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Rapporteur's Report on Diversification of Agriculture and Food Security in the Context of New Economic Policy

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INTRODUCTION

The outline provided for the contributors and the theme paper visualised diversification to high-income enterprises as a growth strategy, not to be confused with its familiar role as a strategy to cope with risk and uncertainty either in subsistence farming systems, or even in highly specialised situations. The latter, perhaps erroneously, implies a growth versus stability trade-off. Risks are important in the former context also, but several contributors seem confused on this score and fail to distinguish these roles in their analysis. While several papers show the income benefits associated with diversification towards high-value enterprises, very few analyse market risks or price response. This is a serious shortcoming as it exaggerates the potential.

The flip side of the problem is that of quantifying the threat to food security on account of shifting land and other resources to high-value crops. At regional level, the Kerala example is an extreme one with less than 30 per cent area under food crops and nearly two-thirds of the food supplies coming from outside. Yet for the country as a whole, the area under non-food grains crops is only 33 per cent (1993-94), up from about 27 per cent in 1980-81. Foodgrain crops still occupy more than 120 million hectares out of about 184 million hectares of gross cropped area. Agricultural scientists believe that with improved technologies on the shelf and in the offing, 300-350 million tonnes of foodgrains can be produced from 50 million hectares of irrigated, double cropped, land. This provides some slack which can be taken up by other crops.

In a strategic context there are two issues - whether food crops can generate high enough income growth to match the expectations of present and future farmers, and, whether (and to what extent) domestic and international market will permit the 'high-value' status of non-food agricultural commodities to continue as supplies increase at high rates. These important issues are not addressed empirically by the contributors.

Thirdly, there is a generic problem of equating food with foodgrains. Are oils, sugar, fruits, vegetables, livestock products food? What is the nature of substitution between these and what are the implications for nutrition? Some papers use a gross calorie consumption criterion, others focus on foodgrains. We may spend some time discussing these matters.

REVIEW

The outline provided to contributors identified seven issues. We highlight the salient findings with respect to these:

1. *Trends and Determinants of Diversification*

The overall picture based on national or state level data shows steady increase in the area share of non-foodgrain crops, particularly since the eighties. Coarse cereals and pulses have

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declined and cereal production is getting concentrated around rice and wheat. Contrary to popular belief, a larger part of the incremental irrigated area has also gone to non-food crops. Pulses, after sustained decline through the mid-eighties, seem to be picking up again in some areas.

The pace of diversification towards non-food crops has varied greatly over time and states. It stalled during the green revolution years as technological change made rice and wheat very profitable; the process picked up in the eighties and appears to have accelerated in the nineties. States like Kerala, Andhra Pradesh and Karnataka have experienced sharper increase in non-foodgrain crop area as compared to eastern states or hill states. It appears that, by and large, major wheat and rice (with the exception of Andhra Pradesh) supplying states have maintained the area shares of these cereals. This implies continued viability of cereal production and augers well for food security.

Micro-level studies provide mixed results. No significant change in cropping pattern was observed between 1960 and 1990 in Hamirpur (Himachal Pradesh) and food crops continued to dominate. The ecological conditions were not conducive for fruits and vegetables, the main commercial crops of Himachal Pradesh. The Madhya Pradesh village study shows decline in variety diversity for paddy between 1985 and 1995. There was slight decrease in paddy and wheat area, but some pulse crops gained area. Overall, food crops seem to have maintained their share. In Varanasi cereals and pulses have declined, yielding area to vegetables and fruits over the last decade. These are in line with expectations. The empirical issue is whether there is a threshold level of food crops area at the (farm) household level.

On diversification and farm size relationship, larger farms were generally more diversified but on vegetable farms in Himachal Pradesh, for example, the reverse appeared to be the case, perhaps because of high labour intensity for vegetables. Irrigation tended to promote specialisation (towards paddy) on small farms in Andhra Pradesh. We need to understand these tendencies and analyse their macro implications.

Among non-market forces we know that technological change and land related investments are powerful influences. What we do not know enough about is the influence of changes in land and labour markets. These range from new tenurial arrangements, migration, to the role of women and children. We also need to discuss the role of infrastructure development more rigorously than has been attempted in the contributions. The bottom line seems to be: commercialisation induced by income, price incentives, and investment policies will promote, non-foodgrains sector, but Indian agriculture will continue to be grain-dominated.

2. *Micro-effects of Diversification*

Normative evaluations indicate substantial income enhancing opportunities on small and marginal farms. It has been demonstrated that this is possible only with market and infrastructure development. In subsistence systems, risk minimisation is the main force driving diversification, and food production remains central. However, it has been established that small farmers do not place food crops production as important when market opportunities favour non-food crops. More than 60 per cent area shift to non-food crops can occur in an area like the Punjab, provided market tie-ups are developed. Similarly, dramatic shifts in production on small farms can be inferred from several micro studies. It is interesting to

note that even in most commercialised situations 40 per cent area is put under food crops. This seems to suggest a reservation level of output. More work in this area is needed.

The major inadequacy in terms of analysis relates to impact in terms of food consumption, employment and incomes of the poor. These remain the major issues for investigation.

3. *Shifts in Consumption*

Analysis of time trends (through 1987) in consumption indicates a decline in per capita consumption of cereals and an increase in non-cereal food consumption over all income classes in the urban and rural areas. There has not been a major increase in total calorie consumption, implying a systematic structural shift away from cereals and towards better quality nutrition. It would be interesting to empirically test this proposition as also the finding that this appears to be the case for the lowest income quartile as well. A distinct structural shift in composition has been propounded. It will be useful to pursue this based on more recent data as such analysis is critical for assessing future food needs of the country. Projection studies are critically dependent on income elasticity assumptions. We have some new evidence and analysis. This needs to be systematically followed up.

4. *Impact of Liberal Trade*

This issue has not been directly addressed. Papers on Kerala and Himachal Pradesh suggest some inferences on impact of growth in external and domestic markets respectively. The Kerala case shows dramatic decline in the area of major food crops, paddy and tapioca, and big gains in commercial crops, several of which are export crops. The state is food deficit. Projections indicate further exacerbation of this trend. Yet, food consumption data for Kerala does not indicate any remarkable deviation from the national trends. The study on small holder tea in the Nilgiris also indicates improvement in the quality of life, including food consumption on account of tea area expansion. It is clear that integration with the national food market enables regions and enclaves to specialise in non-food crops without jeopardising food security. Micro studies on effect of commercialisation in Himachal, Punjab, Andhra indicate that dramatic shifts in food crops area takes place even on small farms in response to commercialisation opportunities. Food expenditures are secured through higher incomes. What we need to do is to relate and extrapolate these trends to macro levels in terms of income, income distribution and sustainability parameters.

5. *Export-led Growth*

The outline put forward a provocative hypothesis on trade-off between agricultural exports and food self-sufficiency. Unfortunately, there were no takers. In the Indian context, Kerala is probably the only state where this issue has relevance, in no other state commercial (including export) crops occupy a threatening share. The issue has perhaps little relevance for a large country with a huge domestic market. Large size implies that major area diversion to non-food crops will upset international and domestic prices and threaten sustainability

of (export) earnings. China's recent food imports have fuelled such fears, but it is not entirely clear whether the Chinese story has been driven by diversification. This issue requires analysis of comparative advantage and world price trends; these have not been pursued.

6. *Diversification vs. Food Security*

Continuing in the above vein, micro-level evidence shows that higher incomes through diversification ensure and improve food security. This is possible as long as the major food producing areas (irrigated areas, the Indo-Gangetic plains, the southern delta) continue to experience productivity and income growth through food crops. It has been reported that incremental irrigated area is moving to non-foodgrains and that incremental response to fertilisers is going down. There is thus some pressure to move away from foodgrains production. These areas, particularly north-western India, Andhra delta, etc., may find it difficult to maintain past income growth based on food crops. Though these are not yet reflected in macro data, this poses a potential threat. There are indications, for example, that agroforestry might be a viable option on alkaline soils of Haryana, that vegetable production could replace cereals and offer better incomes if processing links are strong. Almost everywhere depending on marketing links, such shifts seem desirable. However, everyone agrees that even with best efforts, market risks will limit non-cereal area. Thus reservation level of food output and market risks define the limits of diversification. This issue needs more analysis.

7. *Poverty Alleviation and Food Security*

This theme did not attract many contributions. The study in Azamgarh shows positive income effects on beneficiaries of IRDP loaning schemes. We have no idea of cost-benefits. The studies on PDS make the point that targeted PDS would be much better and that the PDS system is inadequate and inefficient particularly in the rural areas. Several authors make the point that decline in area of inferior cereals hurts the poor and that the PDS should focus on these (cheaper) cereals. This is not backed up with data. Micro studies seem to suggest that diversification towards high-value and labour intensive products has positive income distribution impact. The links through agro-processing and urbanisation need more analysis.

ISSUES FOR DISCUSSION

1. Diversification of economy and economic development: implications for agriculture, poverty, pace of transition, managing transition.
2. Agricultural diversification: crop substitution as well as crop vs. other enterprises; roles of demand (market) forces, technology, infrastructure; regional perspective; enabling public policies.
3. Limits of agricultural diversification: role of natural resource endowments, demand constraints; final food scenarios, trade-offs.
4. Impact of diversification on households: incomes, food and nutrition security, gender; investments by households.
5. Role of the state: to foster income-enhancing diversification; to promote household food security (safety net).