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Risks in Agriculture: Some Issues*

S.S. Acharya

A unique and distinguishing feature of AERA, which came into existence in 1988, is that almost all of its 500 and odd life members are practising agricultural economists who work closely as an integral part of the national and state agricultural research, extension and education system of the country. The members of AERA have frequent participatory linkages with rural and agricultural development functionaries and farming communities. This provides AERA members a comparative and relative advantage in bringing out analysis-based grassroot realities of agricultural and rural development issues which policymakers and development planners and thinkers, both at the national and international levels eagerly look for. The journal of the Association, *Agricultural Economics Research Review*, which has entered the 19th year of its inception, is now rated, in terms of impact factor, equivalent or superior to several reputed national and international journals in the relevant field. I congratulate the Editors of the Journal and also the contributors for maintaining and continuously improving the standard of papers published in the journal. I consider it a privilege and feel honoured to be associated with such an important group of agricultural scientists and economists.

S.S. Acharya

Risk management in agriculture is of topical importance not only at the national level but at the global level too. Management of risks at the farm and sectoral levels is being recognized as a critical factor in achieving the Millennium Development Goals (MDGs) agreed by the nation/states in the year 2000. Risks in agriculture, which perpetuate poverty and food insecurity,

Former Chairman, CACP, Government of India; Honorary Professor and Former Director, Institute of Development Studies, Jaipur 302004, India; Email: ssacharya@idjs.org

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are both natural as well as man-made. Human-induced risks can be traced to global policies as well as international trade environment.

Risks in agriculture are associated with the processes of production as well as the product of agriculture and its transfer to the ultimate consumer. Naturally, the risks are faced by farmers as producers and all other stakeholders who perform the functions of input production and supply, credit delivery, and product handling, marketing and processing. Among all the stakeholders, the most vulnerable to these risks are farmers in general, and specially those in low-income agriculturally-dominant developing countries. Risk management strategies for rich or large size and corporate stakeholders are distinctly different from those for poor, malnourished, food-insecure and small landholders. Globalization and opening up of the agricultural economies by developing and least-developed countries have increased the concern for the risks of poor farmers the worldover.

Global poverty and food-insecurity has been under the spotlight over the past one year, as has never been before. The year 2005 has been a remarkable year in international relationships development. The 'Make Poverty a History Campaign', the United Nation's Millennium Project and associated MDG Campaign, the G8 Meeting at Gleneagles (Scotland) and United Kingdom led Commission for Africa are all focussing on increasing aid, improving debt relief and achieving fairer terms of trade for developing and least-developed countries. These coupled with the catastrophic Asian Tsunami and Ketrina have brought the debate on the gap between rich and poor on the top of global political agenda, as never before. Global rules and standards not only regulate global trade and financial flows, but also impact national economies through policy orientation and outcomes. The way the developing countries participated and dominated the negotiations at Hongkong Ministerial of WTO has established that the developing world cannot be taken for granted by the developed countries. The relationship between the North and South is rapidly changing. Global economy is experiencing an unprecedented shift in economic power from North to South. The questions like does the North have the right to demand opening-up of Southern markets in return for its efforts to liberalize trade, are being frequently asked.

At the centre of this debate are the economic dragon and elephant – China and India – what the west calls 'Asian Drivers'. The growth and developments in China and India are being considered as a development story of our times. Their size and dynamism are changing the rules of the game, not only for the rich countries but for the poor countries too. Barely a day passes without a story in the western media about the impact of these 'Asian Drivers' economies on UK, EU and USA.

Another important feature of the current global scene is that today science and technology are firmly back on the agenda and are perhaps even leading the development agenda. The system priorities identified by the CGIAR, the apex body of 15 international agricultural research institutes, for the next 10 years (2005-15), aim at (a) improving the livelihood of low-income people through reduced poverty, food insecurity, malnutrition and child mortality; and (b) fostering better institutions, policies, and sustainable management of natural resources, of particular importance to agriculture and poor people. One of the important criteria identified to judge the impact of priorities is reducing risks in agriculture, in particular in high-value market-oriented production and the vulnerability of rural households to shocks of both idiosyncratic and covariate nature.

It is being recognized that the growing globalization of food system over the past few decades has far reaching consequences for the poor and food insecure. The world trade in agricultural products is of nearly \$ 600 billion annually, with developed countries exporting slightly more than the developing countries but importing substantially more. Bulk commodities like grains and oilseeds make up only one-sixth of the total trade. Trade in processed and high-value food products exceeds 80 per cent of the global trade. Food and product safety regulations are governed at multilateral level (by WTO) and predominantly by the Agreement on Application of SPS Measures. New food-safety regulations have shifted responsibility from the importing to exporting countries. Thus, developing countries need lot of capacity-building and food-safety infrastructure.

For increasing the adaptive capacity of small holders to exploit the opportunities provided by the domestic and international markets and to offset the negative impacts of global change, apart from understanding of changing consumer preferences for food quality and safety, understanding of risk levels and sources of risk are quite critical. The requirements of SPS provisions are that risks be established on the basis of scientific principles and are quantified based on timely and specific assessments. There is a need to examine sources of contamination at the stage of both food harvesting and marketing chain for selected key commodities. The research in this area should encompass the epidemiology of disease and pest organisms, development of disease monitoring levels, and risk-modeling capacity linked to assessment of social and economic impact of risk reduction strategies. Research is also needed to prioritize sources of risk, evaluate the existing methods of risk management and identify areas where improved technology or management methods are required.

It is well known that the rural poor are characterized by insufficient asset holdings, low returns to their assets, numerous market failures,

unfavourable terms of market participation, large institutional gaps, and lack of access to public goods and services, in particular to improved agricultural technologies, resulting in not only poverty but also vulnerability to risks of change in their biophysical and economic environments. Natural and human disasters disproportionately affect poor people and marginal areas, often causing irreversible loss of productive assets and long-run impacts on human capital through short-term illness, malnutrition and withdrawal of children from schools.

Growing evidence suggests that shocks can trap people in long-term poverty, reversing the process associated with asset accumulation and productivity gains, thus reproducing poverty across generations. Shocks can also increase the rate of rural to urban migration and dependence on family and public transfers. Reducing exposure to risk and improving household capacity to manage risk, both ex-ante and ex-post, can encourage greater investments in productive activities, selection of technologies with higher expected returns and entry into higher-value markets. New technologies and institutions to manage risks are necessary to reduce risk and vulnerability in rural areas.

The ex-ante risk management options are: (a) livelihood diversification; (b) formal and informal insurance mechanisms; (c) financial and in-kind savings; (d) futures and forward markets; and (e) improved information systems. And the ex-post risk coping mechanisms are: (a) credit delivery; (b) safety nets (food-based, input distribution, and asset restocking); and (c) more efficient, accessible and stable asset and labour markets.

Insofar as the average Indian farmer is concerned, the most critical risks are yield and price risks. The yield or production risks can be covered by the crop or livestock insurance and weather or rainfall insurance scheme. The National Agricultural Insurance Scheme is now being implemented in 23 states and two UTs and during 2004-05, 18 million farmers were insured under the scheme. It plans to cover 60 million farm families by 2011-12. As regards the marketing risks, five instruments are currently available to the Indian farmer. One is the programme of Minimum Support Prices (MSP). Notwithstanding the defects in its implementation, it has helped a large number of farmers in surplus-producing states to cover a substantial part of the price risk. The second instrument for covering price risk is 'market intervention scheme' (MIS) of Government of India for the crops not covered by the MSP policy. However, its implementation needs substantial improvement. The third instrument of covering price risk is the 'contract farming' arrangement. At present, contract farming is being practised in 14 states, encompassing 36 major farm products. A pre-condition for contract

farming to expand on a large scale is amendment in the State Agricultural Produce Markets Regulation (APMR) Acts. Though a Model Contract has been formulated and circulated to states, several complementary measures and enabling environment are needed for contract farming to become a successful risk-mitigating instrument for farmers on a significant scale. The fourth instrument is the 'farm income insurance scheme' (FIIS), introduced on a pilot scale in 18 districts in 2003-04 and extended to 100 districts of 16 states during 2004-05. FIIS covers both price and yield risks. The scheme is laudable but its success will depend on the speed with which the estimates of acreage, yield and prices both at the individual and area levels are arrived at. Statistically reliable estimates of yield at district or sub-district level are not easy to obtain without the limitations of losing objectivity. The experience of pilot tests has not yet been made public. Whatever may be the outcome of pilot testing, the long-run solution for insurance of farmers' risk is certainly an effective FIIS. Till such a scheme is put in operation in all the areas, a combination of MSP policy, MIS, contract farming, and crop/livestock insurance scheme would need to continue by extending the coverage and ensuring its effective implementation.

One other instrument of covering price risk of farmers is futures and forward trading, which is now rapidly expanding. The extent to which it helps the farmers or farmers could derive benefits from it, depends on several factors. Making warehouse receipt a negotiable instrument is yet another measure in offing, which when put into operation, may help farmers in reducing price risks.

Apart from these direct instruments of covering price risks of farmers, major programmes of agricultural marketing reforms and creation of rural infrastructure have been launched in the country. There are 7557 regulated markets in the country. When the agricultural markets regulation programme was launched in late-1950s and 1960s, it aimed at streamlining the operation of primary markets and creation of some minimum physical and institutional infrastructure. While the intended objective was well achieved, in the emerging scenario, these markets are not able to provide the needed marketing services, and have in a sense become monopoly suppliers of market place. Therefore, in 2003, a model Act, incorporating amendments in the State APMR Acts was circulated by the Centre. The areas of change pertain to promotion of setting up of markets in private or cooperative sector, allowing direct marketing by farmers and permitting contract farming arrangements. Seven states (MP, HP, Punjab, AP, Rajasthan, Sikkim and Nagaland) have amended their Acts and five states (Maharashtra, Haryana, Karnataka, Gujarat and NCT Delhi) have partially done so. In seven states, either there is no existing Act or the existing Act already has these provisions (TN). Fourteen states

have initiated action to amend their Acts. It is only Bihar and Jharkhand, where the progress is reportedly nil. Though the progress is by and large satisfactory, some states are putting unnecessary, and sometimes inhibiting safeguards in their Acts. We have to sensitize all the stakeholders and allay the fears, which some sections might have in their minds.

As regards rural infrastructure, the studies (at IFPRI and elsewhere) have shown that returns to investment in India both in terms of poverty reduction and growth acceleration are the highest for the rural roads. It is in this context that a massive programme of rural roads undertaken during the past four years and incorporated in 'Bharat Nirman' is a welcome development. In addition, two schemes, one for promotion of rural godowns and the other for promotion of cleaning, grading, packaging and value-addition at village level have been launched during the past three years and are currently in operation. Agricultural marketing reforms and creation of rural infrastructure will help in saving the avoidable wastage of estimated Rs 50,000 crores in the marketing system, which goes to neither farmer nor consumer or market functionaries.

One other area which assumes importance in the context of reducing marketing margins by way of cost saving is the organized retail trade. Out of total retail trade in India, the share of organized sector is very small. The current organized retail trade is estimated at Rs 35,000 crores and in the next five years' it is expected to grow at the rate of 30 per cent per annum and may touch Rs 150,000 crores. Massive investment of Rs 3100 crores per year is expected in this sector. While Super Markets and Malls may be suitable for cities, altogether a different model of retail outlets (may be on the pattern of 'Seven-11' in East Asia) needs to be conceived for the Indian villages.

In the context of looking at the management of risks in agriculture, there are four propositions for discussion and consideration. One of these is a look at the livelihood of rural households. Based on the means of livelihood, rural households are divided into five categories, viz. self-employed in agriculture, self-employed in non-agriculture, agricultural labour, other labour, and residual category of others. Among these, the incidence of poverty is the highest in agricultural labour households.

Agricultural labour households account for 31.1 per cent of the total rural households and 44.6 per cent of these are classified as poor and food insecure. Out of agricultural labour households, only 9.1 per cent are landless. While 90.9 per cent of agricultural labour households own land, 85.3 per cent own less than one hectare of land. The per capita income of these tiny land-owning households is less than that of landless households. Even among

self-employed in agriculture households, 40.5 per cent own less than one hectare of land. As the incidence of poverty in self-employed in agriculture households is 21.6 per cent, perhaps all those owning less than one hectare of land are poor. It is thus likely that 95 per cent of the rural poor in India belong to marginal farmholdings. Their number has shown an increasing tendency over the successive agricultural censuses. The number of persons dependent on marginal farms ($71.2 \text{ million} \times 5 = 356 \text{ million}$) in India is larger than the entire population of several countries of Sub-Saharan Africa and of South Asia where the incidence of poverty is the highest in the world and higher than that in India. If India has to reduce the poverty and achieve MDGs, the major focus, therefore, ought to be on families owning less than one hectare of land. The question is whether technology, inputs, and institutional support can help in making them viable economic entities. There are several success stories in India (and also in other countries) where such tiny holdings, through technology and institutional support for high-value agriculture, have been made economically viable. But the moot question is that can this be replicated for 71 million plus holdings. Should we not reexamine our land policies and look for a paradigm shift in our approach to tackle this situation !

The second proposition pertains to our concern for rural-urban migration and distinction between rural and urban areas. While the share of agriculture in GDP is continuously declining, the population dependent on farming is not declining or declining at a very slow rate. Non-farm employment opportunities are bound to be in larger villages, smaller and large towns and cities. Rural-urban should be treated as a continuum and movement of the people from rural to a higher level of settlement should in fact be encouraged to reduce the pressure on land. The study by IFPRI has shown that migration of people from rural to urban areas helps in reducing overall poverty level (decrease for rural areas, increase for urban areas and net decrease for the country). For encouraging such a movement of people, there is a need for development of rural towns which have distinctly different linkages with villages on the one hand, and cities on the other. This may also require redefinition of rural and urban areas or may even be better to have three groups, viz. rural area, urban area and the city. This requires serious discussion.

The third proposition relates to the concerns being expressed about the indebtedness of Indian farmers. With a view to increasing the availability of credit, the present government has taken measures and asked the financial institutions for increasing the delivery of credit to the farmers in a big way. Larger credit flow implies higher indebtedness. If the credit flow increases, farmers' indebtedness is bound to go up. The Situation Assessment Survey

of Indian Farmers (for the period January-December 2003) (NSSO, 2005, Report No. 498, May) has brought out that 48.6 per cent of Indian farmers are in debt. The percentage of farmers indebted is very high in Andhra Pradesh (82), Tamil Nadu (74.5), Punjab (65.4) and Kerala (64.4). This simply means that credit flow is high in these states. The SAS does not tell anything about overdues. In this connection, the Situation Assessment Survey of NSSO also provides information on the deployment of outstanding loans. Out of the total loans, at the all India level, 59 per cent was used for farm business (31% for capital expenditure and 28% for current expenditure), and nearly 7 per cent on non-farm business. Expenditure on social ceremonies accounted for 11 per cent and consumption expenditure accounted for 9 per cent. As regards the sources of loan, institutional agencies accounted for 58 per cent and moneylenders and traders 31 per cent. Unless overdues are high and if loans have not been used in increasing the repayment capacity, should large outstanding be a matter of worry. If loans have helped in increasing the net worth (assets minus liabilities) of farmers and have added to the earning and repayment capacity, higher indebtedness can be a positive development as these help in improving risk-bearing ability of the farmers.

And the fourth proposition relates to our agricultural education system, particularly that of the field of agricultural economics. The course curriculum at both undergraduate and post-graduate levels has undergone continuous reviewing and re-reviewing and rightly so also. The curriculum at Bachelor's degree level in agriculture has been perhaps made uniform by the Indian Council of Agricultural Research. There are three compulsory courses of three credits each in agricultural economics viz. agricultural marketing and international trade; farm management and natural resource economics; and agricultural cooperation, finance and business management. There is a considerable scope in improving the sequencing and realigning the course contents within these courses. The practical component in each of these three courses also needs drastic reformulation.

As regards the courses at Master's level, where the State Agricultural Universities have considerable autonomy, it needs to be recognized that our post-graduates have now to compete with the products of IIMs and institutes awarding degrees in business management. Several agricultural universities have also launched programmes of awarding postgraduate degrees in agribusiness management. The products of management institutes and agribusiness degree holders have relatively a ready market but post-graduates in agricultural economics are not able to find suitable placements. Therefore, the time has come to totally overhaul the post-graduate degree programme in agricultural economics and even change its nomenclature. The problem of unemployment or underemployment is mainly on account of

mismatch between demand and supply of skills. In the changing economic environment, the returns are directly proportional to the type and quality of skills. The employment opportunities are available as both self-employed and hired professional in the private or corporate sector. Considerable investment is in the offing in agricultural marketing, agroprocessing, branding, packaging, quality testing, certification, agriexports, organized retail, food chains, contract farming arrangements, IT kiosks, agriclincs, agro-service centres, agri-export zones, food parks, agri-insurance and so on. We need to restructure our courses and training programme to meet the demand of these emerging areas.

Concluding Remarks

These are some of the prepositions or issues, which I think would be relevant for discussion during this conference. As I had been emphasizing in our earlier conferences, we in this Association have always tried to foresee the changes and have focussed our response to the impending changes. Our agenda for this conference has a critical relevance to the farming community and the agricultural sector at large. The AERA has in the past, contributed significantly to the policy decisions related to agriculture. The Association has always come out with options aimed at accelerated agricultural development and improvement in the living standards of farming population. In addition, reduction of rural poverty and unemployment at a rapid rate and to make poverty and household food insecurity a history, have always been a part of our agenda and contribution to the nation. I am confident that this conference will prove yet another milestone in that direction.