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New Challenges Facing Asian Agriculture under Globalisation

Volume II

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Towards Hunger Free Asia: Some Facts and Emerging Issues

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Introduction

The World Food Summit (WFS) of 1996 had set a target of reducing the number of hungry and malnourished people by 50%, by the year 2015. The progress made so far in this regard was reviewed in the 'World Food Summit: Five Years Later' held in Rome during June 2002. It was felt that the number of hungry and malnourished had not declined, but where the national governments had focussed on generating public goods such as education, healthcare, agricultural research, infrastructure and appropriate institutions and on creating an environment that enabled other actors to be effective in overcoming hunger, poverty and malnutrition, the progress had been substantial (Anderson, 2002).

Persistence of hunger and malnutrition in several countries of Asia continues to be a serious challenge for national governments as well as international development agencies. Asia still accounts for around two-thirds and South Asia around half of the world's food insecure people. It is a serious challenge on several counts. First, hunger and malnutrition persist owing to vulnerability to food insecurity. Second, food insecurity continues for a large section of people despite unprecedented rates of economic and agricultural growth during the past three decades. Third, the majority of the food insecure people are those who are themselves food producers, and among food producers, the food insecurity is pronounced more among food grain producers. Fourth, while the average consumption patterns are shifting towards more nutritive foods, cereals continue to account for a major source of calories for food insecure people. And fifth, food insecurity at household level has not decreased despite the intervention of national governments in food grain markets with the avowed objective of improving physical and economic access of masses to food grains. Added to all these is the opening up of trade by almost all countries of the region, in the aftermath of their joining new international trade agreement under WTO, which impacts both producers and consumers leading to redistribution of gains from trade. The pattern of redistribution of gains from trade suggests that higher growth achieved from liberal trade alone may not improve food grains security of many sections in this region.

The objective of this paper is to analyse the changes in the status of food security in some selected countries of Asia and identify the role of trade, domestic marketing system and the governments in improving the food security situation at the household level. The countries

selected for the study are Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam and China, which together account for 85 per cent of the population of Asia.

The paper is divided into seven sections. Following the introductory section, the second section presents a conceptual framework for identifying the role of trade, domestic marketing system and the state in food security is presented. The third section analyses the change in the situation of macro food security during the nineties and identifies the role of trade in improving food security at macro level. The section also presents the degree of food grain self-sufficiency/import dependence in these countries. Some socio-economic characteristics impacting the role of domestic marketing system in household food security are identified in the fourth section. In the fifth section, some essential elements of the strategy to reduce the hunger and the role of public policies, domestic marketing systems and the states in improving household food security in these countries are presented. Finally, some concluding remarks are given in the last section.

Conceptual Framework of Food Security

A commonly accepted definition of food security is that "all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life". In this sense, achievement of food security implies producing sufficient food and making it accessible to all the people throughout the year and from year to year on a continuous basis. Further, meeting with dietary needs for a productive and healthy life implies physical and economic access, of all people, to nutritive food, according to their requirements.

Food accounts for a considerable part of household expenditure of Asian families (Table 29.1). On an average, out of the total expenditure of households, more than 50 per cent is spent on food. The share of food in the total household consumption expenditure is relatively high in India, Bangladesh and Sri Lanka (more than 61 per cent). In China, an average household spends around 51 per cent of its total expenditure on food. In Southeast Asian countries, household outlay on food is lower than that in South Asia. It is 57 per cent in Indonesia, 54 per cent in the Philippines, 44 per cent in Malaysia and 42 per cent in Thailand.

Within food groups, though, there is an increasing trend in the proportion of income spent on more nutritive foods like fruits, vegetables and livestock products. The expenditure on cereals, which is a staple food item, continues to be quite considerable. Cereals and tubers account for 41 per cent of the total household expenditure in India, 39 per cent in Nepal, 35 per cent in Bangladesh and 33 per cent in Indonesia. In Pakistan, Malaysia, the Philippines and Thailand, the household outlay on cereals and tubers is relatively low, between 12 and 18 per cent.

The importance of cereals in food security in low-income countries is even more pronounced. Cereals account for 64 per cent of total energy consumption in South Asia. In Bangladesh and Nepal, as high as 82 per cent and 76 per cent of total energy is derived from cereals. It

Table 29.1: Share of Cereals in Household Consumption and Energy Supply in Asia

Country	Share in Household Consumption Expenditure (%)		Share in Total Energy Supply (1994-96) (%)		Share in Total Cereal Consumption (TE 1999)	
	Food	Cereals plus Tubers	All Cereals	Rice	Rice	Wheat
Bangladesh	63	35	82	75	83	14
India	65	41	63	30	44	39
Maldives	NA	NA	42	NA	60	33
Nepal	59	39	76	42	47	21
Pakistan	44	12	54	8	10	82
Sri Lanka	61	22	57	42	65	29
South Asia	62	NA	64	NA	-	-
China	51	NA	NA	NA	33	31
Indonesia	57	33	NA	58	72	7
Malaysia	44	16	NA	29	37	19
Philippines	54	18	NA	41	56	14
Thailand	42	13	NA	55	62	5

Source: FAO (1998), Acharya (2002).

is in this context that the first priority in eradicating hunger at household level in these countries ought to be cereal security. Within cereals, rice is the most important staple food for a majority of the population in selected countries. Share of rice in total cereal consumption is 83 per cent in Bangladesh, 72 per cent in Indonesia, 65 per cent in Sri Lanka, 62 per cent in Thailand and 60 per cent in Maldives. Wheat is another important staple cereal in the region. These two cereals together account for 73 per cent of total cereals consumed in these countries. As far as other cereals are concerned, a major part is used as feed for livestock.

There are three broad conditions for achieving food grains security. These are (a) availability of food grains on sustainable basis; (b) physical and economic accessibility of food grains; and (c) consumption or utilisation of available food. Any individual country, family or person, which has lost or is at the risk of not meeting any of these three conditions, is food insecure. The food insecurity may be transient or chronic and mild or acute. While chronic and acute food security occurs due to several forms of perpetual deprivation, droughts, floods or other natural or man-made calamities may cause transient food insecurity.

A welfare state is required to assure all three conditions of food security to its people. Specific requirements for the achievement of food grain security at the household can be summed up as follows:

(a) Availability of Food Grains at Macro Level
    (i) Satisfactory level and growth of food production, or adequate capacity to import food grains;

(ii) Sustainability of growth of food grains production or imports of food grains;
(iii) Stable aggregate supplies i.e., minimum fluctuations in production or availability of food grains from year to year.

(b) Accessibility of Individual Households to Food
(iv) Physical accessibility i.e., availability of food grains in all the states, regions and villages and to all families, regularly and at reasonable distances from the houses
(v) Economic access to food i.e., availability of food to individual family at reasonable prices (food prices in relation to household income);

(c) Consumption and Utilisation of Food
(vi) Intra-family allocation of food to individual members as per their needs; and
(vii) Maintenance of a reasonable level of health of all individuals to enable them to consume and absorb required level of food.

Each of these requirements of food security is influenced by several factors related to policy milieu and socio-economic environment. Experience suggests that availability of food grains at national level is a necessary, but not sufficient condition, for adequate food access to every family. Food accessibility to the family, in turn, is a necessary, but not sufficient, condition for adequate consumption and utilisation of food by all individuals in the family.

Government policies related to agricultural production and trade environment are important for meeting the requirement of availability of food grains at the macro level. As regards the physical and economic access, the domestic marketing system and relevant infrastructure, pricing of food grains and purchasing capacity of the people become quite important. Social factors like education levels, primary healthcare facilities, and role of women in household consumption decisions and gender bias affect food security of the individual members of the family.

Macro Food Security: Production, Consumption and Trade

With a view to looking at the status of macro food security and changes therein, we have analysed the population growth as well as the growth of production, consumption and trade of cereals in each of the selected countries.

Population and Growth of Population

Depending on the size of population, the selected countries can be divided into four distinct groups. First, large countries like China and India which together account for 62.4 per cent of Asia's population. Second, medium size countries like Indonesia, Pakistan and Bangladesh with populations between 127 million and 209 million, which together account for 13.5 per cent of the population of Asia. Third, relatively small countries with population between 19 million and 79 million. The countries in this group are Nepal, Sri Lanka, Malaysia, Myanmar, Philippines, Thailand and Vietnam, which together account for 8.8 per cent of the total population of Asia. The fourth group includes Bhutan and Maldives with a population of less than two million. The strategy to achieve macro food security should be different for each group of countries.

Almost all the selected countries have been able to reduce their population growth rates during the nineties, which is a welcome development for food security. The growth of population in China decelerated from 2.2 per cent per annum during 1970-90 to 1.1 percent per annum during 1990-97. The population growth decelerated from 2.1 per cent to 1.7 per cent in India, from 2.1 per cent to 1.5 per cent in Indonesia, and from 2.5 per cent to 1.5 per cent in Bangladesh during this period. In Pakistan and Nepal, the performance in terms of reducing the population growth was not satisfactory. In countries like Nepal, Pakistan, Malaysia, the Philippines and Vietnam, the growth of population continues to be more than two per cent per annum.

Regional Trends in Growth of Demand and Production of Cereals

In the context of macro food security, it is interesting to look at the trends in growth of cereal production, demand and net-trade across various regions. The analysis done at IFPRI (2001) (Table 29.2) reveals that the aggregate demand for cereals during the nineties had decelerated in the region. The growth rate of cereal demand in South Asia decelerated from 3.4 per cent per annum during the eighties (1982-90) to 2.6 per cent per annum during the nineties (1990-97). It decelerated from 3.7 per cent per annum to 3.4 per cent in Southeast Asia and from 3.2 per cent to 2.6 per cent in Asia during this period. While the aggregate demand for cereals had decelerated, the demand for cereals as feed had accelerated during this period. The feed demand for cereals accelerated from (-0.6) per cent per annum during the eighties to 3.2 per cent per annum during the nineties in South Asia and from 5.6 per cent to 7.9 per cent in Asia as a whole.

Table 29.2: Growth Rates of Cereals Demand in Asia (% per year)

Region	1982-90	1990-97
South Asia	3.4 (-0.6)	2.6 (3.2)
Southeast Asia	3.7 (9.3)	3.4 (6.1)
East Asia	3.0 (5.3)	2.4 (8.3)
All Asia	3.2 (5.6)	2.6 (7.9)
Developing World	3.2 (4.0)	2.7 (6.4)
Developed World	0.8 (0.2)	-1.3 (-1.5)

Source: IFPRI (2001).

Note: Figures in parentheses are growth rates of feed demand for cereals.

Along with the deceleration in the demand for cereals, the growth of production also reveals a decelerating trend in South Asia, East Asia and Asia as a whole (Table 29.3). It was only in Southeast Asia that the growth of cereals production showed acceleration from 0.7 per cent during the eighties to 1.1 per cent per annum during the nineties. In South Asia, the growth of production of cereals decelerated from 0.8 per cent per annum to almost zero during these two decades. For Asia as a whole, the growth of production of cereals decelerated from 1.0 per cent per annum during the eighties to 0.7 per cent per annum during the nineties.

Table 29.3: Growth Rates of Production of Cereals in Asia (% per year)

Region	1967-82	1982-90	1990-97
South Asia	1.1	0.8	0.0
Southeast Asia	1.6	0.7	1.1
East Asia	1.9	1.3	1.0
All Asia	1.6	1.0	0.7
Developing World	1.1	0.5	0.6
Developed World	1.2	0.2	-0.4

Source: IFPRI (2001).

Production Performance in Selected Countries

In all the selected countries, the production of cereals performed well during the nineties. Between triennium ending (TE) 1991 and TE 1999, the production of cereals (all cereals combined) went up from 202 million tonnes to 234 million tonnes in South Asia, from 87 million tonnes to 106 million tonnes in Southeast Asia and from 323 million tonnes to 383 million tonnes in China (Table 29.4). It may be pointed out here that in the rest of Asia and the rest of the world also, the output of cereals recorded significant increases during this period.

More or less similar is the story of production performance of rice, wheat and other cereals except that in South Asia, where the production of other cereals recorded a marginal decrease from 36 million tonnes during TE 1991 to 34 million tonnes during TE 1999. The decrease was in India, where coarse cereals are grown as non-irrigated rained crops and their output records wide inter-year fluctuations due to uncertain and low rainfall in coarse cereal-growing tracts.

In the context of macro food security, the role of international trade emerges from the equation of population and domestic production. This equation can be looked at both in a static and dynamic framework. For China, the share of production of cereals (53.0%) is considerably higher than the share of population (41.2%). The growth rate of production of cereals at 2.2 per cent per year is also higher than the growth rate of population (1.1%) and that of consumption (1.7%) (Table 29.5). Thus macro food grain demand-supply equation for China, which accounts for 41.2 per cent of the combined population of these countries, is nearly comfortable. In the case of India, the share of production of cereals (25.2%) is considerably lower than the share of population (32.4%). However, the growth rate of production of cereals during the nineties was nearly balanced with the growth rate of population and of consumption of cereals. A very high degree of match between growth of demand and supply of cereals for these two large populated countries is a welcome development for the macro food grains security of several medium and small size countries.

As far as medium size countries are concerned, the share of production in all the three countries of Indonesia, Pakistan and Bangladesh is lower than their shares in population.

Table 29.4: Production of Cereals in Asia and the World

Country	(Million tonnes)							
	Rice		Wheat		Other Cereals		Total	
	TE 1991	TE 1999	TE 1991	TE 1999	TE 1991	TE 1999	TE 1991	TE 1999
A. South Asia								
Bangladesh	17.9	18.7	1.0	1.7	0.1	0.1	19.0	20.5
Bhutan	*	*	*	*	0.1	0.1	0.1	0.1
India	72.2	83.3	52.8	68.8	32.5	30.2	157.5	182.3
Maldives	0	0	0	0	0	0	0	0
Nepal	2.3	2.4	0.8	1.1	1.5	1.7	4.6	5.1
Pakistan	3.2	4.4	14.4	17.8	1.8	1.8	19.4	24.0
Sri Lanka	1.5	1.7	0	0	*	*	1.6	1.7
Sub Total (A)	97.1	110.5	69.0	89.4	36.0	33.9	202.1	233.9
B. Southeast Asia								
Indonesia	29.1	32.1	0	0	6.4	9.4	35.5	41.5
Malaysia	1.1	1.3	0	0	*	*	1.1	1.3
Myanmar	8.9	11.1	0.1	0.1	0.3	0.5	9.3	11.7
Philippines	6.2	7.1	0	0	4.7	4.3	10.8	11.4
Thailand	12.5	15.1	*	*	4.3	4.7	16.7	19.8
Vietnam	12.5	19.1	0	0	0.7	1.7	13.2	20.7
Sub Total (B)	70.3	85.8	0.1	0.1	16.4	20.6	86.8	106.5
C. China	121.6	130.8	94.7	115.8	106.4	136.7	322.7	383.3
Rest of Asia	20.9	19.8	36.6	55.4	22.1	24.9	79.6	100.0
Total Asia	309.9	346.9	200.4	260.7	180.9	216.1	691.2	823.7
Rest of World	27.9	33.3	364.7	335.5	647.5	683.9	1040.1	1052.8
World	337.8	380.2	565.1	596.2	828.4	900.0	1731.3	1876.5

Note: * Less than 50000.
TE = Triennium Ending (For example, TE 1991 is the average of 1989, 1990 and 1991)
Source: FAO (1991), FAO (1999).

However, in the dynamic framework, the situation is not the same. During the nineties, the growth rates of production of cereals in Indonesia and Bangladesh were considerably lower than the corresponding growth rates of cereal demand. It was only in Pakistan where the growth of production of cereals marginally exceeded the growth of demand for them.

Among relatively small-populated countries, the share of production exceeded the share of population in Vietnam, Thailand and Myanmar. For Nepal, these two shares were equal. It was only for the Philippines, Malaysia and Sri Lanka that the share of production of cereals was considerably lower than that of demand for cereals. Under dynamic framework, while

Table 29.5: Population – Domestic Production Equation in Selected Countries of Asia

Country	% Share in TE 1999		Growth Rate in the Nineties		
	Population	Production of Cereals	Population	Demand for Cereals	Production of Cereals
China	41.2	53.0	1.1	1.7	2.2
India	32.4	25.2	1.7	1.8	1.8
Indonesia	6.8	5.7	1.5	3.0	2.0
Pakistan	5.0	3.3	2.7	2.7	2.8
Bangladesh	4.1	2.8	1.5	1.8	1.0
Vietnam	2.6	2.9	2.0	4.6	5.8
Philippines	2.4	1.6	2.2	2.1	0.6
Thailand	2.0	2.7	0.9	3.4	2.1
Myanmar	1.4	1.6	1.8	3.1	2.9
Nepal	0.7	0.7	2.6	NA	1.3
Malaysia	0.7	0.2	2.3	4.6	2.5
Sri Lanka	0.6	0.2	1.0	1.5	1.0
Bhutan	0.1	*	1.8	3.4	1.1
Total	100.0	100.0	-	-	-

Note: * denotes Infinity.

in Vietnam the growth of production far exceeded the growth of demand, in the Philippines, Thailand, Myanmar, Nepal and Malaysia, the growth of production during the nineties was lower than the growth of demand for cereals.

Trade and Import Dependence

The data on production and net imports (or exports) of cereals of selected countries at two points of time i.e., TE 1991 and TE 1999 are presented in Table 29.6. The degree of dependence on imports and degree of globalisation i.e., linkages with the international market are also presented in this table. The degree of dependence on imports was worked out by taking net imports as a percentage of domestic consumption (production plus net imports). The degree of globalisation is the linkage of the country with the international market and was worked out by taking sum of imports and exports as a percentage of domestic production. The analysis was done separately for rice and wheat, as these are two important cereals directly consumed by human beings. The results for rice and wheat are shown in Tables 29.7 and 29.8 respectively. The main observations from these results emerge as follows:

Table 29.6: Cereals: Production, Net Imports, Consumption, Import Dependence and Degree of Globalisation of Some Asian Economies

Country	TE 1991					TE 1999				
	Production (000 tonnes)	Net Imports (000 tonnes)	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %	Production (000 tonnes)	Net Imports	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %
Bangladesh	18965	1794	20759	8.6	9.5	20487	3354	23841	14.1	16.4
Bhutan	86	17	103	16.5	19.7	95	41	135	30.0	60.4
India	157533	-344	157190	-0.2	0.7	182302	-1113	181189	-0.6	2.9
Maldives	0	27	27	100.0	*	0	30	30	100.0	*
Nepal	4589	10	4599	0.2	0.3	5094	37	5130	0.7	0.9
Pakistan	19353	796	20149	4.0	13.8	24044	911	24955	3.6	19.2
Sri Lanka	1558	1024	2582	39.7	65.8	1688	1213	2900	41.8	72.0
Indonesia	35529	2082	37612	5.5	6.8	41457	6212	47669	13.0	16.2
Malaysia	1107	2517	3624	69.4	240.6	1347	3832	5179	74.0	319.8
Myanmar	9333	-199	9134	-2.2	2.3	11705	-82	11623	-0.7	1.9
Philippines	10841	1998	12838	15.6	18.6	11393	3701	15094	24.5	32.5
Thailand	16748	-5753	10995	-52.3	39.3	19773	-5454	14319	-38.1	36.9
Vietnam	13216	-1197	12019	-10.0	12.6	20748	-3531	17217	-20.5	22.8
China	322677	14700	337377	4.4	8.3	383340	1888	385228	0.5	4.9

Note: * denotes infinity.

Source: FAO (1991, 1999).

Table 29.7: Rice: Production, Net Imports, Consumption, Import Dependence and Degree of Globalisation of Some Asian Economies

Country	TE 1991					TE 1999				
	Production (000 tonnes)	Net Imports (000 tonnes)	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %	Production (000 tonnes)	Net Imports	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %
Bangladesh	17913	151	18064	0.8	0.8	18699	1174	19873	5.9	6.3
Bhutan	28	12	40	29.4	41.7	33	21	54	39.4	65.3
India	72195	-249	71946	-0.3	0.9	83255	-3151	80104	-3.9	3.8
Maldives	0	16	16	100.0	*	0	18	18	100.0	*
Nepal	2273	8	2281	0.3	0.3	2368	21	2389	0.9	1.1
Pakistan	3170	-934	2236	-41.8	29.5	4422	-1842	2580	-71.4	41.7
Sri Lanka	1516	192	1709	11.3	12.7	1652	230	1882	12.2	14.1
Indonesia	29082	127	29209	0.4	0.7	32099	2329	34428	6.8	7.3
Malaysia	1072	366	1438	25.4	34.1	1297	636	1933	32.9	49.1
Myanmar	8877	0	8877	0	0	11115	-84	11031	-0.8	0.8
Philippines	6164	285	6448	4.4	4.9	7127	1252	8379	14.9	17.6
Thailand	12462	-4887	7575	-64.5	39.2	15088	-6253	8834	-70.8	41.5
Vietnam	12491	-1327	11164	-11.9	11.0	19080	-3959	15120	-26.2	20.8
China	121573	-64	121509	-0.1	0.8	130833	-2290	128543	-1.8	2.1

Note: * denotes Infinity.

Source: FAO (1991, 1999).

Table 29.8: Wheat: Production, Net Imports, Consumption, Import Dependence and Degree of Globalisation of Some Asian Economies

Country	TE 1991					TE 1999				
	Production (000 tonnes)	Net Imports (000 tonnes)	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %	Production (000 tonnes)	Net Imports	Consumption (000 tonnes)	Import Dependence (%)	Degree of Globalisation %
Bangladesh	972	1643	2615	62.8	169.0	1722	1629	3350	48.6	94.6
Bhutan	5	5	10	53.3	114.3	5	20	25	79.8	472.2
India	52827	-156	52671	-0.3	0.8	68824	1984	70808	2.8	2.9
Maldives	0	11	11	100.0	*	0	10	10	100.0	*
Nepal	840	3	843	0.3	0.4	1057	11	1068	1.0	1.0
Pakistan	14413	1730	16143	10.7	12.0	17772	2752	20524	13.4	15.5
Sri Lanka	0	789	789	100.0	*	0	853	853	100.0	*
Indonesia	0	1965	1965	100.0	*	0	3274	3274	100.0	*
Malaysia	0	864	864	100.0	*	0	976	976	100.0	*
Myanmar	126	7	133	5.5	5.9	91	38	129	29.5	41.8
Philippines	0	1532	1532	100.0	*	0	2118	2118	100.0	*
Thailand	0	402	402	100.0	*	1	672	673	99.9	*
Vietnam	0	208	208	100.0	*	0	444	444	100.0	*
China	94682	14245	108927	13.1	129.1	115805	1978	117783	1.7	99.2

Note: * denotes Infinity.

Source: FAO (1991, 1999).

(i) Net imports of cereals by China declined from 14.7 million tonnes during TE 1991 to 1.9 million tonnes during TE 1999. China was a minor exporter of rice during TE 1991. But its rice exports increased to 2.3 million tonnes during TE 1999. While it increased its exports of rice, it also reduced its imports of wheat from 14.2 million tonnes during TE 1991 to around two million tonnes during TE 1999. China's dependence on cereal imports came down from 4.4 per cent to 0.5 per cent during this period. In other words, China's self-sufficiency level for cereals was 99.5 per cent during TE 1999. Its linkage with the global market for cereals also went down from 8.3 per cent during TE 1991 to 4.9 per cent during TE 1999.

(ii) In the case of another large country, India, it improved its position as an exporter of cereals. Net exports of cereals of India went up from 0.3 million tonnes during TE 1991 to 1.1 million tonnes during TE 1999. India has been a consistent exporter of rice. Its annual rice exports increased from 0.2 million tonnes to 3.2 million tonnes during this period. However, in the case of wheat, in some years, India had to import wheat. During TE 1999, India's average imports aggregated to around two million tonnes. Overall, for all cereals taken together, India's self-sufficiency level is more than 100 per cent i.e., it continues to be a marginal exporter. Its degree of globalisation for cereals, which was very low at 0.7 per cent during TE 1991, went up to 2.9 per cent during TE 1999.

(iii) The net imports of cereals in Indonesia went up from 2.1 million tonnes during TE 1991 to 6.2 million tonnes during TE 1999. The surge in imports was on account of imports of both rice and wheat. During TE 1999, Indonesia imported (net) 2.3 million tonnes of rice, 3.3 million tonnes of wheat, and around 0.6 million tonnes of other cereals. For wheat, Indonesia's import dependence is 100 per cent, as it does not grow wheat. Overall, the degree of import dependence of Indonesia for cereals, which was 5.5 per cent during TE 1991, went up to 13.0 per cent during TE 1999. Its degree of globalisation has also increased from 6.8 per cent to 16.2 per cent during the nineties.

(iv) Pakistan is a net exporter of rice but a net importer of wheat. During the nineties, both exports of rice and imports of wheat went up considerably in Pakistan. Overall, net imports of cereals in Pakistan went up marginally from 0.8 million tonnes during TE 1991 to 0.9 million tonnes during TE 1999. The import dependence of Pakistan for cereals decreased marginally from 4.0 per cent to 3.6 per cent but the degree of globalisation went up from 13.8 per cent to 19.2 per cent during this period.

(v) In the case of Bangladesh, net imports of cereals went up from 1.8 million tonnes during TE 1991 to 3.4 million tonnes during TE 1999, with import dependence going up from 8.6 per cent to 14.1 per cent during this period. Bangladesh is an importer of both rice and wheat. Between TE 1991 and TE 1999, while net imports of rice in Bangladesh increased from 0.2 million tonnes to 1.2 million tonnes, those of wheat stayed at around 1.6 million tonnes during this period. The degree of globalisation of Bangladesh for cereals went up from 9.5 per cent to 16.4 per cent during the nineties.

(vi) Malaysia's dependence on imports is the highest among the selected countries. Its degree of self-sufficiency in cereals, which was 31 per cent during TE 1991, went down to 26 per cent during TE 1999. Net imports of cereals in Malaysia increased from 2.5 million tonnes to 3.8 million tonnes during this period. Its imports during TE 1999 comprised 0.6 million tonnes of rice, around one million tonnes of wheat and 2.2 million tonnes of other cereals. The degree of global dependence of Malaysia for cereals is more than 240 per cent, which went up further to 320 per cent during the nineties.

(vii) Vietnam, Thailand and Myanmar are net exporters of cereals. Though all these three countries import wheat and imports of wheat went up during the nineties, their exports of rice have gone up by a larger margin. The degree of globalisation of Vietnam increased during the nineties but that of Myanmar and Thailand had marginally decreased. Even then, in the case of Thailand, the degree of globalisation is quite high; at 37 per cent during TE 1999.

(viii) Sri Lanka is a net importer of cereals, mainly wheat. Its degree of dependence on imports is quite high and has gone up further from 39.7 per cent during TE 1991 to 41.8 per cent during TE 1999. Net imports of Sri Lanka during TE 1999 aggregated to 1.2 million tonnes comprising 0.9 million tonnes of wheat and 0.2 million tonnes of rice.

(ix) The Philippines imports considerable quantities of cereals and its import dependence went up further during the nineties. The net imports of cereals increased from around 2 million tonnes during TE 1991 to 3.7 million tonnes during TE 1999. The net imports during TE 1999 comprised of 1.3 million tonnes of rice and 2.1 million tonnes of wheat. The dependence on imports for cereals went up from 15.6 per cent during TE 1991 to 24.5 per cent during TE 1999. The degree of globalisation of the Philippines in terms of cereal trade also went up from 18.6 per cent to 32.5 per cent during this period.

(x) Nepal is a marginal importer of cereals. Its import dependence and degree of globalisation is small but went up during the nineties.

(xi) Bhutan is a small country and it imports small quantities of cereals. Its import dependence went up from 16.5 per cent during TE 1991 to 30 per cent during TE 1999.

(xii) Maldives is 100 per cent import dependent for cereals, but its total imports are insignificant at around 30 thousand tonnes.

These results indicate that (a) two large populated countries, China and India, which have treaded their paths to food security with caution, have attained near self-sufficiency and these are emerging as either marginal importers or exporters; (b) among medium size countries, except for Pakistan, the import dependence has gone up; (c) Myanmar, Thailand

and Vietnam have continued to remain net-exporter of cereals and improved their position, but they continue to remain importers of wheat; (d) Sri Lanka and Malaysia are net importers of cereals and their import dependence had gone up during the nineties; (e) Nepal, Bhutan and Maldives are net importers of cereals but the quantities imported are insignificant in relation to total trade in cereals; (f) the degree of globalisation of all the selected countries, except China, had increased during the nineties; and (g) the international trade in cereals is assuming increasing importance for macro food security in all these countries.

The macro food security i.e. ensuring adequate availability of food in these countries would call for a strategy consisting of the following: (a) large populated countries like China and India should continue to maintain a reasonably high degree of self-sufficiency in food grains; (b) countries with relatively small population, particularly those which are major import dependent countries should maintain adequate buffer stock of cereals, say, of three months consumption requirement; and (c) for other countries, there is certainly a case for a more carefully worked out system of planning, steering and monitoring the pattern of production, imports and distribution for assured food security. By and large, it is implied that in most of these countries the farmers must continue to receive adequate incentives to produce food and other agricultural commodities. Further, as the livelihood of large sections of population depends on production of food grains, appropriate policy flexibility under WTO rules needs to be provided to these countries for household food security. Studies have shown that unrestricted trade liberalisation in food grains would expose both producers and consumers to high volatility inherent in international food prices (Chand and Jha, 2001)

Socio-economic Characteristics

As already mentioned, food security at macro or national level, is only a necessary, and not sufficient condition, for household food security. For translating macro food security into household food security, domestic marketing system and the 'state' play an important role. The role of domestic marketing system and the government programmes depends on the socio-economic setting of the people. There are several socio-economic characteristics, which need to be kept in view while analysing the role of marketing system and food assistance programmes in improving household food security in these countries.

(i) The majority of the population of these countries derives its livelihood from agriculture (Table 29.9). Farm families account for 60 per cent of the total population in these countries. Across countries of the region, there is considerable variation in the population dependent on farming. In Nepal and Bhutan, around 93 per cent of the population are engaged in farming whereas in Malaysia only six percent of the population derive their livelihood from farming.

(ii) Nearly 70 per cent of the population in these countries are rural population. Rural non-farm sector accounts for ten per cent of the total population of the region. However, there is considerable inter-country variation in the population dependent on rural non-farm activities for livelihood. While in Bhutan and Nepal, rural population dependent on non-farm activities is almost non-existent; this is as high as 39 per cent in Malaysia, 33 per cent in Sri Lanka and 30 per cent in Thailand. Rural marketing infrastructure,

Table 29.9: Some Demographic Characteristics of Selected Asian Economies

Country	Population (million)	Adult Literacy (%)	Rural Population to Total Population (%)		
			Farm	Non-Farm	Total
A. South Asia					
Bangladesh	127	40	61	19	80
Bhutan	2	42	94	-1	93
India	998	56	57	16	73
Nepal	23	39	93	-4	89
Pakistan	152	44	50	14	64
Sri Lanka	19	91	46	33	77
Sub Total (A)	1321	53	57	16	73
B. Southeast Asia					
Indonesia	209	84	45	18	63
Malaysia	22	84	6	39	45
Myanmar	45	83	71	2	73
Philippines	74	95	41	3	44
Thailand	61	94	49	30	79
Vietnam	79	94	67	13	80
Sub Total (B)	490	88	49	16	65
C. China	1267	82	67	1	68
Total (A+B+C)	3078	70	60	10	70
Rest of Asia	556		22		
Total Asia	3634		57		
Rest of World	2344		26		
World	5978	75	43	11	54

Source: UNICEF (1999), FAO (1999), RIS (2002).

therefore, assumes critical importance in improving physical access to food in these countries. Further, as agricultural production pattern in these countries shifts from subsistence to specialised and commercialised agriculture, preponderance of rural population would require the creation of an efficient marketing system to distribute the food surpluses of one region to the deficit areas.

(iii) While the population dependent on farming for livelihood is quite large, the average farm size is abysmally small (Table 29.10). It is as small as 0.9 hectare in Nepal, 1.1 hectares in Indonesia and Sri Lanka, 1.3 hectares in Bangladesh and 1.7 hectares in India. Further, on an average less than one-third of the land has irrigation facilities, leading to very low intensity of cropping. Naturally, a majority of these holdings do not generate adequate income to enable the families a reasonable standard of living. However, most of the farmers in these countries invest a major proportion of their land and family labour resources for production of cereals and pulses which helps in maintaining or improving their food security.

Table 29.10: Agricultural Sector and Income Levels in Asia

Country	Average Size of Farm (ha)	Irrigated Land as % of Agricultural Land	Fertilizer Use (Kg/ha) (1995)	Share of Agriculture in GDP (2000) (%)	Per Capita GNP (1996) ($)	% (Share of Household Income	
						Lowest 40%	Highest 20%
A. South Asia							
Bangladesh	1.3	36.8	135.4	24	260	23	38
Bhutan	NA	26.0	0.7	32	390	NA	NA
India	1.7	29.5	81.8	24	380	21	43
Nepal	0.9	29.8	31.6	39	210	19	45
Pakistan	3.8	79.6	113.1	26	480	21	40
Sri Lanka	1.1	29.2	106.0	21	740	22	39
B. East Asia							
Indonesia	1.1	15.2	83.2		1080	21	41
Malaysia	NA	4.5	164.0	13	4370	NA	NA
Myanmar	2.4	15.4	12.2	63	220	NA	NA
Philippines	2.2	16.6	63.4	22	1160	17	48
Thailand	3.6	24.5	70.6	11	2960	14	53
Vietnam	NA	29.6	214.3	28	290	19	44
C. China	NA	52.0	370.7	16	750	15	48
Asia Pacific	NA		143.4	-	-	17	46
Rest of World	NA		63.0	-	-	-	-
World	NA		88.6	-	5051	18	42

Source: FAO (1998), UNICEF (1999).

Table 29.11: Indicators of Change in Poverty and Calorie Consumption in Developing Asia

Country	Change in Population 1970 to 1995 (%)	Change in Per Capita Income 1970 to 1995 (%)	*Poverty Levels*		Calorie Consumption K cal/person/day		
			1975 (%)	1990s (%)	1975	1995	% Change
India	67.4	82.2	-	-	2083	2388	14.6
Rest of South Asia	88.2	60.0	-	-	2184	2274	4.1
South Asia	72.0	76.9	59.1	43.1	2105	2361	12.1
China	46.9	419.8	59.5	22.2	2019	2697	33.5
Southeast Asia	68.2	192.6	52.9	11.5	1945	2596	33.5
Developing Asia	59.6	189.3	58.7	29.9	2045	2537	24.1

Source: ADB (2000).

(iv) Despite small farm holdings, farmers in the region have been using fertiliser to improve the productive capacity of land. There is considerable use of fertiliser on the farms which, if used in balanced proportion of nitrogen, phosphorus and potash and in conjunction with organic manures, helps in achieving better per hectare yields of crops. Average fertiliser use varies from 63 kg to 164 kg in most of the countries except China, Nepal, Bhutan and Myanmar. In China, the average fertiliser consumption is more than 370 kg of nutrients per hectare. In Nepal and Myanmar, the average level of fertiliser use is very low (12 to 31 kg per hectare). In Bhutan, fertiliser use is negligible. In the context of small size of holdings, there is a need to promote balanced use of fertilisers for improving household food security in rural areas.

(v) Another important factor impacting food security is the share of agricultural sector in national income. In major populated countries, the share of agriculture in GDP is around or less than 25 per cent. Further, over the years, the share of agriculture in GDP has continuously declined, leading to widening disparities between agricultural and non-agricultural sectors.

(vi) The per capita income in most of these countries is very low. The average per capita income in South Asia is US$ 382 as against a world average of US$ 5051. The per capita incomes in Bangladesh and Nepal are very low at US$ 260 and US$ 210, respectively. On purchasing power parity basis also, the average per capita income in South Asia at US$ 2115 is less than one-third of world average (US$ 6941). Among Southeast Asian countries, the average income levels are considerably lower in Myanmar and Vietnam. In 1996, it was US$ 220 in Myanmar and US$ 290 in Vietnam. The average per capita income of Malaysia at US$ 4370 is the highest among the selected countries. The situation in Thailand, the Philippines and Indonesia is also relatively better. China's per capita income at US$ 750 is also considerably higher than several other countries, including India.

(vii) As far as household food security is concerned, national averages of per capita income conceal considerable information. Inter-personal disparities in income determine the levels of food insecurity to a great extent. In all the countries of this region, the lowest 40 per cent of the households share 14 to 23 per cent of the total household income. As against this, the richest 20 per cent of the households account for 38 to 53 per cent of the total household income. Inter-personal disparities are relatively higher in the Philippines, Thailand, Vietnam and China compared to other countries of the region.

(viii) Nearly thirty per cent of the adult population of these countries are illiterate. Illiteracy is quite high in South Asia. Nearly half of the adult population in South Asia are illiterate. Literate population is even less than 45 percent in Nepal, Bangladesh, Bhutan and Pakistan. Continuing illiteracy is one of the important causes of food insecurity in most of these countries.

(ix) Economic access to food depends, to a considerable extent, on the purchasing power available with the households. The data in Table 29.11 reveal that despite considerable

efforts in arresting the growth of population, increasing per capita income levels and reducing poverty, the proportion of households living below the poverty line continues to be considerably high, particularly in South Asia. The proportion of people living below the poverty line of US$ one per day declined in South Asia from 59.1 per cent in 1975 to 43.1 per cent in 1990s, whereas it declined from 59.5 per cent to 22.2 per cent in China, from 52.9 per cent to 11.5 per cent in Southeast Asia and from 58.7 per cent to 29.9 per cent in developing Asia during this period. Performance of China during this period in terms of accelerating the growth of per capita income was quite impressive. The increase in per capita income in China between 1970 and 1995 was 419.8 percent as against 82.2 per cent in India, 60 per cent in the rest of South Asia, and 192.6 per cent in Southeast Asia. In terms of arresting the growth of population also, the performance of China was considerably better than South Asia and Southeast Asia.

(x) The situation of calorie consumption is in no way different from the performance on the poverty front. Between 1975 and 1995, the average calorie consumption increased by 4.1 per cent in Rest of South Asia as against 14.1 per cent in India and 33.5 per cent in China and Southeast Asia. The average calorie intake of the population in South Asia is close to minimum norm but considerably lower than that in other countries. In 1995, it was estimated as 2388 K cal in India, 2274 in rest of South Asia and 2361 K cal per person per day in South Asia which was considerably lower than that in other developing countries of Asia. It was 2697 K cal in China and 2596 K cal in Southeast Asia. Obviously, household food insecurity and hunger is quite pronounced in many parts of South Asian countries.

Strategy to Reduce Hunger

The majority of the poor and malnourished people depend directly on agriculture for their livelihood and live in rural areas. Further, most of the poor and hungry either own small pieces of land or are landless. The heart of the strategy to remove hunger and to achieve household food security for all in these countries must, therefore, involve increasing production and incomes of small farms, which in turn implies broad-based efforts to develop agriculture, animal husbandry, fisheries and forests. If agriculture in these countries remains unproductive and does not generate sufficient returns for farmers, the results are perpetual high unit costs for food, poverty, food insecurity, poor nutrition and excessive migration from rural to urban areas (Anderson, 2002). When farmers and farm workers earn little or no money, they cannot pay for goods and services produced by poor rural non-farmers. Agriculture, if it is highly productive, has the potential to lift up the whole economy. The multiplier effect of increase in farm incomes is quite high in these countries. Studies conducted at IFPRI show that for every new dollar of income earned by farmers in poor developing countries, the income of the whole economy rises by up to US$2.60. Along with the improvement in productivity and incomes of farmers, it will also be important to encourage agro-based or service-oriented rural non-farm activities to induce the shift of workers from farming to other rural occupations.

The strategy to reduce hunger and food insecurity should include (a) favourable policy environment for broad-based agricultural and rural development; (b) improvement in the efficiency of domestic marketing system; and (c) change in the role of the government.

Policy Environment

The policy environment in these countries needs to favour broad-based agricultural and rural development. Some specific areas, which need attention, are as follows:

(i) The policy environment must ensure that small and poor farmers have access to resources of land, water and grazing resources. Property rights of small farmers and fishers should be secured. Institutional reforms would be needed to ensure the rights of these people on common property resources on an equitable basis.

(ii) Agricultural research needed for small and poor farmers is severely under-funded. The private sector does not undertake research on dry land or low value crops because expected financial gains do not often cover costs of such research. But gains to society and poor people from such research investments are very high. Social rates of returns in the past were more than 20 per cent a year. Yet low-income countries invest only 0.5 per cent of value of farm production, compared to 2 to 5 per cent by higher income countries. Adequate research resources must flow in such areas.

(iii) Quite often, some countries do not find adequate resources for investment in agricultural research. In this context, it must be realised that developed countries also gain from investment in the agricultural sectors of developing countries. Anderson (2002) has shown that every dollar invested in agricultural research for developing countries increases their imports of goods and services by $4, with $1 going to agricultural imports. Further, farmers in developed countries make use of crop varieties bred for use in developing countries. For example, US consumers and farmers derived benefit of around $ 190 for every one dollar invested by the USA in international wheat research (Anderson, 2002). Developed countries should, therefore, be encouraged and facilitated to invest in agricultural research in developing countries.

(iv) Trade policy environment should be conducive and not discriminate against the agricultural sector of these countries. Almost all countries have now resorted to imports or exports of food grains and liberalised their trade policies. Even under a liberalised trade policy regime, certain safeguards would need to be taken to prevent the adverse impact of high volatility in international food prices on food grain producers and food insecure consumers. There are several safeguards available under the Agreement on Agriculture under WTO, which should be used. Further, liberalisation of domestic markets must precede opening-up of trade in food grains.

(v) There are three sets of policy options available to assure the poor economic access to food. First is to enhance their incomes or purchasing power by creating and providing employment opportunities. Food for work or employment guarantee programmes are examples of this option. The second option is to distribute food to the identified poor

families at affordable prices by implementing a programme of subsidised food distribution. And the third option is to keep the open market prices of food at relatively lower levels by compulsory procurement of food grains by government agencies at low price and subsequently releasing these in the open market. The second option involves a considerable amount of food subsidy. The governments in some countries have, therefore, resorted to a combination of these three options and protected the interests of farmers by supplying them key farm inputs at lower prices or user charges. The rationale of food subsidy and farm input subsidies prevalent in some countries should be viewed in the context of improving economic access to food and yet assuring a reasonable return to food producers for continued increase in the output of food and other agricultural commodities (Acharya, 2001c). However, several questions relating to the financial and environmental sustainability and consequently to the economic costs of this option are being raised. The debate revolves around the question – can the food security of the poor be assured at a lower social cost by phasing out government subsidies on food and farm inputs and using the budgetary resources, thus saved, for creating marketing infrastructure and technological developments? It is now being realised that though farmers must continue to receive adequate incentives for producing food and other agricultural commodities, the emphasis should shift from general input subsidies to the provision of cost reducing technologies, support for improvement of post-harvest practices and evolving institutional mechanisms to reduce farmers' price and yield risks. Input and food subsidies should be targeted at only the small and marginal farmers and vulnerable sections of society.

In addition, the policy environment related to agricultural marketing would require several changes to encourage private sector participation.

Agricultural Marketing System

An agricultural marketing system includes (a) performance of physical and facilitating functions of transferring food grains from the farmers to consumers; (b) discovery of prices of products at different stages of marketing; and (c) transmission of price signals in the marketing chain specifically from consumers to farmers. An agricultural marketing system, therefore, encompasses the performance of both physical and institutional functions and the creation of related infrastructure which add value in terms of time, place, form and possession utilities to the products originating at the farm level. An efficient marketing system contributes significantly in removing hunger and improving food security in several ways. Though the priorities of agricultural marketing development would vary from country to country, commodity to commodity and within a country from area to area (Acharya, 2001b), there are some common features of agricultural marketing development in almost all the countries of the region.

(i) One of the important conditions of assured food security is physical access to food. The marketing system has a critical role in fulfilling this condition. The food produced on the farms is to be assembled and taken to consumption centres. Physical movement of food in deficit and far-flung areas is an important function of the marketing system.

With the increase in specialisation of production patterns, the marketing system is assuming an even greater role in the assembling and distribution of food.

(ii) The role of the marketing system in improving physical access of households to food has further increased owing to the expansion of urban areas. The urban population is increasing at a rapid rate in Asian countries. Asian cities are growing at a rate of 3 per cent per year compared with an overall growth rate of 1.4 per cent per year. Urban areas provide an assured market for surplus food produced by farmers. An efficient urban food marketing system can help in improving the food security of both poor and food producing farmers and urban food insecure people. It has been estimated that a city of one million people needs to import, on an average, at least 600 tonnes of food per day. To handle such a size of food, apart from the creation of an adequate physical infrastructure, considerable coordination among the market functionaries is needed.

(iii) The marketing system has a more direct role in improving food security by reducing the losses that occur in the marketing chain during post-harvest handling, transportation, and storage and processing. In some countries, the losses due to inadequate marketing infrastructure and inefficient marketing practices have been estimated at 10 per cent for food grains and more than 30 per cent for fruits and vegetables. This would *inter alia* require massive investment in the creation of physical infrastructure at all stages of marketing.

(iv) Another important role of the marketing system in improving food security is reducing the gross marketing margins (GMM). Reduction in the actual costs of marketing requires the introduction of new technologies in performing various marketing functions and changes in the institutional framework to directly link the farm gate with the retail outlets. Motivation of farmers in grading and packaging or creating such facilities at the village level and arrangements for transporting farm-packed commodities directly to retail outlets is an important option to reduce GMM and thus benefit both farmers and consumers. The suggested option would require an increase in the scale of operations as well as investment, apart from technological changes in the marketing system. There is a need for an alternative institutional framework that would help in changing out-moded food marketing practices in several countries.

(v) The transformed marketing system can also play an important role in increasing employment opportunities for rural youth. The creation of drying, cleaning, sizing, grading and packaging yards and facilities in rural areas, will, apart from reducing physical losses of food commodities and GMM, create substantial employment in rural areas. However, this would necessitate substantial investment in the agricultural marketing system. A recent exercise for India indicates a potential of investment of US$60 billion during the next ten years, of which around 50 per cent can be mobilised from the private sector if complementary investment by the government is made and institutional framework is made investor-friendly (Acharya, 2001a).

(vi) To improve the efficiency of the agricultural marketing system, adequate physical infrastructure needs to be created. This should include:
   (a) The creation of some minimum physical facilities for drying, cleaning, sorting, grading and packaging and covered sheds, auction floors and parking spaces in the villages and periodic market places;
   (b) The establishing of primary wholesale market yards for a group of villages or in towns with all of the above facilities plus auction platforms, grading and quality testing laboratories, storage, godowns, cold storages, processing units, packaging plants and garbage disposal systems;
   (c) Link roads to connect all the village and periodic markets with primary wholesale markets;
   (d) Development of secondary wholesale market yards at district or divisional headquarters with all the above facilities at higher level;
   (e) Development of mega markets and food parks in cities or terminal markets with a higher level of all the above facilities;
   (f) Processing and value addition facilities and plants within the market yards or in the neighbourhood;
   (g) The creation of storage and warehouses including multi-channel and multi-purpose cold storages in the market yards;
   (h) Refrigerated or reefer vans for transportation of perishable commodities from one market to the other; and
   (i) Linkage of all these hierarchies of market yards with telephones, fax and Internet connections and allowing electronic trade.

Role of the State

Apart from assuring macro food security and creating a conducive policy environment for agricultural and rural development, as mentioned earlier, there are several areas where governments would have to take new initiatives.

(i) While direct government intervention in the marketing of food and other agricultural commodities should be phased out, governments should play a more active role in (a) encouragement of grading, standardisation and monitoring of quality standards at all the stages in the marketing chain; (b) promotion of farmers or consumer groups to undertake various functions of marketing; (c) promotion of value-addition and processing facilities for agricultural products; (d) collection, compilation and dissemination of market and outlook information; (e) training of farmers in post-harvest handling of farm products; and (f) undertaking or promoting research and studies relating to changes in farm incomes, real prices of food, terms of trade for the agricultural sector, physical losses in the marketing chain, gross marketing margins and malpractices in the marketing system.

(ii) To encourage the private sector to make investments in marketing activities and infrastructure at the required scale, the regulatory framework in various countries would need a comprehensive review and call for drastic changes. This should include:

(a) Liberalisation of norms for extending credit facilities to entrepreneurs for agricultural marketing activities from financial institutions;
(b) Changes in the market regulatory framework to allow private entrepreneurs to establish market yards and other related facilities;
(c) Changes in the cooperative laws to allow farmers cooperatives to work on corporate lines and compete with the private trade;
(d) Review of several other legal instruments to facilitate the entry of entrepreneurs in marketing activities; and
(e) Making provisions to allow private entrepreneurs to cover price risks and yield risks of the farmers.

(iii) For food grains to reach inaccessible areas, the emphasis should shift from direct handling of grains by public agencies to provision of infrastructure like rural roads and godowns and involving the private sector or farmers cooperatives in handling grains.

(iv) Chronic food insecurity and hunger are increasingly getting concentrated in certain regions within these countries like remote north-west China, Bihar, Western Orissa and the tribal belts of India. Chronic hunger is distinguished not just by low levels of income or consumption, but more by one or more of other factors like infrastructural-deprived remoteness, social backwardness, paucity of assets (land, water or access to credit), disability or prolonged illness and low levels of attainment of social indicators such as women's empowerment, literacy levels and nutrition. The strategy of reducing chronic hunger would require (a) targeting the chronically poor; (ii) attacking the growing feminisation of poverty; and (iii) addressing the problem of work and biased institutions in rural areas. The targeting by groups will be viable only when there is clear concentration of food insecure in geographical entities. Further, anti-hunger programmes would be successful only if the local institutions like cooperatives and efficient delivery systems are in place.

(v) So long as employment opportunities are not enough and there are poor people without any social security system, the government would need to put in place direct food assistance programmes. Direct food assistance programmes must include: (a) distribution of subsidised food grains in pre-decided quantities to targeted families; (b) supply of some fixed quantities of food grains free of cost to severally poor, old and destitute families, without any earning member; (c) one-meal a day to poor school-going children during school hours; (d) supply of special nutrition to pregnant and lactating mothers and infants of identified poor families; and (e) a food for work programme to provide employment to targeted families during specified periods.

(vi) Governments would also need to make adequate investment in primary education, primary health care, skill development, empowerment of the poor and women and decentralised governance.

Concluding Observations

The first step towards reducing food and nutrition insecurity is eliminating hunger, which requires assured food grain security both at macro and household level. For macro food grain security, the increasing trend of globalisation and reliance on international trade in cereals by medium and large countries is a welcome development. Attainment of near self-sufficiency in cereals by two large populated countries viz., China and India, which have treaded their paths to food grain security with caution, is also a welcome development for the food security of import dependent countries. For a large number of medium size countries, with dependence of a large section of population on farming or food grains production, the policy milieu should be carefully decided and monitored. In most of these countries, the farmers would continue to need adequate incentives to produce food and improve their food security. Special attention would need to be given to those who produce for home consumption. The food marketing system in almost all countries would require changes in terms of additional investments in infrastructure, liberalisation of regulatory framework and improvement in technology of marketing practices. The government's role would be important in the area of maintenance of macro food security (trade policy environment); creation of an enabling environment for the market to play its due role and maintenance of some food assistance programmes for identified target groups. The emergence of civil society organizations and their increasing influence in the shaping and implementation of food insecurity alleviation programmes do provide a ray of hope that Asia can be made hunger free in the foreseeable future.

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