages with farmers. Suitable incentives should be given for this purpose.
15) The extent of indirect taxation on processed food commodities requires to be drastically reduced.
16) A larger portion of working capital in agro-processing units should be capitalised for funding through long-term sources.
17) There is need to formulate training programme for identifying and developing farmer-entrepreneurs to promote agro-processing units. In this context linkages need to be forged with Science and Technology Entrepreneurship Development Board.

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SUBJECT III

FOREIGN TRADE AND EXPORT POTENTIAL OF AGRICULTURAL COMMODITIES

Chairman: V.R. Panchamukhi* *Rapporteur:* Ashok V. Bhuleshkar†

In the beginning, the Chairman presented the salient points from his keynote paper on "International Agricultural Trade: Some Policy Issues" which was followed by short summary presentation of some of the papers accepted for discussion. Out of the 39 papers submitted for the Conference, 18 papers dealt with the analysis of the agricultural sector, in the broad setting and 21 papers with specific commodities.

At the outset, the Chairman posed the question as to what should be our attitude in future towards the exports of agricultural commodities. This is an issue which required in-depth examination. Should we encourage exports of agricultural commodities or should we regard that agriculture should not be export-oriented? What should be our policy strategy in this respect and depending upon the policy stance, what kind of institutional support that can be extended has to be determined. Further, our export strategy should be viewed in the context of world economic environment. The world economy is no longer bi-polar and it has become more multi-polar in recent year. Many socialist countries are moving towards market economies, whereas erstwhile market oriented economies are resorting to controls and protectionism. Thus the management of export scenario needs to be studied in the context of structural changes occurring in the international market situations and the moot question is how to make production structure and the fiscal policy measures internally more responsive to meet export challenges for agricultural commodities which would be compatible in the wider interest of the development processes being witnessed in the global economy.

Finally, he summed up by saying that there was an imperative need to provide structural strength to the agricultural sector by offering special incentives to make it export oriented. He opined that this kind of incentive switching process became inevitable in view of the much acclaimed thesis of equating development with industrialisation, which in a situation of scarce resources implied neglect of the agricultural sector. In the context of the global environment, he noted that the irony of the present world economic situation was such that the countries which could reach the peak of their industrialisation practised high level of agricultural subsidisation and would not allow the developing countries to graduate from the first and second stage to the third stage of effective export-orientation. For promoting agricultural exports in India, he stressed the need for extensive export services including information, advice on technology, marketing, etc.

On the question as to whether we should export agricultural goods or not, there was considerable discussion. One view was that negating the export opportunities simply on the ground that there is demand from the domestic population, was unwarranted. There is a need for exploiting the export potential wherever feasible. Some participants indicated that there were wide fluctuations in the export earnings. But this instability in export earnings

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did not have an adverse effect on the investment or economic growth of the country. Arguments were advanced in favour of export of those commodities in which India enjoyed a comparative advantage. In this regard, the implementation of Integrated Commodity Agreement would appear to be an encouraging policy option. It was pointed out that trade deficit in the agricultural sector was small while in the non-agricultural sector it was large. Further, India has a greater advantage of surplus labour vis-a-vis other countries and the low cost of production of many commodities. If sufficient surpluses are created, coupled with a large increase in the production of some specific commodities, with the increase in efficiency in the agricultural export sector, the problem of competition faced in the international market situations could be overcome. It was emphasised that in order to increase export earnings, the generation of surplus would be essential for many agricultural commodities. With the continuity of supplies on assured basis coupled with the provision of export services, substantial gains could be accrued in the exports of agricultural commodities in future. There was a need for cultivating contacts with the customers in the international markets, so that markets once captured on competitive grounds could be sustained for a long time. Exports of processed products and the export package services would be necessary to maintain the continuity in supplies. It was mentioned that since severe competition was being faced due to the emergence of substitutes such as synthetics or man-made fibres, four major points needed to be taken into account: (*i*) price, (*ii*) promotion, (*iii*) constant supplies and (*iv*) reasonableness in terms of quality offered. Due to subsidies provided and protection accorded by developed countries in respect of agricultural production and exports, doubts were raised whether India would be in a position to compete with these countries in the production/exports of similar commodities.

There has been considerable decline in the exports of commodities, namely, tea, rice, tobacco products and vegetable oils because of: (*i*) lack of competitive advantage, (*ii*) increase in domestic consumption and (*iii*) rise in the chemical substitutes for natural agricultural products, in addition to safeguards taken by developed countries. Similarly, it was pointed out that in cardamom the competing country was Gautemala, and the decline in exports of cardamom after 1980s was due to deterioration in quality compared with Gautemala's cardamom.

As regards the exports of fish and fish products, it was indicated that the export of shrimps was dominant and the exports have been mainly directed to two countries, namely, U.S.A. and Japan. The discussion centred around the need for equity to be achieved by allowing small fishermen to catch in the nearby areas whereas deep sea fishing could be left to the big fishermen as they possessed trawlers and where the cost was high. On this point it was observed that if the co-operatives of small fishermen could be organised, they could take advantage of deep sea fishing. Another point was that one should consider seriously as to how the sale proceeds of small producers could be increased. An integrated approach was advocated whereby marketing, processing and cold storage facilities should be linked with fish catch and this would be possible through the formation of co-operatives of small fishermen. In this respect, detailed feasibility studies should be undertaken. There was little discussion on the development of inland fisheries for exports.

In regard to exports of cotton yarn, cotton fabrics, etc., the view was that a stable price for cotton and continuous supply of cotton would be very useful. Individual commodity analysis by different paper-writers provided insight into the pattern of export behaviour and the required changes in policy directions.

Some endogenous factors responsible for poor export performance were highlighted. These could be overcome by adopting indigenous technological innovations. The growth

of agro-based products in our export composition is expected to grow in future and therefore the instability in agro-based products should be reduced in future. The geographical concentration of agricultural exports is expected to be more in the case of primary products than in manufactured products. It was argued that commodity diversification in our export trade was essential. It was pointed out that the bilateral trade arrangements solved the problem of trade from the short-term angle only whereas there was a need to evolve a policy frame which should take into account the long-term durable gains through exports in the agricultural sector. However, a detailed study was required to determine the efficacy of this policy measure both in the short-term and long-term.

To promote exports of agricultural commodities the approach of identification of potential exportable goods and regional planning for the growth in the production of these commodities were suggested. This was considered necessary in view of regional differences in productivity observed in many commodities, as also the growth of substitutes which have emerged in many commodities. The rising internal consumption for most of the agricultural commodities created the problem of surpluses for exports. According to this view, the commodity groups can be formed in the following manner, to take advantages of latest technological developments, for changing the production-mix in the agricultural sector, particularly when the land resource is a major constraint. One group comprised commodities which can be grown mainly for domestic consumption and when sufficient surpluses of those commodities arise they can be exported. The second group included those commodities that will be grown mainly for export purposes with some retained for domestic consumption. These commodities should be grown from the point of view of regional comparative advantages, keeping in view domestic demand and possible export potentials. In this regard, some specific commodity groups were identified which have relative ease in export from the viewpoint of dominance of developed countries and market concentration in the world market among exporters and importers: such commodity groups were fish and fish products, vegetables, spices, cotton, rice and tea.

Further, it was suggested that the export strategy should take into account the developments occurring abroad, particularly the EEC market by 1992 where stiff competition for our commodities in the export market is expected. Tariff escalation and non-tariff barriers that are likely to emerge in the developed countries' markets have to be tackled at the international level forums such as GATT and other related bodies. It was also stressed that the present status of international commodity agreements such as those on tea, coffee, rubber, timber etc., should be kept in view while examining the prospects of exports, prices and market situation in general.

The need for having a proper blend of export promotion and import substitution programme was also stressed. The macro economic implications of such programmes in terms of incremental investment and the policy package required should be carefully worked out.

There was some discussion on the other related issues such as changing technological horizon, intellectual property rights, plant breeder's rights, liberalisation of agriculture as a result of the New Round of Trade Negotiations, and it was stressed that agricultural scientists and researchers should examine the implications of these new developments on the international horizon and their adverse impact on the foreign trade of the countries.