India's Lagging Sector: Indian Agriculture in a Globalising Economy

by

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1. INTRODUCTION

Until the Uruguay Round, agriculture did not feature in global discussions aimed at reducing barriers to international trade. In fact GATT rules had applied to essentially trade in manufactured goods, though even here imports in textiles and clothing were restricted by OECD countries through bilateral quotas under the Multi-Fibre Arrangement (MFA).

By the time the Uruguay Round was commenced in 1986, agricultural protection in major economies, such as European Economic Commission, subsequently European Union, Japan and the USA had become common. In the case of Japan, given the very high opportunity cost of such protection, food security was the major concern; though politically it became connected to protecting the farmers, who had disproportionate influence over the outcomes of the elections. Price paid to the farmers was set on the basis of cost of production plus. Similarly EU's Common Agricultural Policy (CAP) was aimed at protecting the incomes of its farmers. It combined a price-support scheme, direct subsidies and rebates to farmers for storing or exporting their output rather than selling within the community. The export subsidies came into being, because without these, the EU was tending to accumulate mountains of beef and butter. The USA has subsidized exports through the Export Enhancement Scheme and through Public Law 480, under which food sales, among other things, can be made to low income and food deficit countries in local currencies[1]. The subsidies by both the EU and USA were causing friction between them, as well as with countries such as Australia, Argentina and Canada. Therefore there were pressures to bring agriculture on to the table at the Uruguay Round and resolve it. EU had special preferential arrangements, under a series of Lome Conventions, with its 69 associates from the African, Carribean and Pacific developing group of countries. Under the Lome Convention, these associates received duty free entry for most of their products and even in the case of products, subject to quotas, such as sugar, rum and bananas, they received above market prices. In addition, under the price insurance scheme, called Stabex, they were compensated for losses due to world price fluctuations.

There were also internal pressures within the EU to reform CAP, led by Britain, which had suffered massive increases in food prices, after it joined EU in 1973 and jettisoned the cheap supply of food imports from countries, such as Australia and New Zealand, and substituted them for the more expensive ones from the EU. In addition CAP was taking up two-thirds of EU's budget and Germany and the other more urbanized countries were providing on a net basis the major components of it. Thus, it was in the interests of Germany to wind back CAP. Nevertheless, given the large number of small farmers who benefited from EU subsidies, there was enormous resistance to any change in CAP and to the reduction of agriculture protection. Certainly effective farm lobbies grew up in all EU member countries, including the highly urbanized and high income France, where resistance to change remains strong. Still the Blair House Accord between the USA and EU on agricultural reforms, which subsequently became part of the Uruguay Round and Marrakesh Agreement of 1994 and which put in place a process of reduction in price support and in export subsidies over the six year period starting in 1995, was a in the right direction of greater liberalization in agricultural trade.

The objectives of the arrangements were to improve market access, to move to tariffication and away from quotas and import prohibition, to reduce distorting domestic support and to put explicit limits on the use of agricultural export subsidies. Two export subsidy reduction commitments were included in the Agreement on Agriculture: (1) to reduce the volume of subsidized exports by 21 per cent; and (2) to reduce the value of export subsidies by 36 per cent — such cuts were to be implemented over six years to the year 2000 for developed countries; for developing countries, such cuts are two-thirds of developed countries ones and implemented over 10 years to the year 2004[2].

In practice, at the end of 2000 Japan and South Korea's rice markets had barely been opened up, as tariff levels were set at such high levels as to make imports prohibitive. Japan required imported rice to be mixed with local rice before sale, making such rice unpalatable and hence making imported rice unpopular among its consuming public. Against this, there were sharp increases for Japan, from a low base, in imports of vegetables from China, often through sub-contracting by Japanese firms. Japanese government reacted to such increases by using anti-dumping arrangements to impose high duties on such imports. Though, there has been switch from price support to direct income payments in the case of USA and movement towards such payments in EU since 2,000 (under this their farmers are compensated directly by governments if prices of their produce fall below a certain level), the major beneficiaries of such support are the larger farms and distortions remain, because the base for direct payments is determined from agricultural activity that occurred under the older price support arrangements[3]. Though, by 1998, total agricultural export subsidies at US$6.6 billion, were well below the final agreed level of US$12.3 billion, in practice, the agreement had chosen a base period of 1986–1988, when agricultural prices were low and export subsidies were high and hence the impact on global markets of such reductions were minimal[4]. Thus despite the rhetoric of globalisation and free trade, most advanced countries continued to protect their agriculture, though there were also internal pressures leading to change.

On the one hand OECD's annual publication, "Agricultural Policies in OECD Countries: Monitoring and Evaluation 2001" showed that support and protection among OECD countries at 34 per cent of total farm receipts remained high. This amounted to US$327 billion in 2000, up slightly from US$308 over the reference period of 1986–88.

On the other hand, fearing a blow-out in CAP payment with the entry of new members from the East, as well as because of food safety concerns emerging from the outbreaks of mad cow and other animal diseases, the EU began to put in place further measures to reduce price support over the 2000 to 2006 period, but continued with rebates to farmers. EU had planned by 2006 to spend only 21% (down from 91%) on export refunds and intervention, 68% on direct payments to farmers and the remaining on rural development programmes, including those dealing with environmental issues[5]. Since 2005 CAP payments have been `decoupled' from production; these, now, focus on maintaining farmland in good condition and in improving the environment. Despite these developments, serious problems of implementation remain, while the way WTO's Agreement on agriculture is being implemented has tended to disadvantage developing countries. This is because as we have seen agriculture subsidies in OECD or rich countries increased somewhat over the 1986–88 and 2000 period; this happened even as developing countries cut the tariffs on imported agricultural commodities as part of their WTO obligations[6]. In addition, there have been only limited moves towards liberalization of agricultural trade. This is because high tariffs, health and safety regulations, countervailing duties on the pretext that trade has caused excessive damage to local producers has limited the access of global markets. In addition with 2007 and 2008 increases in food prices, a number of countries have imposed restrictions on food product exports.

While average tariffs on manufactured goods have dropped from 40% to 4% in the post-war period, agricultural tariffs have remained at around 40%[7]. In addition, technological changes and direct support programmes, which are often assumed not to be trade distorting, have increased the capacity of farmers in the more advanced countries to compete. At the same time reduced EU prices (EU farm prices were at world prices in 2001) had increased domestic consumption, while mountains of agricultural products had disappeared. In addition, ICs, such as Japan and U.K., despite high level of protection for their agriculture, given land scarcity, continued to increase their agricultural import dependency.

2. INDIA'S LAGGING AGRICULTURE

An important element in India's agricultural story is that its cereal and main crop productivity remains low. This is apparent from Tables 1 and 2. One of the most important lessons which India can learn in this context is to take necessary steps to increase its agricultural productivity as the per unit area productivity of India's crop commodities is much lower as compared to that of the other major crop producing countries; more importantly, it is less than half that of China. Though agricultural productivity lifted in both India and China during the 1980s, China's productivity growth was considerably more rapid during 1978–84 in the aftermath of the decentralization of production, following the introduction of the Household Responsibility Act in 1978. In addition, improvements in rural roads, power supply, leading to improvements in cold storage facilities and marketing led to the growth of the rural non-farm sector in China. One of the lessons from China is that India needs to do much more to improve rural infrastructure, if it wishes to make a significant dent in rural poverty. The trend so far is away from this development: the share of agricultural sector's capital formation declined from 2.2 per cent in late 1990s to 1.9 per cent in 2005–06 (Economic Survey 2006–07, 2007, Table 8.19). The other lesson from China is for India to invest much more in agricultural research & development, in which China leads India. Despite high social returns, India's R&D investment in agriculture is low by international standards. As will become clearer in this paper, Indian government has increased its subsidies to agriculture, while reducing its share of investment in agriculture. But even in subsidies, India has increased subsidies of urea but not of complex fertilizers, which would improve soil balance and land productivity. In addition China's internal agricultural markets are much more integrated than those of India, where each state tries to protect its farmers from competition from other states' farmers. India needs to reduce barriers to national trade, if it to benefit from domestic efficiencies in production.

Table 1
Cereal Yield and Agricultural Productivity

Country	Cereal Yield Kilograms Per hectare		Agricultural Productivity Agriculture value added per worker 1995 $	
	1979–81	1999–2001	1979–81	1999–2001
U.S.A.	4151	5824	20634	50777
China	3027	4869	161	334
Japan	5252	6147	17378	30828
India	1324	2321	269	402
Germany	4166	6749	9061	32814
U.K.	4792	6836	20326	33520
France	4700	7088	19318	58177
Italy	3548	4920	11090	26690
Russian Federation	-	1767	-	2648
Canada	2173	2772	15881	43428
Mexico	2164	2765	1482	1801
Spain	1986	3047	7556	22088
Korea, Republic	4986	6500	3765	13782
Indonesia	2837	3947	604	744
Australia	1321	2038	20872	33225
South Africa	2105	2334	2857	3837
Netherlands	5696	7701	24343	58280
Argentina	2184	3397	7148	10351
World	1608	2143	-	-

Source: World Development Indicators 2003, The World Bank, Washington, D.C.

Table 2
Comparative Yield of Principal Crops in Various Countries (1999)
(kg. per ha)

Country	Paddy	Wheat	Maize	Ground Nut	Sugar Cane
India	2929	2583	1667	913	68012
China	6321	3969	4880	2799	85294
Japan	6414			2336	
U.S.A.	6622	2872	8398	3038	80787
Indonesia	4261		2646	1523	
Canada		2591	7974		
Vietnam	4105			1435	
World Average	3845	2711	4313	1336	65689
Rank of India in Production in the world	Second after China	Second after China	accounts for only little over 4% of world's production	Second after China	Second after China

Source: Agriculture at a glance, 2002, Ministry of Agriculture

But in the horticulture and plantation sectors India has a better global position. As is clear from Tables 3 and 4, India ranks at number one in the world as regards the production of banana, mango, cauliflower, peas, cashew, and tea; its productivity ranking in plantation crops, such tea, coffee and coffee is very high. Unfortunately, given land constraints, the scope for expanding the acreage under such plantation crops is limited.

Table 3
India's Position in the International Ranking in Production of various fruits & vegetables (1999)

Crop	Rank	Crop	Rank
Apple	10	Brinjal	2
Banana	1	Cabbage	2
Mango	1	Cauliflower	1
Papaya	2	Peas	1
Pine apple	4	Onion	2
Grapes	10	Potato	3
Total fruits	**2**	**Total vegetables**	**2**
Coconut	3	Cashew	1

Source: Indian Horticulture Data Base-2001.

Table 4
Rank of India in Area, Production, Yield and Exports of Plantation Crops in the World

Crops	Rank			
	Area	Production	Productivity	Export
Tea	2	1	2	4
Coffee	7	6	3	6
Rubber	5	3	1	Neg.

Source: Indian Horticulture Data Base — 2001.

In the remaining paper developments in agricultural trade are discussed in section 3. The co-existence of food inadequacy and food glut and the disappearing food surplus is discussed in section 4. The share and growth of agriculture and distortions is discussed in section 5, which, also, compares developments in China with those in India, while section 7 discusses India's agricultural trade. Section 8 concludes the chapter.

3. DEVELOPMENTS IN AGRICULTURAL TRADE

The value of agricultural trade, including fishery and forestry products, has more than doubled since the early eighties to reach close to $650 billion in 1995–97[8]. Within agricultural trade, trade in food products doubled over the same period to reach around $315 billion in 1995–97. Contrary to expectations based on the theory of comparative advantage, agricultural exports by developed countries increased by more than 3 percent between 1990 and 1997; while those from developing countries grew by just 0.63% during the same period.

The share of farm products in merchandise trade has fallen over time, because of technological change and increased protection in this sector, based on the objective of maintaining food security in the case of Japan, South Korea, India, China and Russia, as well as that of protecting the incomes of the farmers in the case of EU and USA. This is contrary to the fact that in a rational world, trade in food would contribute to food security by augmenting domestic supplies and reducing the food prices in countries, which currently protect it from import competition. In the current Doha round, India, though seeking the abolition of subsidies from the developed countries, has ruled out making any concessions in agriculture, on the grounds that with the bulk of its population dependent on agriculture and, therefore, food security and rural development are livelihood issues.

This Indian stand has to be seen in the context of some historical developments. It is related to the tendency among some countries, particularly USA, to use trade as a weapon to punish countries for not following their preferred policies. For instance, India's increased efforts to stimulate food production reflected the sudden withdrawal in 1965 of exports from USA, which were previously supplied for payments in rupees under Title I of PL 480. This withdrawal occurred as a part of the sanctions imposed on India in the context of Indo–Pakistan war of 1965. This withdrawal, though temporary, combined with the 1965–66 drought, created serious food shortages in India. It created a massive increase in absolute poverty and in malnutrition reversing the process of nutritional improvement, which had occurred over the 1947 to 1965 period. Though the USA restored food supplies in late 1966 under PL 480, there were two developments, which pushed India towards policy of achieving and maintaining food self-sufficiency. Firstly, President Johnson sought for changes in India's foreign policy with regard to North Vietnam, as a price for supplying grain. Secondly, the perverted values of the US export grain lobby were exposed, when a pernicious weed (which came to be known as Congress Grass) was mixed with wheat and exported to India and subsequently spread onto the fields of northern India, requiring enormous efforts to contain it. The subsequent policies pursued by India, as well as the policies pursued by other countries, aimed at food self-sufficiency, operated against the other tendencies towards globalisation. This is more so the case for India, since it began the process of liberalization after its economic crisis of 1990–91; India even in 2007 maintains a tariff of 50% on agricultural imports. It, also, explains the 2007 Indian wheat import policies, under which it has refused to allow US exporters to tender, unless such exports have been certified by the US government. Thus India's agricultural trade policy is not based on comparative advantage, but has been determined by past historical experiences and short-term considerations based on changes in its stock-piles of grain, as well *ad hockery* in policy aimed at reducing surpluses and/or keeping prices of essentials low. In India, during 2007–08, the command economy aspects returned with increased vigour as the government tried to stem inflationary pressures facing the Indian economy. The Indian government either banned or restricted the export of certain commodities. For instance exports of wheat and most pulses were prohibited, even as internal prices paid to the producers were kept way below global ones, thus reducing the incentives for farmers to expand their production. In the case of rice, a stiff minimum export price has been stipulated, thus discouraging exports. This development was in general contrary to what was happening in India in other sectors of the economy.

4. FOOD INADEQUACY AMONGST RISING FOOD GLUT; RISING PRICES; THE DISAPPEARING FOOD SURPLUS

As R. Fogel[9] has pointed out, nutritional improvements are an important factor in long-run economic growth. He indicates that about 30 per cent of the British growth rate over the past 200 years may be attributable to improvements in gross nutrition ie increases in caloric intake. He also explains that

though mean improvements in gross nutrition are important, distributional improvements, especially for the bottom 20 per cent of the population are equally, if not more, important. This is because the bulk of such population is likely to be engaged in agricultural activities, requiring the expending of enormous physical energy. Thus deficiency in energy requirements may be much greater at that level. As nutrition improves, the intensity of effort per worker hour can rise. As nutrition improves, the incidence of disease among the population is also reduced. India has experienced expansion of food grain production and over the second half of the nineties and early part of the 21st century, it experienced for a short period an unforeseen problem of food glut, as food stockpiles increased. Despite such food glut, about a third of the population continued to suffer and still suffers from malnutrition. Lifting long-run economic growth rate will require a concerted effort to improve the nutritional intake of this population and specifically the potential and nursing mothers and the children in this category, since the build-up of physiological factors is a cumulative process.

The expansion in food-grain production in India over the 1950–51 and 1970–71 period were the combined results of expansion in the area under cultivation and improvements in land yield. In the subsequent period, this expansion has been almost exclusively due to improvements in land yield. This is apparent from Table 5. It should also be clear from Table 5 that since 1999–2000, production of food grains has not only fluctuated, but has on average been lower until 2004–05. More seriously productivity growth has also tapered off since 2001–02. India-wide productivity is, also, uneven. For instance against the average Indian wheat productivity of 26.2 quintal per hectare in 2005–06, Punjab recorded 41 quintal per hectare, showing scope for considerable improvement elsewhere through broader use of hybrid thermo-resistant variety of seeds.

Table 5
Foodgrains Area, Production and Productivity

Year	Area (million hectares)	Production (Million tones)	Productivity (Kg./ha.)
1950–51	97.3	50.8	522
1960–61	115.6	82.0	710
1970–71	124.3	108.4	872
1980–81	126.7	129.6	1023
1990–91	127.8	176.4	1380
1997–98	123.8	192.3	1552
1998–99	125.2	203.6	1627
1999–2000	123.1	209.8	1704
2000–01	121.0	196.8	1626
2001–02	122.8	212.9	1734
2002–03	113.9	174.8	1535
2003–04	123.4	213.19	1727
2004–05	120.00	198.36	1652
2005–06	121.60	208.59	1715
2006–07	124.07	216.13	1707
2007–08*		227.3	

Source: Compiled from India, Economic Survey, 2002–2003, Government of India, Tables 1.12, 1.13 & 1.14; and Economic Survey, 2006–07, Tables 8.5, 1.13 & 1.14; Reserve Bank of India, 2007, Table s 17, 19 & 21
Note: *advance estimates

From the mid-sixties to the late nineties, the food grain yield per hectare increased by almost 2.5 times. The growth in land yield of foodgrains was the most rapid during the 1980s, clocking a remarkable 4.61 per cent a year. The sharp increase in foodgrains' productivity during the 1980s was facilitated by the government making significant investments in agricultural technologies, such as in high-yielding varieties of rice and wheat and in irrigation, in services through extension, credit and inputs, and rural infrastructure, such as roads and markets during the 1970s and 1980s. Though in the 1990s, agricultural productivity growth was almost halved to 2.43 per cent, this was somewhat higher

than the level achieved in the 1960s and much higher than that of the 1970s, when it registered only 1.17 percent. Most of the benefits of such investments occurred in Punjab, Haryana, parts of Andhra Pradesh and west Uttar Pradesh.

While increase in yield, given the scarcity of land, reflects a positive development, it also is due to increased implicit subsidies for water and electricity, as well as explicit subsidies in fertilizers. Between 1996–97 and 2001–02, the subsidy on fertilizers approximately doubled to over Rs 14 crores. While the subsidies in fertilizers, which are seen to go to a limited number of high cost domestic manufacturers were to be phased out over five years starting from 2001, there were no plans to tackle the issue of subsidies in water and electricity. This follows on top of decline in the rate of growth in fertilizer consumption during the nineties[10], caused by dismantling of controls in August 1992. Water rates, despite the growing recognition that water is increasingly becoming scarce, have not been revised by most states over the last two decades, even though there is a policy in place to recover the cost of maintenance and capital investment as well as operating cost. Even in the case of fertilizers, it is probable that subsidies may be difficult to wind back, because of political compulsions, as the experience with regard to decontrolled fertilizers suggests. The price concession (subsidy) introduced for the latter was substantially increased in the early part of this decade[11], even as the subsidy for the controlled fertilizers was being wound back. It has been recognized that such subsidies create pressures on the budget and these in turn have contributed to a fall in public investment in agriculture and has thus slowed the expansion of irrigation, electricity, rural cold storage facilities, communications, agricultural research, roads and markets. Though it is likely that there were some offsetting private investment in agriculture[12], because of private resources freed as a consequence of such subsidies, public and private investment are often complimentary in developing countries.

By 1999–2000, power subsidy comprised 64 per cent of total subsidy and benefited a small proportion of the farmers (A. Gulati and S. Narayanan, 2003, *Subsidy Syndrome in Indian Agriculture*, New Delhi: Oxford University Press) and there was recognition that there was a need for reform, given the shortages of electricity faced by the general public and the near bankruptcy condition of the State Electricity Boards. With the introduction of the 2003 Electricity Act, compulsory metering has been introduced and electricity subsidies to farmers in most states were cut. There was some reversal of this development, following the 2004 Parliamentary Elections, when the farmers vented their anger at the ruling parties in most states, which had raised such tariffs.

On the positive side was the steady improvement in average per person food availability to 400 grams from 266 grams a day between 1961 and 1997[13]. Once production of sugar, milk, groundnuts, coconuts and vegetables (and India has between 20% to 26% of the world's share) are included in the basket of food, India has achieved sufficient production to satisfy the nutritional needs of its population. India is the largest producer of milk in the world and per capita milk availability increased from 128 grams per day in 1980/81 to 212 in 1998/99[14]. Nevertheless, despite the availability of food, a large proportion of the population, probably around a third, and a larger proportion of the females, continue to suffer from inadequate nutrition. This is for the following reasons:

The production of coarse grain, which is accessed by the poorer strata of the population, has increased only marginally since 1970 and is subject, like other food crops to sharp fluctuations, but with no buffer stock policy. The access to rice and wheat, though subsidised for those below the poverty line, still requires income and cash. The paradox of plenty during the late 1990s and early years of this decade co-existing with high levels of inadequate nutrition lay in the lack of purchasing power of the poor and the changing policies with regard to the public distribution system (see next para). Inadequate nutrition continues to impact on the physical productivity of such population and therefore continues to restrain the economic growth of India. Inadequacy of nutrition among females has implications for the low weight of infants born to such females and their subsequent mental and physical development and for the future productivity of the Indian population in general. Close to half the children aged 0–4 years were estimated by the *National Family Health Survey 1998–99* to be in the malnourished category on a weight-for-age criterion.

The problem of inadequate food intake has more to do with the inadequacies of policies than with food availability. India suffered for a period from the paradox of significant proportion of the population having inadequate nutrition in the midst of increasing mountains of foodgrains (see Table 6). Between 1st July 1997 and 1st July 2000, the stocks held by the government had roughly doubled and were expected to rise towards 100 million tonnes within the next few years[15]. In mid-2002, they

had hit 65 million tones. Such accumulation was the result of previous policies and rising output. But by early 2003, they had dropped to 48 million tones and continued the de-accumulation process in the subsequent period falling to below 20 million tones by early 2006 and to 15.5 million tones on 1st April 2008. Changing policies and severe drought conditions led to falling stock-piles. Changing policies involved increased net exports of cereals and reversal of policy on the issue prices to those above the poverty line (APL) and below the poverty line (BPL). Net exports were increased to 8.5 million tones in 2002 and to over 7 million tones in the three subsequent years. These figures are much higher than the previous years. The reversal in issue prices to APL and BPL followed the disastrous impact of these increases and these reversals in issue prices were combined with substantial increases in the amounts available under both schemes.

Table 6
Stocks of Cereals held by Central and State Agencies: 1992 to 2003
(in Million Tonnes)

As At	Rice	Wheat		Total
1.7.92	8.31	6.74		15.05
1.7.93	10.44	15.22		25.66
1.7.94	14.42	17.78		32.20
1.7.95	16.44	19.22		35.66
1.7.96	12.88	14.13		27.01
1.7.97	10.95	11.42		22.37
1.7.98	12.04	16.48		28.52
1.7.99	10.74	21.63		32.37
1.7.2000	14.49	27.76		42.25
1.1.2001	20.7	25.0		45.7
1.1.2002	25.6	32.4		58.0
1.7.2002	21.9	41.1		63.0
1.1.2003 (P)	19.4	28.8		48.2
1.7.2003	11.0	24.2		35.2
1.1.2004	11.7	12.7		24.4
1.7.2004	10.8	19.1		29.9
1.1.2005	12.8	8.9		21.7
1.7.2005	10.1	14.5		24.5
1.1.2006	12.6	6.2		18.8
1.7.2006	11.1	8.2		19.3
1.4.2008				15.5

Source: Compiled from India, Directorate of Economics and Statistics, Department of Agriculture and Cooperation; India, Economic Survey 2001–2002, Table 5.11 & Economic Survey 2006–2007, Table 5.18

The increase in accumulation of cereal stocks until 2002 (see Table 6) reflects considerable increases in minimum support prices over the 1997–2000 period (see Table 7), even as Central issue prices for those above the poverty line (APL) for wheat and rice respectively were raised sharply from Rs 402 per quintal and Rs. 550 per quintal in 1996–97 to Rs.900 per quintal and Rs. 1135 per quintal in 2000 ie they were more than doubled over this period, as they were steadily equated with Food Corporation of India's economic cost. The Central issue prices for those below the poverty line (BPL) were, also, raised sharply in 2000 for rice to Rs. 590 per quintal from Rs. 390 per quintal and for wheat to Rs. 450 per quintal in 2000 from Rs. 250 per quintal. They reduced quantity demanded for food-grain in the context of a slowing economy and probably falling incomes for those in the lower third of the income group. This was reflected in a slump in food-grains' off-take under the public distribution system over the 1998 to 2000 fiscal years — much more sharply for wheat from 7.95 million tones to 3.98 million tones[16]. These increases in issue prices were aimed at reducing the gap between the prices paid by the government and the prices charged to the consumers. But by forcing the government to hold larger quantities they increased the revenue cost to the budget. The buffer carrying costs, comprising of freight, storage and interest charges, increased sharply between 1997–98 and 2001–02, from less than 13% of the food subsidy to 42% of the food subsidy[17] — the food subsidy bill mounted to Rs.20,000 crore including carrying costs[18]. The major beneficiaries of this largesse were the farmers in the relatively affluent states of Punjab and Haryana, who had received

prices considerably above the market prices — in 2001–02, out of the total wheat procurement of 20.63 million tonnes, Punjab alone accounted for 10.45 million tonnes, while Haryana followed with 6.41 million tonnes[19]. For rice, 75% of the procurement was made from Andhra Pradesh and Punjab. In the case of sugar, the richest state in India on per capita basis, Maharastra, which produces one-third of India's sugar, benefits from the statutory minimum price, which has tended to be above the world price, creating the build-up of inventory estimated at 103 lakh tones in 2001. The other adverse development is that because of distorted price signals, the area cultivated under wheat, rice and sugarcane increased more rapidly in the nineties than in the eighties, even as the growth in yield slowed down (see Table 8). These three were tending to supplant the other crops[20], even though world prices during this period were giving different signals during this period. Until 2002, bulging stocks in the context of rising share of procurement by the FCI had pushed up the spoilage rate, especially in the case of wheat, as FCI was forced to store more wheat in the open. While it was estimated that spoilage rate in closed warehouses was about one percent, in the case of wheat stored in the open, it was estimated to be 15–20 per cent — increasing the cost to Indian society of such procurement[21].

Table 7
Minimum Support/Procurement Price (MSP) of Wheat and Paddy
(rs./quintal)

	Wheat		Paddy*	
Crop Year	**MSP**	**Per Cent Change**	**MSP**	**Per Cent Change**
1991–92	275	11.1	230	12.2
1992–93	330	20.0	270	17.4
1993–94	350	6.1	310	14.8
1994–95	360	2.9	340	9.7
1995–96	380	5.6	360	5.9
1996–97	475	25.0	380	5.6
1997–98	510	7.4	415	9.2
1998–99	550	7.8	440	6.0
1999–2000	580	5.5	490	11.4
2000–01	610	5.2	510	4.1
2001–02	620	1.6	530	3.9
2002–03	620	Nil	530	Nil
2003–04	630	1.6	550	3.8
2004–05	640	1.6	560	1.8
2005–06	650 (plus 50 bonus)	9.3	570	1.8
2006–07	750 (plus 100 bonus)	17.7	580 (plus 40 bonus)	8.8
2007–08	1000#	29.3	645 (plus 40 bonus)#	14.8#

*Until 1996–97, there were two additional categories of Paddy with their own MSP, since 1997–98, there is Grade 'A' Paddy, in addition to Common Paddy, with its own MSP.
#Recommended by Commission for Agricultural Costs and Prices
Source: Ministry of Finance, **Economic Survey 2002–2003**, Table 5.11; **Economic Survey 2006–2007**, Table 5.19

Unfortunately, even as the global prices began to rise from 2001 onwards, the procurement prices for wheat were revised only marginally upwards between 2001 and 2004 (Table 8). This together with the increased frequency of draughts led to a fall in wheat's land yield over the period 1999–2000 to 2005–06 and a marginal increase in total food grain output (see Table 8). In the 2006 and 2007 period, as global prices of wheat have increased sharply, Indian policy-makers response has lagged such changes, delaying the response of farmers in the process. Managing food security, while minimizing costs to the exchequer requires a better understanding of global changes in food prices. Obviously increased investments in infrastructure, in R&D, in appropriate extension services and rural cold storage facilities to reduce wastage is also essential. Fortunately, with improved fiscal situation at both the Centre and States' level, this becomes more feasible. Unfortunately, whether at the States' level, where it runs some of these governments or even at the Centre, where econocrats led by Prime Minister Manmohan Singh determine policy, the Congress Party remains locked in a populist mood as it gears for the 2009 elections. Instead of minimizing costs and putting more resources into agriculture, the UPA Government has gone into a policy of setting up a strategic

reserve of 3 million tones of wheat and 2 million tones of rice. This will create an additional bureaucracy, with all its associated costs. It would have been better to have added this figure to the current required stocks held by the central and state agencies and used the additional bureaucratic savings for much needed additional investment in rural areas.

Table 8
Growth of Yield of Food-Grains (kg/hectare) per cent per year

Year/Crop	*Rice*	*Wheat*	*Coarse Cereals*	*Total*	*Pulses*	*Total food grain*
1950s	4.29	2.07	3.01	3.27	1.44	2.88
1960s	1.91	5.25	1.29	2.33	2.60	2.41
1970s	0.72	2.02	1.68	1.62	-2.56	1.17
1980s	5.45	4.17	4.01	4.73	4.02	4.61
1990s	1.36	2.86	2.03	2.38	1.81	2.43
1999–2000 till 2005–06	0.87	-0.98	1.99	0.37	-1.0	0.1
Average for 1950–51 to 2005–06	2.1	2.53	1.94	2.37	0.56	2.19

A small positive side of the reduced off-take of food-grains in India reflects a shift away from food-grains to other foods within the average food basket and also a reduction in the share of expenditure on food in the overall average consumption basket (Table 9); average per capita calorie intake in India has risen from 2082 in 1980 to 2413 in 2000 and the share of calorie intake from grain consumption has declined from 71 per cent to 63 per cent over this period (FAO, 2005, FAOSTAT Statistical Database, www.fao.com). Both these developments reflect an increase in discretionary consumption connected to an increase in income. But as global prices of essential foods have increased, there has been a reversal of this development for the poorer strata of society, which has lived at the margin of food security.

Table 9
Monthly Per Capita Food and Food-Grain Expenditure to Total Consumption Expenditure (per cent)

Year	Share of Food Expenditure in Total Consumption Expenditure		Share of Food-grains Expenditure in Total Consumption Expenditure	
(NSSrounds)	Rural	Urban	Rural	Urban
1972–73 (27th Round)	72.9	64.5	46.0	27.1
1977–78 (32nd Round)	64.3	60.0	37.3	24.5
1983 (38th Round)	65.6	59.1	36.3	22.9
1987–88 (43rd Round)	64.0	56.4	30.6	18.7
1993–94 (50th Round)	63.2	54.7	28.3	17.3
1999–2000 (55th Round)	59.4	48.1	26.2	15.3
2004–2005 (61st Round)	55	42.5	18	10

Source: Ministry of Finance, *Economic Survey 2001-2002*, Table 5.16, NSSO 61st Round Reports No. 508 & 513

Global prices for wheat and other food products firmed in 2006 and have risen sharply in 2007 and 2008 for a number of reasons. Firstly, serious droughts hit a number of major wheat exporting countries in 2006 and the recovery from that drought in 2007 was anemic. Secondly, land is being used for production of alternative products to wheat and rice. For instance, wheat is competing against corn for acreage in a number of countries, more specifically in the huge US market, as production for ethanol is ramped up because of rising price of oil and oil security concerns. The

required share of ethanol in fuel mix to power motor vehicles is being raised in all the major economies towards 10 percent and subsidies are being provided by most governments for this shift in response to growing energy security concerns. In another major oil consuming market, EU, oil-seeds are being used for ethanol production. This is driving up the price of oil seeds. In China, some of the rice-land has given way to the production of higher value vegetables and fruits. Something similar is happening in India. Thirdly subsidies to leave agricultural land fallow by important wheat producing economies of USA and EU have reduced global production of wheat. Wheat production in the USA has been falling steadily since 1998. Fourthly there has been a steady rise in the farm animal population in the important markets of China and India, leading to reduced availability of land for wheat and rice as well as an increase in associated increase in demand for grain and other feed-stock. Fifthly, rising fuel prices have not only increased transportation costs, but also costs of inputs, such as fertilizers, for food production. Sixthly and more specifically for India, low MSP in the early part of this decade reduced the incentive to increase production of wheat and rice. The consequence of this was that India was forced to import wheat of 7.95 lakh tones in August 2007 at very high price to replenish dwindling stocks with centre and state agencies. The landed price of these wheat imports came to Rs.1600 per quintal, which was around twice the MSP of Rs.750 (plus Rs.100 bonus) per quintal for Indian farmers in 2006–07 (see Table 7 above). The bonus additions for wheat and rice (Rs.40 per quintal) had not yielded positive outcomes in terms of output partly because of draught: the total cereal production in 2005–06 was lower than that achieved in 2001–02 (see Table 11). This explains the decision by CACP to recommend a sharp increase in MSP for both rice and wheat for the 2007–08 season (see Table 7 above) and its subsequent adoption by GOI. Given the global changes discussed above, global food prices are likely to be higher in the future than they were during the late 1990s. Though acquisition cost and therefore economic cost of food grains is set to rise as a consequence for Indian government agencies, it can be mitigated by getting the food surplus states of Punjab, Haryana and Andhra Pradesh to waive the over 10 percent ad valorem state taxes and levies, which were in place at the time of writing. In addition, the lower food stocks and their better management and reduced wastage, which was very large for a period (see below) had reduced the buffer carrying cost for government agencies. The introduction of the Futures Commodities Market, including that for wheat and rice, in India in 2003, reduced the need for the government to set the MSP; though the Futures' Market, also, gave the potential to the government to set a better MSP, this was not used. Futures' markets provided farmers with a platform to sell and/or hedge their price risk by enabling physical delivery. As farmers get better informed about the operations and risks associated with the Futures' Market, there will be less and less reason to feel threatened by them and their operations will not be suspended as they were in March 2007. Unfortunately, as wheat and more specifically rice prices rose in 2008, the Futures' Market has remained suspended. This has not helped price discovery and has not made any difference to rising prices of these essential cereals. Though changes in regulatory arrangements to enable more frequent changes in rate of margin to occur and to curb 'dabba' or trading outside the recognized commodity exchanges are needed, Futures' Market should be restored to help with price discovery and the development of skills to develop Mumbai as an important global financial centre.

India's attempts to export some of the surplus grain to countries such as Iraq have been unsuccessful, because of inadequate attention to quality. Nevertheless, globalisation is forcing its exporters to pay more attention to quality issues than was the case before, when India engaged in counter-trade with such countries. Internationally countries, which need to import food either do not have the capacity to pay for them or may keep it out, because of inadequate quality and on grounds of health and safety. In its attempts to export food, India is likely to be challenged by other food exporting countries, such as Canada and Australia, in the WTO's Dispute Settlement Forum on the grounds that such food exports are subsidized. Even though, EU has gained a `peace clause' by agreeing to remove its subsidies over a period of time, India does not have such an arrangement for itself. In addition, because of falling stocks and the high price of imported wheat, India finds itself unable to compete in the international market for wheat[22]. Despite this concerted efforts by exporters had lifted India's share in Asian grain exports, but more so in rice exports. But with rising food prices in 2007–08, exports of cereals have been curbed and therefore this trade has slumped.

The problem with storing grain is not only that it involves costly storage, but also that over time the quality of the food stored deteriorates. Extensive use of covered and plinth storage

unnecessarily increase losses and increase difficulties in implementing the first-in, first-out principle of inventory management. Until the reduction in stock, 30 per cent of the food stored with the Food Corporation of India was between two to four years old; and some grain was 16 years old! A study by K.K.S. Chauhan[23], estimated foodgrain losses at about 11 to 15 percent from the farm to distribution levels. With average consumption of 15kg of foodgrains per month, these were enough to feed about 70 to 100 million people, about one-third of India's poor a year[24]. In fact, given the accumulating costs of storage, it might be a better strategy to provide grain to primary schools, without charge. If the primary schools were to provide a free mid-day meal to school children, this will improve the nutrition of these school children, encourage the parents to send them to school, encourage the children to stay on in school and most likely improve the absorptive capacity of such children and thus improve the quality of outcomes of schools. Since the benefits of very young children to parents decline, as they spend time in school rather than at home, and costs to the same parents increase (from the provision of clothing, books, etc.), it also shifts the preference towards smaller family. The latter reduces the future outlays required by the states for schools and releases more resources for something else, including improvements in the quality of education and health. This policy has successfully been in place in Tamil Nadu for some time, with clear indications of falling fertility and birth rates, as well as improvements in nutrition and education. Tamil Nadu's birth-rate is now below replacement level! The Supreme Court of India has stepped in to enforce the mid-day meal scheme in the Government and Government-aided primary schools in all states; though a number of states continued to dither on the grounds that they lack funds to implement such policy[25]. Nevertheless, there has been steady expansion in the provision of mid-day meals. This may have played a part in the enhanced enrolment ratios in schools in the 1990s and this decade.

Table 10
Growth of Yield of non-Food/major commercial crops
(kg/hectare) per cent per year

Year/Crop	*Ground-nuts*	*Rapeseed*	*Soyabean*	*Total oilseeds#*	*Sugar-cane*	*Tea*	*Coffee*	*Cotton (Lint)*	*Jute & Mesta*	*Tobacco*
1950s	-0.39	2.41	n.a.	0.53	3.14.	n.a.	n.a.	3.57	0.06	0.47
1960s	-1.24	2.43	n.a.	1.34	0.59.	n.a.	n.a.	-1.64	-0.16	0.56
1970s	-1.24	-0.59	5.50	-0.84	1.81	2.35	-2.62	3.67	0.09	2.77
1980s	2.04	1.79	3.38	3.78	1.23	1.48	1.98	4.0	4.37	2.42
1990s	2.08	0.34	-2.09	0.49	0.48	-0.28	2.24	-1.68	3.76	1.47
1999–2000 till 2005–06	7.57	2.56	-.98	2.75	-0.96	0.86	-2.73	8.25	2.85	3.18
Average for 1950–51 to 2005–06	0.78	2.04		1.35	1.27			2.6	1.34	1.29

Source: Calculated from Reserve Bank of India, 2007, Handbook of Indian Statistics, Table 22
Note: # for nine oilseeds out of eleven in all

In addition to the poor storage of grain by FCI, most of India's roughly 6,800 wholesale state operated markets (*mandis*) are severely congested and rapidly deteriorating due to inadequate maintenance. The predominantly manual system and aging infrastructure results in considerable wastage (especially spillage), quality deterioration and increased cost of marketing. The less efficient milling technologies used in both paddy and wheat lead to smaller recovery and extraction rates respectively[28]. Thus improved food security is connected not only with increased food production and improved distribution, but also with improved storage and milling technologies. One of the reasons for the mounting stocks of food-grains had been the decline in quantity distributed through the public distribution system (PDS). From a peak of 20.8 million tones in 1991, the quantity of grain distributed fell to 14 million tones in 1994[30]. While there was some reversal of this trend between 1995 to 1998, there were declines in both 1999–2000 and 2000–2001, as PDS was narrowly targeted to those below-poverty-line (BPL). Given that poverty line was set at a very low level, covering only 37 per cent of the population and the entitlement for BPL families was set at a uniform low of 10kg of grain per family per month (for a family of five members, it provided only around 18 per cent of the recommended intake), it created a problem of off-take for the PDS. Though it was lifted to 20kg in 2000–2001 and subsequently to 25 kilos in 2001–2002 budget, this was still inadequate. In order to reduce the mountain of grain, the government on 24th March 2002 increased the rations from 25 kilos

to 35 kilos per family for both above and below the poverty line groups and in addition lowered the prices for the above poverty line group. The latter development, given that such prices are considerably below the market prices led to a reversal in the size of the stock. By December 2002, the stock had dropped to 48.2 million tones and continued the downward trend in the subsequent period. In addition exports, despite some problems with quality, were increased. But the rationale for selling in the international market, at considerably below domestic prices, when a large proportion of the Indian population remains food insecure, remains questionable[31]. Nevertheless, one advantage of the reduction in the mountain of food-grain stockpiled with the government agencies is the reduction in the carrying costs and the wastage of food stored by them.

5 EXPANDING COTTON PRODUCTION AND SUICIDES; DEBT WAIVER AS A SOLUTION; MILK PRODUCTION

1980s decade witnessed big increases in the land yields of both food grains (see Table 10) and major commercial crops (see Table 10). But, unlike food grains, land yields of a number of commercial crops, such as ground nuts, cotton (lint) and tobacco have seen big increases in land productivity in the first half of 2000s decade (see Tables 10 and 11). Production increases in cotton (lint) have been driven by a number of small farmers, who have expanded production in the suitable black soil and alluvial soil districts, increasingly through the use of Bt seeds leading to bulk of the cotton production coming now from longer staple, which can be used for the production of finer cotton textiles. Unfortunately, some of these increases have come through excessive borrowings. An upswing in prices has encouraged more of them to do so. But as climate change and prices tend to fluctuate, such producers have been ill-prepared for droughts and falls in prices; more so, when these falls coincide with an increase in interest rates. Unable to pay loans, suicides among such farmers, particularly in some districts of Maharashtra, such as Vidarbha, and Andhra Pradesh have increased. As production of India's textile mill sector has failed to keep pace with the expansion in cotton (lint) production, there has been a rapid expansion in exports to China. The reorganisation of Indian textile mill sector has been slow and in the face of an appreciating rupee, it has had difficulty in competing against the highly competitive Chinese textile mill sector. Thus Indian textile mills have failed to adequately take advantage of the excellent quality of cotton staple being produced in India.

In the face of accumulated farmers' suicides and public pressure, the 2008 budget announced Rs.60,000 debt waiver for farmers over three years. This announcement was clearly not put through the scrutiny of the budgetary process and represents ad hockery in policy that has taken over at the Centre as the ruling Congress Party led United Progressive Alliance government geared itself for 2009 elections. This is evident from the fact that Rs.10,000 were provided subsequently for this in the 2008 Supplementary Budget. But the waiver, since it was restricted to marginal (those owning less than 1 hectare) and small farmers (1–2 hectares), who had borrowed from institutional lenders, was unlikely to benefit farmers in the cotton growing districts, where most of the suicides are taking place. This is for two reasons. Firstly such cotton growing farmers are based mostly in rainfed, arid and semi-arid areas and are likely to own close to 4–5 acres of land. Secondly, most of them have borrowed from non-institutional lenders, such as money-lenders. One of the inadequacies of Indian agriculture has been the meager resources expended on relevant and effective R&D. One consequence of this has been the continued high price paid for Bt cotton, which is resistant to the dreaded boll worm, by Indian farmers compared to Chinese farmers. This is because Indian agricultural scientists have not come out with a *desi* (local) version of Bt cotton, where as the Chinese have. The consequence of this is that whereas an Indian farmer in 2007 paid around US$50 for a 450 gram seed packet of Bt cotton, a Chinese farmer paid only around US$2 for it! Nevertheless, with increases in outlays on R&D in cotton, its production in India has continued to increase. India in 2008 was easily the second largest producer of cotton, after China, having overtaken the USA in 2007. Nevertheless, instead of Rs. 60,000 debt waiver scheme and its associated problems of moral hazard coupled with its discriminatory nature against cotton growers, the Price Stabilisation mechanism (Radhakrishna Committee Report on Agricultural Indebtedness, 2007) combined with the strengthening of the insurance mechanism, which was introduced in the 2004 budget, would have provided a better solution to the problems of the cotton growing districts and the suicide problem in these districts.

There are other shortcomings faced by Indian agriculture. These are the inadequacies of credit available and investment undertaken in agriculture. On the positive side Institutional credit to agriculture increased during the period of the NDA government and doubled during the first two years of the UPA government. On the negative side, agricultural sector's investment rate in the Xth Plan was only 12.4 per cent, while the rate of growth of agriculture was only 2.5 percent reflecting an ICOR of 5, which is rather high. Part of the reason for this was the deterioration in the terms of trade which had occurred during this plan period. The 11th Plan has a target investment rate of 16 per cent for the agricultural sector, which given the improved resource allocation and credit position of agriculture is achievable. When combined with improving terms of trade for Indian agriculture a projected ICOR of 4 and rate of growth of 4 per cent seems feasible for the XI Plan period.

India has steadily increased production of milk at the rate of around 4.25% per annum to become the largest producer of milk in the world — between 1970 to 2007 milk production increased by 500 per cent to 100 million tones. Such increases have come, until 2003, within a regulated environment, based around co-operatives, licensing and procurement. Deregulation and decontrol have been brought about by changes to the Milk and Milk Products Order, 1992, from financial year 2002–2003. Under these changes, the milkshed concept, under which a particular dairy had to procure milk from a specific designated area, is being scrapped. In addition, restrictions on and the need for registration of new milk processing facilities are being lifted. Restructuring of the milk industry is certainly likely and there are likely to be winners and losers. There is a fear among some 70,000 village co-operatives, the backbone of the dairy industry, that the scrapping of the milkshed concept and entry of unregulated and unregistered processors will lead to unhealthy competition and that standards of sanitation, hygiene, quality and food safety may be compromised[47]. This in turn will reduce scope to export processed milk to the neighbouring milk deficit countries and reduce future prospects of growth of the industry. But growth momentum in the post-deregulated period has been sustained, as private sector investors have entered the field. In 2007, as domestic prices of powdered milk increased, the government banned its exports. This is despite even a more rapid increase in international prices. Such restrictive polices are likely to be counter-productive, because they prevent dynamic efficiency and improved quality of milk products being achieved.

6 SHARE AND GROWTH OF AGRICULTURE AND DISTORTIONS

By 2001, the share of agriculture and allied industries had dropped to around a quarter of GDP. By 2007 it had dropped to around 17 percent. The growth of agriculture remains subject to the vagaries of the weather, with negative growth rates experienced in 1995–96, 1997–98, and 2000–01. The average growth rate of 3.4 percent over the 1992–93 to 2001–02 (inclusive) ten-year period was considerably above the rate of growth of population of around 1.9 per cent, reflecting continued improvements in nutritional intake and the continued ability of the agricultural sector to provide surpluses to the rest of the sectors. Agriculture, therefore, does not pose bottlenecks to the expansion of those sectors, but given the demand that agriculture provides for the other sectors, increases or decreases in agricultural production impact on the rest of the economy, generally, but not always with a one year lag (see Table 11). One of the reasons why average growth rate over the 1997–2002 plan period was lower than the previous plan period was because of the greater frequency of the drought in the former period — agriculture production fell in 2 years out of five, while in 1999–00, it was close to zero; while the average growth in agricultural production was only 2% p.a. against this, the achievement of an average growth rate in GDP of more than 5 per cent over 1997–2002 reflects the resilience of the Indian economy and its reduced dependence on the agricultural sector. The link between agricultural growth and GDP growth has been further weakened in the Xth 2002–07 plan period. The average GDP growth for this period was 7.8%, while for the last four of these years it averaged 8.6%. Against this agricultural production recorded an average of 2.5% for the Xth plan period and 2.7% for the last four years of the Xth Plan period.

Table 11
Growth in Agricultural Production and in GDP 1992–93 to 2000–01

Year	Growth in Agricultural Production (%)	Growth in GDP at Factor Cost (%)
1992–93	5.8	5.1
1993–94	4.1	5.9
1994–95	5.0	7.3
1995–96	-0.9	7.3
1996–97	9.6	7.8
1997–98	-2.4	4.8
1998–99	6.2	6.5
1999–00	.03	6.1
2000–01	-0.1	4.4
2001–02	6.5	5.8
2002–03	-5.2	4.0
2003–04	10.0	8.5
2004–05 p	nil	7.5
2005–06 qe	6.0	9.0
2006–07 a	2.7	9.3

p: provisional
qe: quick estimate
a: advanced
Source: Central Statistical Office, India

Rate of growth of yields of most crops has declined in the 1990s as compared to the 1980s[44] and without infrastructure improvements, this trend is likely to continue. Private sector investment, which rose in the 1990s in agriculture, is unlikely to continue to do so, in the face of rising costs and stagnating prices. Diversification efforts in the past have failed from lack of institutional support. Recognising that agricultural growth has slowed down during the Xth Plan (see above) and this has serious consequences in terms of widening inequality, the XIth Plan has substantially increased allocation for agriculture. Agricultural productivity improvements require substantial efforts in R&D, extension support and more importantly in infrastructure improvements, so that the linkages with the domestic and global markets can be improved. Obviously in order to increase substantially resources for these activities, subsidies for electricity and water need to be cut sharply. The pricing of electricity and water has to become more rational. This is because both are extremely scarce in India — India has the lowest per capita level of water resources of any major economy and these are on declining path because of climate change and because of the wasteful practices adopted by farmers with electric pumps. These electric pumps are left on, as the farmers are not expected to pay for electricity, and deplete the aquifers and in the process lower the water table.

Indian farmers have historically been cushioned from the fluctuations of the market, but as Arrangements under Agricultural Agreement take effect and India removes its protective barriers, the farmers will be exposed to increased price and income volatility. Given lower risk-bearing capacity, they may have greater difficulty in coping with such changes. In fact, the high incidence of suicides among cotton farmers in parts of Maharashtra and Andhra Pradesh, reflect this low risk-bearing capacity. One proposed solution[45] to reducing such uncertainties is to use counter-cyclical tariffs and at the same time provide infrastructure improvements to improve yield. But the former is difficult to implement, while the latter should be undertaken as part of a long-term plan to boost agricultural productivity. The other better solution is to provide insurance against the vagaries of the market, so as to enhance the capacity of the farmers to meet their loan repayment obligations during periods when the prices fall and/or when the yield falls.

There are, also, other anomalies. Whereas the centre fixes the minimum procurement prices of paddy and wheat, in the case of milk, the Maharashtra state government fixes a procurement price. This has at least two adverse outcomes. Firstly, any increase in procurement price is passed on to the consumers. At the end of 2001, there was 18 percent to 25 per cent gap between the retail price of milk between Mumbai and other metropolitan centres in India. Secondly, higher prices had led to the creation of surpluses, which had to be converted into butter or milk powder. Maharashtra State government had set-up processing facilities, but these were running at losses of around Rs. 5 per litre,

creating a drain on the exchequer of around Rs 225 crore per annum[46]. At the same time, rising costs have forced the State Government to steadily move towards allowing sale by the co-operatives to private players.

7 INDIA'S AGRICULTURAL TRADE

Though in terms of production of a number of commodities, India is a super-power, yet in international trade it is a minnow. For instance it is the largest producer of sugar and milk in the world and has large stockpiles of wheat and rice. But agricultural exports have stagnated at around $6 billion, which is less that 1 per cent of international trade. This is partly because there have been restrictions on exports. But the more important reason is that in wheat, sugar and to some extent in rice, because of the rising support price, India has become increasingly uncompetitive in the international market place. In addition, there is a global perception that the quality of India's products is somewhat poor. Obviously, unless perceptions of quality and reliability change, it will be difficult to compete with highly competitive countries, such as Australia and Canada, let alone with the EU and USA, which subsidise their exports. The rising mountains of wheat, rice and milk during the early parts of this decade led India to market these products and their derivatives more aggressively in the neighbouring countries. India's share of Asian exports of wheat and rice rose for a period, but as the surplus dwindled, such exports fell. With growth rate of around 15 per cent, the share of agriculture and allied exports has been on a path of slow decline, but until 2005–06, was maintained at 10 per cent in total merchandise exports.

India began the process of dismantling quantitative restrictions over the 2000–2001 financial year and agreed to lift all quantitative restrictions in April 2001. Though there was a fear that imports would flood into the economy, in practice, with the exception of edible oil there has not been much change. This is not surprising, because within the framework of the WTO agreement, India has been able to put in appropriate tariffs in place. Three levels of binding commitments were given to the WTO with regard to agriculture. On raw commodities, processed agro-commodities and edible oils, India has given a commitment to bind tariffs, respectively, at 100 per cent, 150 per cent and 300 per cent. These are fairly high levels. This was achieved in the context of its submission in 1995–96, when it argued that the agricultural sector as a whole faced a negative effective rate of assistance of 31 percent of total value-added — 38.5 per cent of negative product specific subsidy and 7.5 per cent of positive subsidy in the form of non-product specific support, such as for fertilizer, credit, electricity, irrigation and seed[48].

8 CONCLUSION AND POLICY SUGGESTIONS

India's agricultural trade policy is not based on comparative advantage, but has been determined by past historical experiences and short-term considerations based on changes in the stock-piles of grain and inflation concerns. Despite the scarcity of resources, India allowed losses in both production and distribution of agricultural products; mostly of grain and milk, for a considerable period. Obviously policies aimed at reducing such losses will make available more resources for effective distribution to still the large number of poorly nourished Indians. Such distribution assumes critical importance during a drought year, which appears at least once every five years on a mildly critical level and once every fifteen years on a more severely critical level (the last three of these types have occurred in 1972, 1987 and 2002). This is because, agricultural employment, on which a large number of Indians are still dependent, is severely affected, making the food for work and food for welfare programs extremely important. Resources saved by reducing waste would enable India to invest much more in technology upgrade, such as seed farming, quality upgrade and cold storage linkages. The latter in turn would further reduce waste. But such improvements are partly dependent on improving electricity supply — this also requires reduction in distribution losses, apart from increases in production. Since distribution losses are partly because of theft, the quality of electricity rental collectors has to be improved. It also requires the continued and effective implementation of the 2003 Electricity Act.

Agricultural productivity remains low in India. The future improvements are dependent on lifting investment and R&D in agriculture, and moving away from a policy of high level of subsidies for agriculture, which have done little to lift productivity. The 2008 debt waiver scheme will do little to help most of the troubled farmers in the cotton districts and who have been more prone to commit suicides and who are mostly dependent on non-institutional lenders. A price stabilization scheme and a better designed insurance scheme for cotton cultivators is more likely to help.

The paradox of plenty between the late nineties and early years of this decade co-existing with high levels of inadequate nutrition lay in the lack of purchasing power of the poor and the changing policies with regard to the public distribution system and inappropriate minimum support prices. The inadequacies of nutrition affect the physical productivity of around a third of the population and in turn adversely affect the growth of the Indian economy. India has steadily extended and improved the quality of mid-day meal. As revenue buoyancy of both the centre and state governments in the post–2004 period have increased, the capacity to provide such meals has also improved. This will lift the growth rate of the Indian economy.

The sharp increases in global food prices during 2007 and 2008 are a result of the confluence of complex factors, which are not adequately understood by senior figures in the USA administration. They have created problems for ordinary consumers. But it has also improved the terms of trade for agriculture. This combined with increased credit allocation for and increased investment in agriculture in the XIth Plan will lift agriculture's growth rate in India. A lift in ban on Futures' Trading will help price discovery and help in the growth of the agricultural sector.

India continues to make some progress in its ability to export grain, reflecting greater attention to quality issues. But the past tendencies to restrict exports for other considerations than the welfare of farmers continues to drive policy and make life difficult for farmers.

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