

TRADE POLICY AND COMPETITIVENESS OF INDIAN AGRICULTURE IN THE GLOBAL MARKET

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India's external trade policy and agricultural development strategy during the last fifty years were primarily governed by three important considerations namely, a quest for import substitution, concern for food self-sufficiency and food security and fear of balance of payment crisis. These policies and strategies have no doubt laid the foundation for green revolution and enabled the country to overcome food crisis and achieve self-sufficiency in food. Starting from a large deficit in domestic production of food grains, the scenario changed to such an extent that India was able to build up sizeable stocks of food grains and stop imports totally, thus erasing the "begging bowl" image of India.

The strategies and policies adopted in the past, though enabled the country to achieve self-sufficiency in food, neither led the rural sector into economic prosperity nor reduced the rural poverty significantly. Agriculture growth achieved remained at a low average annual rate of 2 to 3 per cent only just to keep pace with domestic demand. Green revolution started showing signs of greying and the agricultural sector witnessed decelerating in growth in the recent years. With the declining population growth, self-sufficiency in food and bulging buffer stock, India also cannot achieve higher growth in the agricultural sector unless it aims beyond domestic market. The process of economic reforms and liberalization initiated after the economic crisis of 1991 has paid little or no attention to the agricultural sector.

With the successful conclusion of the GATT agreements in 1994 and India's signing of the

GATT agreements and the joining the World Trade Organisation (WTO) as a founder member, Indian agriculture has entered into a new era. For the first time, it has been brought under the framework of free trade paradigm, global competition and rules of global market. Liberalisation and globalisation of Indian agriculture has therefore become a *fait accompli*. With the WTO commitments, Indian agriculture has to operate in more openness and competition. It cannot remain insulated from the world market. All these are likely to change the future setting of the Indian agriculture, having far reaching implications for trade and domestic policies.

India has thus no choice but to take advantages of the global market. To take advantage and gain benefits from global market in the WTO era, Indian agriculture has to move away from the present protectionist trade policy to an open trade policy and become viable, efficient and competitive in the global market. Unless Indian agriculture becomes internationally efficient and competitive, India cannot take advantage of the WTO regime. The questions will arise: whether India's agricultural trade policy is the WTO compatible? Is Indian agriculture competitive in the global market? Whether India has got comparative advantage in production of tradable agricultural commodities? What are their implications for future policies and strategies? The objective of this paper is to examine India's agricultural trade policy in the framework of the WTO commitments and international competitiveness of Indian agriculture with a view to identify emerging issues that need to be

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addressed to enable India to take advantage from the WTO commitments. The WTO policy framework and commitments for agricultural sector are highlighted as a backdrop in the following section. In the subsequent sections, India's agricultural trade policy in the WTO era, the challenging opportunities opened to Indian agriculture in the world market and analysis of its competitiveness in the global market are presented. In the concluding section, implications for future policy and strategy to improve India's competitiveness in the WTO era are looked into.

W.T.O. Policy Regime for Agriculture:

In the global market, agricultural sector was considered to be the last bastion of protectionism. Prior to the GATT Accord, governments, both in developed and developing countries, have massively intervened in agriculture and protected their farmers to shield them from the market forces. Remunerative prices, subsidies, tariff, non-tariff barriers and quantitative restrictions on trade were order of the day and distorted the trade in agricultural products in the world market (Bautista and Valdes 1989).

The developed countries, which have no comparative advantage in production of most of the agricultural commodities, protected their agriculture through direct subsidy support to their farmers resulting to overproduction, high costs and distortions in world trade. The developing countries, on the other hand, discriminating their agriculture through protection of domestic industry, overvalued exchange rate and trade restrictions through both quantitative and non-quantitative restrictions including ban on agricultural exports and imports (Islam and Valdes 1990)

The opening up of agriculture by the developed countries and removal of trade barriers by

developing countries are expected to improve the market access for mutual benefits. The reduction of protection by developed countries is expected to open up their markets for agricultural products of developing countries, increase the world market prices and improve the comparative advantage of developing country agricultural products. The reduction of trade distorting domestic support and liberalisation of trade by developing countries are expected to boost production and export of various agricultural commodities in their countries.

In pursuance of the protectionist policy framework, the agricultural sector has been virtually kept out of the GATT Round of negotiations and insulated from the normal disciplines of market forces and international competition (Srinivasan 1998). The agriculture was for the first time brought into the fold of the multilateral agreement under Uruguay Round negotiation. The successful conclusion of the GATT agreement and setting up the World Trade Organisation (WTO) are therefore considered as the milestone in the history of world agricultural trade. The agreements reached in the area of agriculture are set out in the agreement known as Agreement on Agriculture (AOA). The broad objective of the AOA is "to establish a fair and market oriented agricultural trading system". The AOA provides a policy and regulatory framework for long-term reforms of agriculture trade and domestic policies in this regard.

The commitments under the AOA falls broadly under three areas of policy reform: i) market access (removal of quantitative restrictions and reduction in tariffs), ii) domestic support (reduction in subsidies) and iii) export competition (comparative advantage)¹. The salient features of the commitments in these areas under the WTO agreements are summarised below:

Market Access:

With a view to improve market access, the AOA envisages: i) replacement of all quantitative restrictions and non-tariff barriers with tariffs (tariffication process), ii) reduction of tariffs under the time bound program - 24 per cent over 10 years by developing countries and 36 per cent over 6 years by developed countries and iii) provision of minimum access of 3 per cent of domestic consumption which gradually to be increased to 5 per cent of the base period 1986-88 consumption through tariff rate quotas.

Domestic Support:

The AOA envisages reduction of trade distorting domestic support to agriculture, both product specific (price/income) support and non-product specific (input) subsidies quantified through the Aggregate Measure of Support (AMS). Minimum binding levels prescribed are for developing countries, 10 per cent and for developed countries, 5 per cent of the total value of agricultural products. If the AMS exceed the minimum level prescribed, the AOA envisages domestic support reduction of 13.3 per cent over a period of 10 years by developing countries and 20 per cent over a period of 6 years by developed countries. The domestic support measures, which are trade promoting and not trade-distorting are exempted from the reduction commitments².

Export Competition:

The AOA prescribed export subsidy reduction commitments of 24 per cent of direct subsidies and 14 per cent of subsidised exports quantity of base period 1986-90 over a period of 10 years by developing countries and 36 per cent of direct subsidies and 21 per cent of subsidised export quantity of the base period over a period of 6 years by developed countries.

The least developed countries are exempted from market access reduction commitments in view of their balance of payment problems. The major thrust of the policy reform agenda under the AOA is to make a decisive move towards the dismantling of the barriers to trade and opening up of agriculture to world market. Under the agreement, all WTO members are committed for the trade liberalisation agenda, multilateral discipline and fair competition of agricultural trade in the global market. The agreement also commits the member countries to treat all members as "most favoured nations" without any discrimination. With 146 member countries treating each other as MFN and opening up of their domestic market would definitely provide challenging opportunities for agricultural trade for a country like India.

Agricultural Trade Policy under the WTO Regime:

The WTO agreements bind the member-countries to the free trade paradigm and a framework of multilateral rules governing international trade. With the signing of the GATT agreements in 1994, Indian agriculture was automatically brought under the WTO framework and multilateral discipline. India has no choice but to fulfill the commitments made under the agreements and bring its trade and domestic agricultural policies in conformity with the WTO requirements³.

Prior to the GATT agreement, India's external trade policy was primarily in-ward looking and dictated by concerns of self-sufficiency, food security and balance of payment crisis. The major instruments used for the purpose were quantitative restrictions, licensing, high tariffs, surcharge or ban on imports, and restrictions on foreign exchange transactions. Though during 1980s and early 1990s, some of these provisions

were relaxed, the basic characteristics of an inward looking import substituting policy frame remained more or less intact.

The traditional agricultural exports such as tea, coffee, tobacco and spices had an open trade policy, as they were an important source of foreign exchange earnings for the country since colonial days. In the case of other agricultural commodities, the trade was allowed only as a residual - the difference between the domestic production and domestic consumption. This has been implemented either through quantitative restrictions or through canalisation or through combination of both. For agricultural exports, quantitative restrictions in the form of licences or quotas have been used for regulating the volume of trade flows. For agricultural imports, canalisation through the monopoly of state trading organisations has provided the means for regulating trade flows. The tariff rates were kept at peak levels as high as 300 per cent with a view to restrict the trade.

The economic reforms in mid-1991 adopted a wide-ranging trade policy reforms. However, the focus was more on industrial and service sectors. The WTO commitments in 1994 and the obligations to comply with the WTO norms paved the way for agricultural trade reforms and liberalisation. Most of the reforms in the agricultural trade were carried out during the last five years particularly after the loss of the WTO case against India⁴. First, the canalisation of agricultural trade flows has been abandoned. All agricultural imports other than cereals, oilseeds and edible oils have been de-canalised. Similarly, all agricultural exports except onions and oil seeds have been de-canalised. Second, quantitative restrictions on agricultural trade flows have been gradually dismantled. The EXIM policy 2001-02 removed all quantitative and licensing restrictions

for agricultural trade and opened the agricultural sector to the world market. At present, there are no quantitative restrictions on agricultural imports except some restricted or canalised consumer goods for health and hygiene or food security reasons as allowed in the WTO. The EXIM policy also removed export restrictions such as registration and packaging requirements and ban of all cultivated varieties of seed, except jute and onion. With a view to promote agricultural exports, the EXIM policy has emphasised the establishment of agricultural export zones for specified agricultural commodities (MOC, GOI, 2002).

As per the WTO commitments, India is expected to bring down the tariff levels on agricultural imports by 24 per cent from base period subjecting each tariff line to a minimum reduction of 10 per cent by 2004. India adopted three-tiered tariff bindings for agricultural imports. The primary products were bound at 100 per cent, processed cereals were bound at 150 per cent, and edible oils were bound at 300 per cent. 119 tariff lines were bound historically at lower level of 45 per cent, which include skimmed milk powder, spelt wheat, corn, paddy, coarse grains and soybean and mustard oils. Silk and cotton are unbound. Almost 100 per cent of agricultural product tariff lines have been bound in India.

The analysis of the present Indian import policy, however, reveals that India has reduced the tariffs much below the bound rates of duty under the WTO agreement. The main agricultural commodities like rice and milk (skimmed milk powder) are already committed at zero import duty. Others are allowed under OGL at zero import duty. Even edible oils, which are bound at 300 per cent import duty, are open for imports at 15 per cent duty (Gulati et al 1999). The 2003-Budget in fact reduced the peak custom duty from

30 per cent to 25 per cent. Compared to other Asian countries, the peak level duty is still higher in India.

India has to provide compulsory market access to the extent of 3 per cent of domestic consumption of agricultural commodities. India is importing at present less than 3 per cent of the domestic consumption of agricultural commodities except edible oils. The compliance of this obligation may result in marginal increase in agricultural imports. However, providing access to domestic market as per the WTO agreement does not mean that there will be a danger of a flood of imports because (i) the level import stipulated is only marginal and (ii) there is a provision for imposing additional tariff barriers in the case of dumping. With a view to minimising the likely adverse impact of liberalisation of imports, Ministry of Commerce has established a system of tracking imports of sensitive essential agricultural commodities

Indian exporters of agricultural commodities do not get any direct export subsidy. The only subsidies provided to exporters of agricultural commodities are in the form of: (i) exemption of profits from export sales from the income tax, and (ii) subsidies on costs of freight on export shipments of certain products like fruits, vegetables and floricultural products. These payments are exempt from the reduction commitments. The EXIM policy in fact only focuses on the WTO exempted export incentives to promote agricultural exports..

All the above policy reforms in the agricultural trade came into existence in the post-GATT era and are more or less in tune with the requirements of the WTO agreement. India being one of the largest producer of agricultural commodities and has vast potential for export, India stands to gain in the long term with the improved market access.

India has already fulfilled most of the market access commitments and made agricultural trade policy the WTO compatible. The main concern of India is whether developed world have met their obligations and opened their market to developing country products. Unless the developed countries make their agricultural trade policies the WTO compatible, the developing countries like India would not benefit from the improved market access.

Agricultural Trade Prospects for India:

The global market for agricultural commodities is very volatile and competitive. During 1970s and 1980s, agricultural trade in global market witnessed a remarkable growth of 12 per cent per annum. India could not take advantage of the growing world market due to its restrictive trade policy. Though in the recent past, there was a decline in the agricultural trade growth, the agricultural commodities such as coffee, tea, tobacco, rubber, milk and milk products, rice, fruits and vegetables, soybean and soybean oil, oilseeds, cakes and meals and marine products have shown high rate of growth and therefore called as dynamic agricultural commodities in the international trade.

According to a report "Agricultural Outlook-20002-07" released by the Organisation for Economic Co-operation & Development (OECD) in July 2002, the world agricultural markets are expected to improve in the coming years. With the removal of non-quantitative barriers and reduction of subsidies by the developed countries, the world prices are expected to recover in 2003 and gradually rise. As the world economy is expected to recover in the later half of 2003 and strengthen thereafter, the global demand and trade in agricultural commodities is expected to improve. The trade in both bulk and processed products expected to rise with steepest in dairy

exports by the OECD countries, followed by cereals, marine foods and meats (Singhal 2003)

Table 1: India's International Trade in Agricultural Commodities

Year	As Percent of World Agricultural Trade	
	Imports	Exports
1966	2.1	1.3
1970	0.9	1.2
1980	0.5	1.1
1990	0.3	0.9
1995	0.5	1.0
1996	0.5	1.2
1997	0.9	1.2
1998	0.8	1.3

Note: Agriculture trade excluding fishery and forestry products Source: Foreign Trade statistics and UNCTAD Commodity Year Book

India is one of the largest producer and consumer of agricultural commodities, but the country is only marginal player in the global market. India produced around 10 per cent of world agricultural output, but its share in the world trade in agricultural commodities was only around 0.8 per cent. Table 1 shows that India's involvement in world agricultural trade has been declining during the last four decades measured in terms of its share in the world agricultural trade.

In the past, traditional plantation and fibre commodities such as coffee, tea, tobacco, cotton, and jute occupied the primary position in the agricultural exports. Before independence, India was a major exporter of these commodities in the global market. During the recent years, India's share of these commodities declined significantly due to the increasing competition from the rest of the world. In the past no concerted attempt has

been made to promote export of high value added horticulture, floriculture and other agricultural products. The food grains sector also remained largely insulated from the world market.

In the post-GATT era, with the liberalisation of agricultural trade and opening of the agricultural sector to the world market, agricultural export has witnessed a high annual growth of 10 to 12 per cent. Agricultural tradable commodities such as rice, wheat, oil cakes, fruits and vegetables, floriculture, fish and fish products and processed food have emerged as important agricultural exports of the country. They account for more than 50 per cent of total agricultural exports. Export of cereals accelerated recently, net export amounting to, on an average, around 5 to 10 million tonnes per annum. The relatively high growth of export of these new commodities showed that their demand in international market is high and India has good prospects in exporting these commodities. Table 2: contains recent trends of exports of various agricultural commodities.

India's import of agricultural commodities is at present negligible. Cereals, and in the later years oilseeds, occupied a dominant position in the imports. In 2000-01, India imported agricultural products worth of \$1.86 billion as against exports of \$6.0 billion. Edible oils account for 60 per cent of the total imports in terms of value. Other important agricultural products imported are raw cashew, dry fruits and pulses. In spite of agricultural trade liberalisation, it is interesting to note that there was no significant increase in agricultural imports.

Although India's trade in agricultural commodities is at present small, an opening up of India's large agricultural sector to world trade provide a challenge and an opportunity for India to augment its exports and increase its share significantly. A

**Table 2: India's Export of Agricultural Commodities
(US\$ Million)**

Commodity	1996-97		1997-98		1998-99		1999-02		2000-01	
	Value	%	Value	%	Value	%	Value	%	Value	%
Tea	292	4.3	505	7.7	538	8.0	412	7.3	433	7.2
Coffee	402	5.9	456	6.9	411	6.8	331	5.9	259	4.3
Cereals	1104	16.2	910	13.8	1495	24.8	724	12.9	744	12.4
Tobacco	213	3.1	288	4.4	181	3.0	233	4.2	191	3.2
Spices	339	5.0	379	5.8	388	6.4	408	7.3	354	5.9
Nuts	362	5.3	377	5.7	387	6.4	567	10.1	411	6.8
Oilseeds	78	1.1	81	1.2	78	1.3	86	1.5	131	2.2
Oil meals	1085	15.9	1071	16.2	635	10.6	566	10.1	580	9.7
Fruits/ Vegetable	208	3.0	204	3.1	184	3.0	209	3.7	248	4.1
Processed food	59	0.9	73	1.1	69	1.1	86	1.5	122	2.0
Meat products	200	2.9	217	3.3	187	3.1	189	3.4	322	5.4
Marine products	1129	16.5	1207	18.3	1038	17.2	1183	21.1	1394	23.2
Others	1359	19.9	824	12.5	446	7.4	614	11.0	815	13.6
Total	6828	100	6594	100	6037	100	5608	100	6004	100

Source: Vikas Singhal: Indian Agriculture 2003 and Foreign Trade Statistics of India

WTO study estimated that if implemented properly, the improved market access would result in a rise of agricultural trade to the extent of \$ 450 billion. The developing countries will have a fair share in the increased agricultural trade. Even if India succeeds to gain a share of 2 per cent of this incremental growth, it amounts to \$10 billion addition to its present agricultural export earnings.

However, the question will arise: Is Indian agriculture competitive in the global market? Unless Indian agriculture becomes internationally efficient and competitive, India cannot take advantage of the WTO regime.

Competitiveness of Indian Agriculture:

Whether a country in the world market is able to take advantage of the WTO arrangements and

perform well or not depends on the following factors:

1. Comparative advantage or profitability of tradable commodities.
2. World market prospects for tradable commodities.
3. Availability of domestic surplus for exports and their future growth potential.
4. Technical know-how and producers ability to respond to world market demand.
5. Logistic support, availability of infrastructure and transport facilities for export marketing.

Given the above factors, the international competitiveness refers to the ability of a country to compete successfully against competitors to expand its share in trade of goods and services in the world market. The ability of the country to

competitiveness depends on the cost and price advantages. The competitiveness of a country in a particular commodity depends on the price at which the commodity is delivered in comparison with the price offered by competitors for the same commodity in the world market. The comparative advantage principle of international trade theory, thus, ultimately determines the international competitiveness of a tradable commodity in the global market. It also determines trade opportunities open to countries in different commodities in the world market.

The analysis of comparative advantage is important not only to determine the profitability of exports for the exporters but also to assess the comparative advantage of exports to the country. To an exporter, a commodity is profitable for export only if the realisable border price covers the costs of exports and provides adequate profit margin. For the economy, on the other hand, the comparative advantage of an export depends on the value added in foreign exchange and domestic costs incurred to realise the foreign exchange earnings.

In an open economy, assuming the quality of the domestic and competing foreign product as the same, the comparative advantage refers to the divergence between the domestic price or cost and the world price. Two types of measures are commonly used:

i) Domestic Resource Costs (DRC) Ratio also called Resource Use Efficiency Ratio is measured as ratio of domestic resource costs incurred for a unit of foreign exchange earned from export or saved from import substitution. If DRC Ratio is less than one, it indicates comparative advantage and if more than one, it reflects comparative disadvantage.

ii) Protection co-efficient (NPC) is measured as ratio of world market price at border for a tradable

commodity and domestic market price. If NPC is less than one, it indicates profitable to trade and if more than one, it shows non-profitable to trade.

Since the NPC does not take into consideration costs and distortion in input prices, Effective Protection Coefficient (EPC) is also used as another measure of comparative advantage. It is measured as the ratio of value added at world market prices to value added at domestic prices. If EPC is less than one, it shows comparative advantage and if it is more than one, it reflects comparative disadvantage. Besides measuring profitability, the protection coefficients also reflect distortions by way of subsidy or tax or incentive or disincentive to production of tradable commodities⁵. Since the world market provides ultimate trade opportunities for agricultural commodities produced, the world market prices, in spite of their imperfection, are considered as the standard against which comparative advantage ratios are computed.

Gulati and Sharma, quite recently, carried out a series of studies on resource use efficiency in the Indian agriculture sector (Gulati and Sharma 1997, 1998). They used an open economy framework to compute DRC Ratios and protection coefficients for principal agricultural crops mainly for the purpose of analysing impact of liberalisation on resource allocation efficiency in the agricultural sector. This study adopted these estimates to assess the comparative advantage of India in various agricultural commodities in the global market.

Table 3 contains estimates comparative advantage ratios for the principal crops grown in India for the period 1987-88 to 1992-93

Table 3 : Comparative Advantage Ratios for India's Tradable Agricultural Commodities

Commodities	DRC Ratio	NPC	EPC
Rice	0.54	0.50	0.48
Wheat	0.49	0.58	0.52
Maize	0.78	0.85	0.85
Jowar	0.76	0.91	0.92
Bajra	0.86	0.92	0.93
Gram	0.49	0.84	0.81
Groundnut	1.47	1.27	1.23
Rapeseed-M	1.66	1.64	1.69
Soybean	0.89	1.05	1.06
Sunflower	1.33	1.25	1.30
Cotton	0.66	0.63	0.62
Sugarcane	0.85	0.70	0.69

Note: DRC Ratio=Domestic Resource Costs Ratio, NPC= Nominal Protection Coefficient, EPC= Effective Protection Coefficient

Source: Gulati A.: Indian Agriculture in an Open Economy: Will it Prosper? In India's Economic Reforms and Development Ed. By Ahluwalia I.J. and Little I.M.D. 1998

Analysis of the comparative advantage estimates in the table shows that except for oilseeds excluding soybean, for all other agricultural commodities, India has strong comparative advantage. There is a wide variation in comparative advantage of various commodities. Wheat has lowest DRC ratio (0.49) followed by gram (0.49), rice (0.54), cotton and coarse cereals. These estimates clearly show that India has strong comparative advantage in export of food grains. Cotton is found to be highly profitable to export. As against this, two major oilseeds, groundnut and rapeseed-mustard are found to be not profitable. The indices of protection coefficient also show more or less same trend. A slight variation found in these estimates is mainly due to policy-induced distortions in the domestic prices of these commodities.

The comparative advantage is not static; it is also dynamic. The comparative advantage of a country could be improved by technological up-gradation, productivity growth, quality improvement, value

added through processing and improved infrastructure such as storage, roads, port facilities etc. resulting reduced transaction costs. Empirical evidences show a positive correlation between production, trade surplus and market share in the world market. The countries, which produce a large surplus will benefit most from the world trade. Michael Porter's well known four dimensional model of competitive advantage of nations and global competitive index constructed by the World Economic Forum also emphasis inter alia production growth and factor productivity as important factors determining the competitive advantage of a country.

Indian agriculture is one of the largest in the world. It is among the top three producers of rice, cotton, groundnut, tobacco, tea, sugar, milk, fruits and vegetables. But its productivity in terms of output per unit of land is, however, one of the lowest in the world. Table 3 compares India's present yield with the potential yield based on

Table 4 : International Comparison of Agricultural Yields (Kg/Ha)

Crops	Actual yield in India	Potential yield in India	Actual Yield of the Largest Producer	World's Highest Yield
Rice	1880	500	5510 (China)	7500
Wheat	2670	6500	3120 (China)	7450
Sorghum	960	4000	3730 (USA)	5540
Maize	1700	8000	6840 (USA)	8500
Potato	19000	30000	10000 (Russia)	44300
Groundnut	1160	3000	1160 (India)	6450
Rapeseed	1010	2000	1210 (China)	3570
Soybean	1020	2500	2250 (USA)	3190
Jute	2000	3000	2000 (India)	3560

Source: CMIE: Basic Statistics Relating to the Indian Economy, 2000.

Potential yield is based on the results of research experiments.

In the case of rice and wheat, the major food grains crop in India, the highest yield in the world is nearly 75 quintals per hectare. China, which is the largest producer of both rice and wheat in the world, records the average yield of 55 quintals and 31 quintals respectively. As against this, India's average annual yield for rice is only one-third of china and one-fifth of North Korea, which has the world's highest yield for rice. Even in the case of wheat, India's average annual yield is much lower as compared to China and less than 50 per cent of the world's highest. The average yield in India for all crops generally is less than 20 per cent of the world's highest and ranges between 40 to 50 per cent of its potential. This clearly shows enormous scope for India to increase production by increasing crop yields, and thereby improve its comparative advantage and market share for agricultural commodities in the global market.

Conclusion and Future Perspective:

The WTO agreement has definitely brought a wind of change to Indian agriculture. In the past,

the problem of Indian agriculture was scarcity; today it is surplus. India has a food grains buffer stock of over 60 million tonnes as well as a surplus of unsold sugar and cotton. The transformation from scarcity to surplus makes India potentially a great agricultural exporter. Though the goal of self-sufficiency for domestic market is important, it alone cannot drive the Indian agriculture to higher growth path. It has to aim beyond domestic market and exploit international market opportunities. Moreover, with the declining population growth and resultant decline in demand for food in the coming years, the country will be faced with the growing food surplus and unsustainable food stock.

India has a vast potential to grow a large variety of tradable agricultural commodities. The WTO regime would provide India with new and expanded market opportunities to increase its market share in the global agricultural trade. To benefit from the WTO agreements and globalisation, Indian agriculture has to pay greater

attention to increase productivity, create exportable surplus and make it efficient and globally competitive. The agricultural sector has to be economically strong and dynamic and operate in more openness and competition. In order to achieve this, India should take a hard look at the specific weaknesses of its agricultural sector and take corrective steps. This requires major shifts in the agricultural policies, perspectives and strategies both at macro and micro levels.

A conducive and enabling macro economic environment is a must to gain from agricultural trade in the global market. This requires India to eliminate all policy-induced distortions and trade restrictions. Under the economic reforms, during the last ten years, India succeeded in achieving macro economic stability and creating an enabling environment for economic development. In the wake of the WTO agreement, the government has initiated number of policy reforms to remove trade-distorting policies to fulfil the WTO commitments. EXIM Policy-2001-02 has removed all quantitative restrictions and opened the agricultural sector to global market.

The real problem of Indian agriculture lies at micro level. The agricultural sector is plagued with the number of problems such as small farmers dominance, subsistence production, low productivity, lack of product diversification, low value added, poor rural infrastructure and inadequate financial support. There are also other infrastructure bottlenecks, which need to be attended to urgently. These include good quality roads, uninterrupted power supply and lack of collection and grading facilities, cold storage, processing facilities, quality control, and global market link. All these adversely affect competitiveness of Indian agricultural products in

the global market. In a competitive global market, considerations of cost, quality, timeliness and reliability will ultimately determine India's competitiveness

The micro level strategy for Indian agriculture in the WTO era require the following elements:

1. Identification of products and producing areas in different agro-ecological zones based on agronomic potential and comparative advantage. Future focus should be product specialisation in each zone based on market demand and comparative advantage.
2. Vertical integration of producers with appropriate secondary and tertiary organisations such as processing industries, marketing intermediaries and exporting agencies. A vertically integrated strategy based on the contract farming is required to link production with value added processing and export marketing. This would also ensure flow of private capital to agriculture, credit delivery to small farmers, proper input delivery, technical and extension guidance, quality control, guaranteed market to farm produce, reliable and timely delivery of products.
3. Promotion of commercially oriented village institutions or NGOs to mobilise the production capacity of small farmers, train them, provide technical and business advisory services and build supply sources of identified tradable agricultural commodities.
4. Infrastructure support starting from irrigation, roads, power supply, communications, storage facilities and port/air freight handling facilities. These require both public and private investment including FDI in the agricultural sector.
5. Demand driven farmer and product oriented agricultural research and technological

support. Along with the government, the private sector participation in agricultural research should be promoted to improve productivity, quality and viability.

6. Financial assistance to producers, processors and exporters. Finance is vital and requires from production to export stage on an integrated basis.
7. Establishment of product specific agro-export zones (AEZs) for end-to-end vertical integration, effective transfer of technology and provision of infrastructure facilities and incentives to promote exports in geographically contiguous area in all the states. The government should speed up the process of establishment of AEZs.

The main stakeholders under the WTO commitments are farmers, farmers' groups/associations, NGOs, banks, processors, private researchers, research institutions and exporters. They are neither involved in the policy discussions nor made aware of the WTO commitments and their implications. Consequently, a lot of controversies and confusions are created. The government should establish appropriate institutional mechanism to inform, train, guide and regulate producers, traders, processors and exporters on provisions of the AOA, India's commitments and the benefits the country will get from the WTO arrangements.

Another major handicap faced by the stakeholders is lack of information on the commodity-wise market outlook and prospects and relevant developments in the world market. It is difficult and costly for individual stakeholder to gather accurate information on prices, supplies and demand for the commodities they are dealing with

in different countries and competition for their products. In a competitive market, timely, comprehensive and systematic information is a must. India does not have at present a system of compilation and dissemination of these data. The stakeholders rely on the newspapers and media for the information. There is a need to have a nodal point both at the centre and in the states to systematically collect the information, build data bank, carry out market surveys, prepare trade documentary on agricultural exports and disseminate them on regular basis to the stakeholders.

In conclusion, it should be noted that India is blessed with diverse climatic and agro-ecological conditions and enterprising farming community. Green revolution proved during the last three decades the potential and dynamism of the agricultural sector. Converting the deficit into a surplus country in food with growing population in a large country like India is itself a remarkable achievement. The liberalisation and integration with the global market under the WTO regime now provides another challenge and opportunity for Indian agricultural sector. By diversifying agriculture to produce a variety of tradable agricultural commodities, opportunities for economic advancement could be created for all section of rural people. Instead of continuing as a parking lot to the poor people, the rural sector should become a place for lucrative returns and ample employment opportunities. What is required is a right package of policies and programs to develop an efficient and globally competitive agricultural sector. This needs another green revolution. Thus for India, the WTO regime is a wake up call and a challenge of opportunities

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