IMPACT OF GATT ON WEST BENGAL AGRICULTURE

Dissertation submitted to the Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the Degree of
MASTER OF PHILOSOPHY

BASAB DASGUPTA

CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110 067
1996

जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067

Centre for the Study of
Regional Development

CERTIFICATE

This is to certify that the dissertation entitled " **Impact of GATT on West Bengal Agriculture"** submitted by Basab Dasgupta in partial fulfilment of the requirements for the award of **Master of Philosophy (M.Phil)** of the University is a bonafide work to the best our knowledge and may be placed before the examiners for evaluation.

G.S. Bhalla 19.7.96	G.K. Chadha 19-7-96	Atiya Habib
PROF. G.S. BHALLA	**PROF. G.K. CHADHA**	**PROF. ATIYA HABIB**
(SUPERVISOR)	**(SUPERVISOR)**	**(CHAIRPERSON)**

GRAM : JAYENU TEL.: 667676, 667557 TELEX : 031-73167 JNU IN FAX : 91-011-6865886

Acknowledgements

My sincere gratitude to my supervisor Prof. G. S. Bhalla for his invaluable guidance in carrying out my dissertation.

I am indebted to Prof G. K. Chadha for his encouragement and valuable comments on my dissertation.

I acknowledge with thanks the advice and help rendered to me by Dr. Gurmail Singh to carry on my research.

I acknowledge Prof. Biplab Dasgupta for his kind cooperation inspite of his busy schedule.

Special mention and regards to Prof. Samar K. Datta from whom I learnt economics.

My heartfelt thanks to Mithiya for his tireless effort to help me collect my data and informations from West Bengal.

My cordial thanks for Prof. Amitabh Kundu for allowing us to use his computer. My thanks are also due to Dr. Satish Kumar.

Ms. Shish Kaur and Mr. Satinder Kumar also owe my thanks for their help during my data analysis on computer.

I acknowledge the U.G.C for funding this research.

My thanks to Ishita for her constant advice and inspiration.

I also acknowledge my close friends Som, Soumen and Rajkumarda Vipin and Gill for their valuable encouragement.

Finally I would like to acknowledge mamma, baba, ma, my uncles and aunts, my brothers and sisters and others of our family who stood by me for years together in my pursuit for higher studies.

BASAB DASGUPTA

ABSTRACT

The GATT agreement was signed in 1947 with the aim to promote world trade by giving it a secure foundation in order to raise the standard of living of the people in all the participating countries, to realise full employment and to achieve a high and rising level of income. But some controversial issues of GATT added fuel to the smouldering fire of the issue of economic disparity among the developing and developed nations. These are trade in services, Intellectual Property Rights (IPR), Investment Regime and Agriculture. A negotiated compromise had been reached on most of the issues in Punta-del Estate meeting which took place in September 1986. The impact of agricultural trade liberalization on the developing nations like India has been questioned time and again by different scholars in the post-Dunkel period. The critics argue that most of the gains, advocated in favour of developing nations, are based on small country assumption where the total domestic demand/supply is very low relative to world production/demand. Large countries like China and India account for lion's share of agricultural production and trade only a small proportion of certain commodities such as rice, wheat, oil seeds. For such large countries complete trade liberalization in agricultural commodities in general and foodgrains in particular, may come in the way of domestic food security. A considerable number of researches have been carried out in recent years to estimate the likely impact of gains or losses on Indian agriculture, but the area of regional impact is still untouched. India is a large country with diversified and uneven pace of regional agricultural development. The technological break through is also not homogeneous throughout the country. The northern region is technologically well developed. The western region is well known for its efficient network of agricultural credit. Similarly, the eastern region, most notably, West Bengal, can claim to have achieved success in improving its institutional set up. in recent years. The agro-climatic conditions and soil texture of West Bengal are better than in many other Indian states. It is important to remember that in West Bengal, agricultural growth was much behind the all-India average even during the 'Green Revolution' period.

In this study an attempt is made to examine the extent to which the West Bengal agriculture can generate exportable surplus, at competitive international prices, and to estimate the likely gains from export in the post-Dunkel era.

In this Study the AMS has been worked out for West Bengal by estimating seperately the product specific and non productspecific AMS. The estimation of product specific and non-product specific support as per the GATT methodology reveal that -

only two crops - rice and jute are being procured every year by the government from West Bengal.

The border prices of those two crops are generally higher than the domestic prices throughout the time period 1980-81 to 1993-94.

The Product Specific Support to West Bengal remained negative all through the time span except for the year 1982-83. This is because the extent of price support for both rice and jute remained negative althrough. Therefore, West Bengal agriculture is indirectly net taxed so far as product specific support is concerned.

Almost all the inputs, like, seed, fertilizer, irrigation, credit, and electricity were supplied to West Bengal farmers at the subsidised rate during the time span 1981-82 to 1993-94. The quantum of the Non-Product Specific Support has increased steadily from Rs.55.96 million in 1981-82 to Rs. 1189.03 million in 1992-93, with a slight decline in 1982-83 when the NPS-AMS was Rs. 51.13 million. All through the time period, the percentage of total NPS-AMS to total value of agricultural output for the triennium base 1986-89 is less than even 1 per cent.

The total aggregate measures of support is far below the prescribed ceilling of 20 percent of the base year value of agricultural. This indicates that even if the GATT agreement is signed, there would not be any detrimental effect of it on subsidy structure of West Bengal agriculture.

The supply response of both the crops viz, rice and jute in West Bengal has been studied by analyzing the acreage response of rice and jute to their respective absolute farm harvest prices and their relative profitability against their respective competitive crops. The result of this study reveal that :

The acreage response of rice to the farm harvest price shows that the area allocation in favour of rice is highly responsive to the lagged absolute farm harvest price.

The risk factor involved in price has also turned out to be significant in the area allocation in favour of rice. Its negative sign shows the negative relation between the fluctuation in price and area allocation.

The relative profitability of rice over jute significantly influences the decision of area allocation under rice in West Bengal.

The risk factor in relative profitability is insignificant.

The decision of area allocation under jute is significantly responsive to the lagged absolute farm harvest price although the response of the risk factor is not significant. This indicates that so long the previous year farm harvest price remained higher, the farmers devote more land under it expecting a higher immediate return from the crop. Since most of the farmers in West Bengal are small and marginal farmers so, to meet the recurring on-farm demand and to repay the loan taken, the farmers sometimes allocate a part of their land to jute and the proportion increases with the increase in the farm harvest price of jute.

CONTENT

The List of Tables and Charts

LIST OF CHART

Chart No. *Name of the Chart* *Page No.*

CHAPTER I

BACKGROUND OF THE GENERAL AGREEMENTS ON TARIFFS AND TRADE

Introduction :

In the post war era, three major institutions were set up to work for reconstruction of the world economy and to bring down the inequality in the international distribution of wealth and income. While the World Bank and the International Monetary Fund (IMF) were expected to bridge the gap of income and wealth inequality among nations and to ensure monetary stability for future growth, the GATT (General Agreements on Tariffs and Trade) was set up to meet the demands for a smooth conduct of world trade and to prevent trade conflicts prevalent in the pre-war and inter-war periods among trading nations .

The GATT agreement was signed in 1947 with the aim to promote world trade by giving it a secure foundation in order to raise the standard of living of the people in all the participating countries, to realise full employment and to achieve a high and rising level of income. With a view to pursue its goal of smoothening out the process of international trade, GATT laid down certain rules :

* only tariffs are permitted as measures of state restrictions on foreign trade.
* There should not be any discrimination among the signatories of GATT who will be provided a special and differential treatment, and,
* No sanction will be there against the infringement of contracts.

The GATT's objective of freeing the international trade from the clutches of state restrictions had not been accepted unanimously by the developing and the developed nations. While the protagonists of the Agreement were putting much emphasis on liberalization by allowing 'free-play' to price mechanism, the developing nations were more sceptical about the ground reality and were more interested in domestic growth for economic development. The controversy started getting grave. The major controversial issues which added fuel to this smouldering fire were trade in services, Intellectual Property Rights (IPR), Investment Regime and Agriculture. A negotiated compromise had been reached on most of the issues in Punta-del Estate meeting which took place in September 1986. The developing nations acquiesced in the negotiation on services, IPR, and Investment Regimes, but before the Uruguay Round, the seven earlier rounds on tariff reduction could not bring any decisive change regarding agricultural trade.

The main reason for the central position of agricultural trade in the framework of the Uruguay Round is that in the preceding decade the production in the developed nations far exceeded the domestic demand because of technological breakthrough and producer friendly agricultural policy. But because of low income elasticity of demand for primary products and also because of various political and economic disturbances, mainly in the socialist countries and in some net importing countries, the world market demand could not keep pace with increase in supply. This resulted in a downswing in the world market prices which compelled most of the excess suppliers, mainly, the U.S.A and the European Union (EU) to decouple their domestic prices from world market prices. They tried to support their domestic prices by 'deficiency-payments'.This subsidy race through deficiency payments of the USA and the EU created an abnormal disadvantage for those agricultural exporting countries, particularly the developing

countries, who were not able to grant comparable subsidies to their farmers (Urff, 1995).

During the Uruguay Round negotiations, the U.S.A proposed the idea of 'Zero-Option', i.e, complete liberalization by dismantling subsidies within ten years. The so-called Cairn groups, the fourteen countries comprising of Argentina, Australia, Brazil, Chile, the Fiji island, Indonesia, Canada, Columbia, Malaysia, New Zealand, the Philippines, Thailand, Uruguay and Hungary supported the U.S.A foreseeing better prospects for their agricultural exports. The European Union (EU), on the other hand, put forward a two-step procedure of lowering the support.In the first stage, the market imbalance, specially in respect of cereals, sugar and milk, was to be reduced through international agreements by reducing support prices, directly restricting the volume of production and by improving marketing facilities. And after that only in the second stage the reduction of support and reshaping of external protection had to be taken care of. A gradual cold war ensued between the U.S.A and the EU since the inception and no substantial result emanated till December, 1988 .In the conference of economic ministers in Geneva, held in April 1989, the participants came up with a solution of progressive reduction of internal support, known as aggregate measures of support extended towards agriculture. In November 1990 , the U.S.A brought 'Zero-Option' into discussion, while the EU started with new proposal of a 30 per cent reduction of internal support for many product groups such as cereals, oilseeds and protein plants, sugar and animal products by 1996. The EU also agreed to all modifications regarding import protection in tariff with a slight moderation. The EU suggested that the price fluctuation due to fluctuation in exchange rate be balanced through a suitable correction factor. But the proposal was rejected by the U.S.A and the Cairn groups.

The negotiations in December 1991 by the then Director of GATT, Arthur Dunkel generated the following proposals:

* Internal support has to be reduced by 20 per cent over against the base year 1986-88 within six years.

* All import protection has to be transformed in tariffs and to be reduced by 36 per cent within six years.

* Within 1996 budget expenditure on export restitution has to be reduced by 36 per cent and the respective quantity has to be reduced by 24 per cent against the basis of 1986-90. And,

* a minimum market access in the individual product groups of 3 per cent of internal consumption, has to be opened up with in 1996.

The Rationale For Agricultural Trade Liberalization in India :

The impact of agricultural trade liberalization on the developing nations like India has been questioned time and again by different scholars in the post-Dunkel period. The critics argue that most of the gains, advocated in favour of developing nations, are based on small country assumption where the total domestic demand/supply is very low relative to world production/demand. Large countries like China and India account for lion's share of agricultural production and trade only a small proportion of certain commodities such as rice, wheat, oil seeds. For such large countries complete trade liberalization in agricultural commodities in general and foodgrains in particular, may come in the way of domestic food security. The critics also point out that the 'Sui-Generis' protection may have detrimental effect on Indian agriculture. The fact is that the total seed requirement for Indian agriculture is approximately 6 lakh tonnes and not more than 38 per cent of it is met by the national and state seed corporations. The rest

62 per cent depends on the inter-farmer sale. So, the system may be at stake if this 'sui-generis' protection proposals would have to take care of these characteristics of Indian situation. Intellectual Property Rights is also another grey zone which also needs to be probed into carefully (Sahai, 1993).

On the other hand, protagonists of the trade reforms put forward the positive side of the argument. According to them, liberalization of agricultural trade by both the developing as well as the developed nations through reduction in their high protection and subsidy would result in a quantum increase in international trade. Many developing countries such as India can use labour intensive agriculture and manufacturing industry to reap the benefits of the comparative advantage they enjoy in primary production. Traditionally, most of the developing countries discriminate against agriculture either through import substitution strategy of industrialization where farmers have to pay more for the technological inputs or through fixing the output price low for the producers keeping in mind the low level of the purchasing power of the consumers. The overvaluation of the exchange rate is another area which discriminates against agricultural exports. More specifically, it hinders agricultural exports in two ways:

a) by raising the price of imported inputs , and,

b) by discouraging exports from agriculture because of rise in their export prices.

It is also argued that removal of international restrictions on agricultural trade would end discriminations against agriculture and improve its Terms of Trade. The withdrawal of product specific as well non-product specific subsidies will also help in generating a

production disincentive situation in the developed countries which, until recently, have been providing excessive support to their agriculture. This, in turn, will increase the price of, mainly, the temperate and sub-tropical crops in the international market. So, the developing countries like India, where more than one-third of the national income comes from agriculture on which nearly two-third of the total population is dependent, will enjoy an advantageous position.

Reasons Behind Taking Up West Bengal As Area of Study :

Although much research has been carried out in recent years to estimate the likely impact of gains or losses on Indian agriculture, the area of regional impact is still untouched. India is a large country with diversified and uneven pace of regional agricultural development. The technological break through is also not homogeneous throughout the country. The northern region is technologically well developed. The western region is well known for its efficient network of agricultural credit. Similarly, the eastern region, most notably, West Bengal, can claim to have achieved success in improving its institutional set up in recent years. The agro-climatic conditions and soil texture of West Bengal are better than in many other Indian states. It is important to remember that in West Bengal, agricultural growth was much behind the all-India average even during the 'Green Revolution' period. For example, the annual compound growth rate of foodgrains during the period 1970-82 was 0.6 per cent in West Bengal while the national average was 2.2 per cent (CMIE, 1993). The situation started changing since 1981-82. The state domestic product (SDP) originating from agriculture increased from Rs. 2,477.64 crores in 1981-

82 to Rs. 3984.80 crores in 1990-91 giving an annual growth rate of 6.1 per cent. West Bengal, along with the other three eastern states Orissa, Bihar and Assam, did better, especially, in foodgrain production with an unprecedented growth rate of 6.5 per cent per annum during the time span of 1981-82 to 1991-92 which was the highest among the 17 major states of Indian Union (Saha and Swaminathan, 1994).

The two major institutional changes, i.e, the Land Reforms and the establishment of Panchayati Raj after 1977, have transformed the agrarian environment. So, considering the upcoming trend of West Bengal agriculture over the past 15 years, it can be well anticipated that the new economic policy of the Government of India including freeing of agricultural trade subsequent to signing of Dunkel Text will have great significance for the agrarian economy of West Bengal. In addition, although the irrigation infrastructure is not very developed, the use of subsidised inputs like fertilizer, seed, electricity and credit is picking up reasonably well. The major crops of West Bengal i.e, rice and jute have a high international market potential : In a nut shell, the present agricultural scenario in West Bengal is fit for a study of the kind undertaken in this thesis.

OBJECTIVE :

The major objectives of the study are :

i) to calculate the Aggregate Measures of Support (AMS) extended towards West Bengal agriculture so that the international competitiveness of different crops grown in West Bengal can be evaluated in the light of GATT Accord.

ii) to examine the acreage response of prices for different major crops so that the market orientation of the West Bengal can be judged.

METHODOLOGY :

An attempt is made to examine the extent to which the West Bengal agriculture can generate exportable surplus, at competitive international prices, and to estimate the likely gains from export in the post-Dunkel era. As a measure to protect the farmers and provide them an assured price climate for undertaking investment in their farms, the Government implements a policy of minimum support prices for major crops. To regulate the input market and to make it accessible to the poor farmers, the Government also extends subsidy on different inputs like credit, electricity, irrigation, seed and fertilizer. The GATT accord insists on the reduction commitments of different products and non-product specific subsidies. The reduction in subsidies and withdrawal of price support, especially, if it is steep and sudden, will have a significant impact on crop production and would tend to change the existing cropping pattern. Also, it is essential to study the plant breeders' right on production and hence on farmers. So, a detailed analysis of this nature should make it possible to assess institutional strategies which will persuade West Bengal to follow a higher and more sustainable production path. It will help in making suggestions for appropriate policy package for optimizing the benefits from agricultural diversification.

The study is divided into five chapters. The first chapter, the introduction, briefly looks at the historical background of the GATT Agreement. The review of literature is given in chapter II. Basically, the review depicts the existing debate regarding the positive and negative likely impacts of the implementation of GATT accord. Chapter III is devoted to the calculation of Aggregate Measures of Support (AMS) to examine the existing product and non-product

specific support extended towards the West Bengal agriculture. The study has been conferred to the calculation of the AMS of only two crops viz. rice and jute. The reason behind taking these two crops is that rice and jute are the two major crops of West Bengal and these two are the only crops that are procured every year by the government from the state. The AMS has been calculated following the definition proposed by GATT Agreement. Chapter IV is devoted to estimate the competitiveness and derive supply response of these two crops using suitable econometric model. The last, concluding chapter deciphers the likely impact of the GATT Accord and the policy prescriptions towards reaping the extra mileage out of it.

CHAPTER II

REVIEW OF LITERATURE

Introduction :

The eighth round of GATT negotiations, popularly known as the Uruguay Round, took place in 1986. After a long spell of discussions and negotiations extending over 7-8 years, the Final Act of the Round was signed by the participants on April 15, 1994.

The most remarkable features of this round is that it incorporated certain items in the GATT Accord like 1) agriculture 2) trade in service 3) deregulation of controls of foreign investment and 4) protection of trade related intellectual property rights (TRIPS). Among these, agriculture and TRIPS have given birth to a massive controversy regarding their probable benefits both towards developing and developed countries.

The recommendations relating to agriculture have not been unilaterally accepted by different countries. Critics, criticised it for its likely detrimental effect on developing countries. While some of them attacked vehemently the fiscal and trading measures like calculation of Domestic Measures of Support (AMS) and its reduction commitments recommended in GATT; others, attacked provisions regarding Trade Related Intellectual Property Rights (TRIPS) of the Agreement. An attempt is made in this chapter to present a brief review of some of the literature on the subject.

For a better understanding, the arguments and the counter-arguments in favour of and against the Accord have been set into two sections. **Section - I** deals with the debate regarding the fiscal and trading measures while **Section - II** brings out the differences in opinion regarding the problems of Trade Related Intellectual Property Rights (TRIPS).

SECTION I : The Debate on Fiscal and Trading Measures

The major points of differences among the protagonists and critics in the fiscal and trading measures are basically on the following commitments : (I) reduction of subsidy, (II) tarification of all non-tariff barriers, (III) fixation of guaranteed minimum access commitment, (IV) negation on reduction commitments on PDS, (V) conflict on Multi Fibre Agreement (MFA), and, (VI) National treatment to MNCs.

According to the reduction commitment of support, the GATT Agreement proposes that if both the product and non-product specific domestic support of the developed countries for a particular year exceeds by 5 percent of the value of agricultural output of the base year 1986-89, then that developed country will come under the reduction commitment and the total support has to be brought down under the ceiling within 6 years of the commencement of the negotiation. For the developing countries, this ceiling is 10 per cent for each product and non product specific AMS.

Gulati and Sharma have shown that the domestic support extended towards Indian Agriculture is negative. In other words, Indian agriculture is indirectly taxed. In their paper, they calculated 'Producer's Subsidy Equivalent (PSE) as a proxy of AMS and have

shown that it is negative to the extent of -2.3 per cent whereas for US it is 26.2 per cent, for 'EC-10' it is 37.0 per cent and for Japan the PSE is as high as 72.5 per cent. All this suggests that if India goes in for Dunkel Draft agreement then unlike the other countries, India will not have any reduction commitments. However, this is not as simple as it appears. Firstly, India is not completely self-sufficient in food if due cognizance is taken of the total nutritional requirement of a sizeable proportion of its population . Again,India does not yet command a sizeable exportable surplus in food grains. In the international context, India constitutes 17 percent of the world population and accounts for only about 12 percent of total cereals and pulses production' (Dasgupta R. 1993). While criticising Gulati and Sharma, Dasgupta(1993) argues further that if India's PSE is allowed to increase from 2 to 13 per cent and the US, Canada, Mexico and the EC are forced to reduce it to 10 percent, India would possibly derive no net gain through trade. According to him, 'given the world production of cereals and pulses at 2,014 million tonnes, the world import requirement at 5 percent level, the total world import will be 100 million tonnes. With 500 kg of per capita annual requirement of cereals and pulses, the US domestic consumption would be 125 million tonnes and hence a surplus of 189 million tonnes which is more than the stipulated minimum import requirement for the rest of the world'.

According to the calculation of AMS made by the Ministry of Commerce, Government of India, the Non-Product Specific AMS has been worked out to be 2.6 percent to 6 percent of the total value of output depending upon the assumptions made. According to the Ministry there is nothing to be worried about because even the higher figure of 6 percent is much below the limit of 10 percent stipulated in the Dunkel Draft. They pointed out further that, so far as Product Specific AMS is concerned, in the case of most of the

products, the AMS is negative. Although in the case of one or two products, it turns out to be positive yet it is well below 10 percent. So, depending upon their results regarding Non-Product Specific as well as Product Specific AMS, the Ministry of Commerce, argues 'There is no need for India to make any changes in its domestic agricultural policies, at least in the short and medium term (GOI, MOC, 1992).

In its attempt, to become more precise about the actual losers or the beneficiaries, of the Dunkel Agreement, the paper argues that the proposed subsidy reduction will harm only large farmers who have been the major beneficiaries of these subsidies in India, and there are provisions in the DD for continuing subsidies to small and marginal farmers.

Again, while discussing about the export subsidy, the Ministry of Commerce paper argues that the export subsidies listed for reduction in the Dunkel Draft do not include export incentives such as those under Section 80 HHC of the Income Tax Act which is now the main instrument of support in India. Although the Ministry of Commerce is pretty sure of the benefits from Dunkel Draft, it is nevertheless sought some modifications in Dunkel provisions. These are as follows :

(1) Shorter phase-out period and enhanced integration percentages in textiles.

(2) Exemption from subsidy reduction commitment on storage of food security.

(3) Enhancement of the subsidy percentage for developing countries from 10 percent, as given in the DD.

(4) Exemption of input subsidies to the maximum proportion in respect of Indian farmers (at least those owning upto four hectares) for the purpose of calculation of AMS.

(5) Additional flexibility for subsidies to crops grown on marginal land.

(6) In the area of market access, an exemption for developing countries from tarification in respect of some basic food stuffs.

This plea for modification has, however, been strongly criticised by some economists. According to them 'this tone of the government proposal is defeatist as it assumes that in the given international environment, India stands alone on these proposals and may not be able to influence the GATT' (Thomas et al. 1994).

Discussing competitiveness of some crops such as rice, cotton and wheat and their exportability, as envisioned by Gulati and Sharma, Hanumantha Rao argues that world trade in grains is highly volatile and considering the possible impact of India's decision to export (import) grain on world prices, export (import) may cease to be profitable beyond a point. Further, the possibilities of intercrop substitution with a view to stepping up the output of exportable crops may not be as bright as may appear at first sight from the highly aggregated data on the relative profitability of competing crops. Beyond a point, the rise in the price of exportable or fall in the price of importable crops may affect the income of the farmers more than they alter the cropping pattern. Besides, in view of the uncertainties of world supplies, the country cannot run the risk of undermining its food security by running down the domestic stocks below a certain critical minimum considering the incidence of droughts and the commitments of Public Distribution System to meet the requirements of a large population still living below the poverty line (Hanumantha Rao, 1994).

Regarding the trade liberalization, he puts much emphasis on the impact of non-price factors. According to him 'freeing trade for setting prices right' is perhaps the easiest to achieve. But ensuring adequate supply response and equitable distribution of gains

depends critically on the non-price factors like stepping up investment, technological change, conservation of land and water resources, credit reform and decentralization of management which are far more difficult to achieve. Therefore 'freeing' trade without simultaneously undertaking measures for augmenting production capacities and lending safety nets for the poor may result in slow growth, high prices of food grains and the accentuation of regional disparities in development.

Talking about the competition and trade policy, Lloyd and Sampson argue that 'it seems reasonable to expect that work on the trade policy and competition policy linkages will intensify after the Uruguay Round, as attention will naturally turn to identifying - and liberalizing - remaining barriers to trade (Peter Lloyd et al. 1995). Baldwin draws attention to the fact that after the Kennedy Round of tariff reduction was implemented in 1972, the lowering of tariff has, in effect, been like draining of stump. The lower water level has revealed all the stages and stumps of non-tariff barriers that still have to be cleared away (Baldwin, 1970).

Two decades after Baldwin's writing, the Chairman of the OECD Trade Committee linked the 'process of liberalizing trade by removing barriers to market access to the process of peeling an onion' (Feketekuty, 1993). According to him, there are different layers of barriers protecting markets, but each succeeding layer of barriers does not become very visible until the layer above has been peeled away. In his view, trade negotiations in the GATT found that underneath the layer of import restrictions, such as tariffs and quotas imposed at the border, there was a layer of internal non-tariff barriers such as government procurement restrictions, discriminatory standards, restrictive regulatory provisions,

preferential sectoral policies and so on.

Hoekman and Mavroidis (1993 p.27) are of the opinion that 'Although the scope to use GATT to address competition policy related concerns is wider than is commonly thought, the foregoing analysis reveals that the reach of the GATT is limited'. Many of the complaints to GATT have arisen because of government subsidies or export subsidies which are measures consistent with the GATT in the first place. For example, most complaints under article XXIII, have involved nullification or impairment of a negotiated tariff concession by the introduction of a subsidy.

A General Equilibrium Model used by Brando and Martin (1993) sketches out the global effects of agricultural trade liberalization. The result indicates that implementation of the DDA is estimated to improve total world welfare by nearly US $ 90 billion and not less than US $ 20 billion of this should accrue to developing regions. Certain developing regions namely sub Saharan Africa, the Meghreb region and the Mediterranean region actually lose welfare . All these appear to be net food importing regions, and, in such cases, the tariff reduction from partial trade liberalization are presumably insufficient to counteract the expected increases in world market prices.

Drawing instances from the World Bank and the UNCTAD reports, Low and Yeats put forward a detailed explanation regarding the impact of non-tariff measures (NTM) on developing countries. It is often argued that 'OECD protectionism has an important restrictive effect on the exports and growth prospects of developing countries' (World Bank, 1992, 1993). 'It has also been asserted that GATT's multilateral trade negotiation (MTN)

process has not served developing countries as well as it has the industrial nations. This is clear from the fact that the Kennedy and Tokyo Rounds achieved considerably lower than average reductions in tariff barriers on products of major export interest to developing countries ...' (UNCTAD, 1968 and 1982).

In retaliation, Low and Yeats established two counter-points. First, 'in the Pre-Uruguay round policy environment, developing countries faced significant, non tariff measures (NTMs) in industrial countries markets across a key range of sectors'. Secondly, the incidence of envisaged measures is considerably greater against developing country exports than against industrial country exports. They argue that

(1) approximately 18 percent of developing countries' non-oil exports encounter NTMs, while the corresponding share for OECD intra-trade is about 10 percent;

(2) between 52 and 64 percent of developing countries' textiles and clothing export free restrictions as compared to under 10 percent of OECD exports of these goods. (Table-1, Low and Yeats, 1995).

Regarding food items, they show that coverage ratios are not always higher for developing countries. For example, it is 28 percent for industrial countries compared to 18 percent for developing countries. The explanation behind it is that tropical products, like coffee, tea and cocoa, accounting for approximately 15 percent of developing countries food exports, face relatively few OECD non-tariff measures. In most industrial countries, NTMs are applied to temperate zone food products (particularly grains and dairy products), which are mainly exported by the OECD countries. According to them, this situation was prevailing

before the conclusion of the Uruguay Round. And, 'the Uruguay Round will bring about a dramatic reduction in the use of NTMs in the areas of trade where these measures have predominated in the past. The effect will be most noticeable in agriculture and in textiles and clothing sectors, but the phasing out of VERs will also have a significant impact. Although NTMs in the agricultural sector will be almost entirely eliminated as soon as results of the Uruguay Round come into force, many textiles and clothing restrictions could take as long as ten years to eliminate, and VERs will be phased out over a period of four years. The implication of the drastic reduction in NTMs fore seen in the Uruguay Round, are more far-reaching for developing countries than industrial countries in terms of their export interests, because of more extensive application of NTMs to developing country trade. In this sense, the Uruguay Round will contribute to a more 'level playing field' (Patrick Low and A. Yeats, 1995).

The declared intention of the GATT is to make the international market for agricultural goods and services a 'level playing field' for all. It can be done, according to them, by eliminating discriminatory tariffs, quantitative restrictions, import licensing and such other devices which impede their free flow across national borders. In support of that, the government has taken the view that all these would be beneficial to India in two ways : they will help enlarge the access of Indian exports to the world markets, especially to developed countries, and, as in the industrial sector, intense foreign competition in India will promote greater efficiency in resource use in agriculture. K.S.Krishnaswamy (1994) rejected the Government of India's stand and argued that, 'compared to old GATT, the new agreement will not, in my judgement, provide countries like India a 'level playing field' in world market because of a variety of non-economic elements. Any levelling will be in favour of the already

industrialised countries, not the developing ones'(Krishnaswamy, 1994).

To support his argument, Krishnaswamy puts forward certain points. According to him, the government has extended export subsidies, cheap credit and finally devaluation of rupees to make export lucrative. The wholesale price index of primary articles has also gone up from an average of 182.8 in 1990-91 to 257.2 on November 23, 1993 or by about 40 percent. The rupee has also been devalued to the extent of over 18 percent in US dollar terms during the same period. Agricultural prices abroad which were not earlier lower than in India, have not risen very appreciably, except where, as in France or Japan, they were heavily subsidised. But there is no clear evidence that the rise in prices in India (or abroad) have generated any substantial production or export responses at the aggregate level.

On the top of that, as he argues further, there are numerous other countries including India which will want to maximise their exports of agricultural commodities to the markets of Europe, America or the Asia Pacific region. Besides the efforts that these countries will make on their own to augment export, many of the transnational corporations (TNCs) will be securing raw materials for their processing industries from all suppliers. In this situation, if the world market for agricultural commodities functions smoothly, cross-border prices will sooner or later be little different from domestic prices plus cost of transportation, insurance and short term financing for trade purposes. In other words, if free trade conditions truly operate, there is no basis for assuming that foreign prices will be - or can long be exported to remain attractive to agricultural products.

Section II : Debate on Trade related Intellectual Property Rights (TRIPS)

Although the Trade Related Intellectual Property Rights (TRIPS), is a somewhat different proposition and is not included in the agricultural agreement in Uruguay Round , its direct and indirect impacts on agriculture needs proper mention.

Regarding patentability, The Dunkel's text provides that "... patents shall be available for any inventions, whether products or processes in all fields of technology...". This is significantly different from what is provided for under the Indian Patent Act. According to the Indian Patent Act, 1970, "patents are granted to encourage inventions and to secure that the inventions are worked in India on a commercial scale and to the fullest extent that is reasonably practicable without undue delay and they are not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article" (Indian Patent Act, Section 83, 1970). This digression and some other provisions like 'Burden of Proof' and 'sui generis' system in Dunkel Draft have rekindled the smouldering debate regarding the impact of Intellectual Property rights.

Dhar and Keayla argues that "the provisions as regards the 'working of patent', have been substantially diluted in the Dunkel proposals. Even in the existing international patent system, as set out in the Paris Convention, 'working' has been defined as establishing manufacturing capacity in the country of patent grant. The existing patent system provides that the patent holder would be given exclusive manufacturing rights in the territory of patent grant. Dunkel proposals, however, dilute these provisions governing 'working' and provide similar patent rights for imports as for domestic production itself (Dhar and Keayla,1993).

The proposal in the GATT Accord regarding the IPRs indicate that 'the patented product, whether produced locally or imported will have to be treated at par with the domestically produced products without any discrimination' (Article 27.1). Thus, if import is treated at par with domestic production 'the working of patent', will become a non-issue and cannot be controlled through domestic law. So, this will result in making licensing policy irrelevant and 'compulsory licensing', 'sub-licensing', or 'licensing of right', will turn out to be non -issues. Clearly this will help the product patent holder to establish his monopoly.

Regarding 'sui generis' system, the developing countries put some arguments explaining its demerits. The 'sui generis' system is commonly referred to the system of Plant Breeders' Right (PBR) which operates in European Countries and other western countries where seed production is carried out largely in the hands of the commercial sector. Suman Sahai argues that 'this form of protection confers on the holder of the PBR the exclusive right to produce seed of the protected varieties for the seed trade and the control of its marketing (Sahai, 1993).

TH-6141

In connection with the PBR, 'Union for the Protection of New Plant Varieties' (UPOV) offers the patentor a monopoly power on sale of the variety but not on the variety of genes. So, according to the provision made by UPOV, any protected variety can be used for further breeding work. This was referred to as 'Breeder's Exemption'. The 'Farmers' Exemption' is another exemption in PBR. According to this provision, once the farmers buys the protected seed, he secures the right to use it to produce seed for himself for as many generations as he likes. But in 1991, UPOV was compelled to amend the provisions of the PBR because of tremendous pressure from the US and had to make some amendments for the

119

seeds. And in this way, the breeder's exemption has been considerably diluted .

According to the Commerce Ministry, the 'sui generis' system of protection will be helpful to protect the rights of farmers and breeders of plant variety. But the reality is absolutely different. Because, in this case, the farmers lose the right to modify the seed. The modification of seed in an informal way by the farmers is a commonly prevalent custom and this way the modern technology trickles down to the poorer sections in the village economy. In the remote villages in India, just to make a trip to the nearby market requires prior planning. This change would lead to a substantial increase in their opportunity cost as well as transaction cost will increase. As a result the production cost will rise sharply. Another traditional practice prevailing in most of the developing countries, especially in India, is that of selling seeds to other farmers. This inter- farmer networking will also be completely done away with when the GATT provisions start operating.

In support of this statement, and to retaliate to the government's contention that farmers' right will not be affected because the " limited exchange of seeds according to prevailing traditional custom" can be retained under 'sui generis' system, Sahai argues that 'This is again deliberately misleading. The fact is that farmers do not engage in limited exchange of seeds. Of 6,00,000 tonne seed requirement of Indian agriculture, not more than 38 per cent is met by the formal agencies like National Seed Corporation. The rest 62 per cent of their need is provided by inter-farmer sale. This huge volume of trading in seed in informal sector between farmers will be abolished if the Dunkel Draft is accepted. This will have a highly negative impact on growth in agriculture and the right of the farmers to control their means of production' (Sahai,1993).

Regarding the 'sui generis' system , Bhalla argues that some provisions included under GATT agreement will have serious adverse impact on their economies. According to him, 'DDT requires that there be effective 'sui generis system' for the protection of plant varieties where effectiveness of the system is to be determined multilaterally. For the first time, protection of plant varieties would come under a multilateral surveillance. The patenting of discoveries would make the research result much more costly and would only benefit the patent holder at the cost of large sections of the farming community' (Bhalla et al,1995).

'Burden of Proof' is another area of controversy. According to this agreement, if any user is found using any patented material without paying proper price for it, then the user has to stop its production until he is proved innocent. And it is his duty to prove his innocence. The critics argue that this agreement will be disastrous for Indian farmers because the inter-farmer use of seed and other technology is very high and common in our country . A majority among them are small and marginal farmers who are not properly aware of all these agreements. So, due to ignorance, if they are found guilty and are asked to stop their production until they prove themselves innocent, then the entire family will die of starvation. Moreover, financially they are so weak that it is simply not possible for them to put their case before the relevant authority and to undergo lengthy legal proceedings.

According to Nayyar, the provisions made under GATT Agreement for the protection of Trade Related Intellectual Property Rights for dispute settlement and enforcement, as part of the multilateral trading system, is a departure from the system of

intellectual property rights, or the patent law, in a country such as India, and this departure must be recognised rather than ignored.

Exclusions from patentability would be confined simply to animals and animal varieties. It would no longer be possible to limit patentability to processes. De facto, it gets extended to products. He further adds that intellectual property rights system must recognise the differences in levels of development among the economies. In a world where a very significant proportion of human kind does not have enough to eat, scientific research on plant-genetics or plant varieties should be a public resource rather that private property. From the perspective of developing countries, therefore, it is both necessary and desirable to create a differential, rather that uniform, international regime for the protection of intellectual property rights. In this context, he proposes some relevant modifications in the IPR system. These are as follows :

(*) The burden of proof would be reversed.

(*) Importation would be deemed as the equivalent of working as a patent.

(*) Compulsory licensing would be possible only under a very restrictive set of conditions, while automatic licences of right would disappear.

(*) The term of protection for patents would be extend to 20 years (Nayyar, 1992).

Although the GATT stood merged with the World Trade Organisation after its final negotiations in the Uruguay Round more than a year back, the debate regarding its impact on the developing countries is still alive among the scholars and different countries. Different scholars have pointed out the possible merits and demerits of GATT and its impact on different developed and less developed countries in aggregate level. For India too, most

of the studies have been done on all-India basis but the studies in desegregated level are very few. One of the major criticisms against GATT agreement is that most of the gains which have been advocated in GATT are based on small country assumption. India is a vast country with its diversified agro-climatic regions. Most of the studies on GATT and Indian agriculture do not take cognizance of its diversities. As Bhalla and Singh argue ' GATT is likely to exaberate both inter- personal and inter-regional inequalities. It is only the large resourceful farmers who would be able to undertake large investments for diversification for exports. Similarly, it would be the well endowed regions with developed infrastructure that are likely to gain the most. The policy makers would have to undertake specific measures to involve marginal and small farmers as also to enable the backward regions to benefit from agricultural growth and buoyancy in exports' (Bhalla et al, 1995).

The basic objective of this study, is to have a clear picture about the impact of GATT at the state level. The study concerns itself with West Bengal which is considered to be one of the upcoming states in India as far as agriculture is concerned. Agricultural productivity in the state experienced an upsurge in the first half of the '80s and has been steadily rising subsequently. According to Saha and Swaminathan, during 1981-82 to 1990-91 the growth rate of foodgrain production was 7.6 per cent per annum which is all time highest in the history of West Bengal and it was also highest among the 17 major states of India during these years. Political stability and establishment of Panchayati Raj have considerably changed the rural political scenario. Keeping the considerations in view this present dissertation is devoted to a study of the likely impact of GATT on West Bengal agriculture.

CHAPTER III

AGGREGATE MEASURES OF SUPPORT ON WEST BENGAL AGRICULTURE

Introduction :

The long term objective of GATT Agreement "is to establish a fair and market oriented trading system and the reform process should be initiated through the negotiation of commitments on support and protection and through the establishment of strengthened and more operationally effective GATT rules and disciplines" (final Text of the Uruguay Round, 1994).

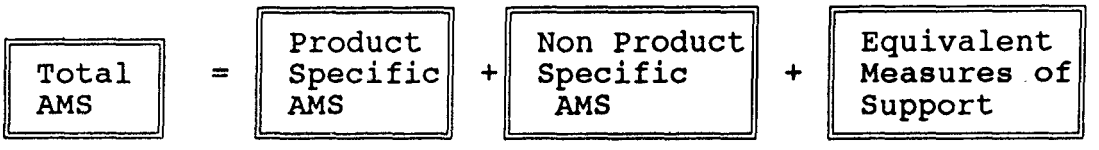
Previously, the protection of agriculture was agreed under 'special treatment' permitting the use of import quotas under Article XI and export subsides under Article XVI, but no explicit coverage of the variable import levies and domestic subsides was provided. The Uruguay Round Agreement on agriculture has tried to close these loopholes and the negotiations were specifically concerned with three kinds of agricultural support and protection: namely (a) domestic support, (b) market access and (c) export subsidies. (Ingersent et.al.1995)

According to the GATT Agreement, domestic support is to be measured through AMS. The main objective of this study is to work out the 'total aggregate measures of support' in West Bengal. The other two aspects, namely, the efficiency of West Bengal agriculture in

general and the competitiveness of its major crops in particular would be taken up latter. This chapter is divided into two sections : section I deals with the definition of 'domestic support' whereas section II is devoted to the estimation of AMS.

SECTION - I: Domestic support to West Bengal Agriculture

According to the Uruguay round Agreement on Agriculture, domestic support to agriculture can be measured in terms of 'Total Aggregate Measures of support'. Aggregate Measures of Support (AMS) means the annual level of support, expressed in monetary terms, provided for an agricultural product or non product specific support provided in favour of agricultural producers in general. In addition, if in the case of some products, the AMS is not measurable directly, then 'Equivalent Measures of Support' has to be taken as a proxy. So, for simplification we may Write :



Product Specific AMS

The product specific AMS refers to the support directed to the producers of various agricultural products and calculated on a product by product basis for each basic product (defined as the product as close as practicable to the point of first sale) receiving market

price support in the form of non-exempt direct payments or any other subsidy not exempted from the reduction commitments. The Government declared minimum support/ procurement price support, area and / or production and cattle head limiting programmes, direct support extended to the basic agricultural commodities, specific crop promotion programmes, etc. are the major components of product specific support measures extended in various forms by different countries towards their agricultural sector.

According to Uruguay Round Agreement on Agriculture (UR-AA), the total of this support, if exceeds more than 10 percent of the base year 1986-88 support, has to be reduced over six years from 1986-88 base (price support measured against fixed External reference Prices (FERP). While defining the components of product specific subsidies, certain exemptions have also been made, as given in the chart-I, according to the following criteria:

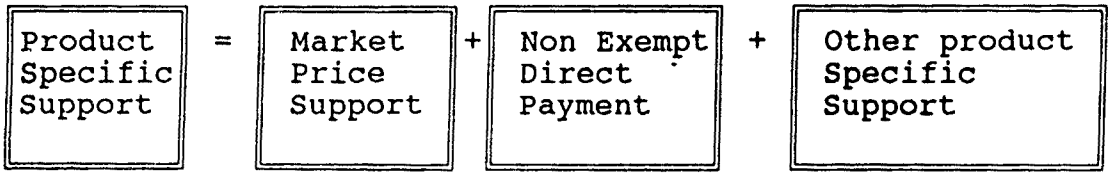
(I) The support in question shall be provided through a publicity funded government programme (including government revenue foregone) not involving transfer from consumers; and

(II) The support in question shall not have the effect of providing price support to producers.

Direct payments under production limitation programmes (BLUE BOX instrument), eg. US deficiency payments, EU compensation payments, along with expenditures in relation to the provision of domestic food aid to the section of population in need, decoupled

income support depending on income status of a producer or land owner, factor use or production level in a defined and fixed base period, Gov ernment financial participation in income insurance and in income safety net programme, payments of relief from natural disasters, structural adjustment assistance provided through producer retirement programme and resource retirement programme would be kept outside the calculation of product specific AMS.

The product specific support measure falls under three broad categories : (a) Market price support (b) Non-exempt Direct payment and (c) Other product specific support.



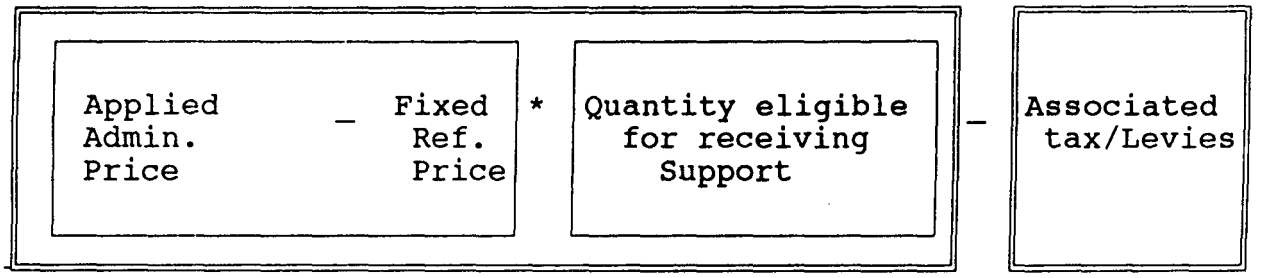
(a) <u>Market Price Support:</u>

Market Price support is the support which the government extends towards the agricultural producers through providing a minimum floor to the market prices of agricultural products. Market price support to different products are different because of different support process and external prices of different products. the marketable surplus is also different for different products.

The market price support shall be calculated using the gap between a fixed external reference price and the applied administered price multiplied by the quantity of production eligible to receive the applies administered price. Fixed reference price, in

calculation of market price support, shall be based on the years 1986 to 1988 and shall generally be the average f.o.b unit value for the product concerned in a net exporting country and the average c. i.f. unit value for the product concerned in a net importing country in the base period. So, there fore, empirically :

Market price support =



(b) <u>Non - Exempt Direct Support:</u>

Non-Exempt Direct Support refers to two types of Direct Supports than price dependent payments. All the price dependent or non-price dependent support where direct payments are measured on the basis of product, constitute non-exempt direct payment (NEDS) component of product specific support. Empirically, price dependent NEDS shall be calculated either as price gap times the marketable surplus or alternatively, the budgetary outlay on the support extended.

(c) **Other Non-Exempt Product Specific Support:**

All other type of support which is neither market price support nor any direct payment and provided on product by product basis and not exempted from AMS measurement are required to be measured for each basic product. Altogether, these type of supports is known as 'other non-exempted product specific support (OPSS)' component of product specific support. It is required to be measured using budgetary outlay or as a price gap times marketable surplus of goods and services concerned.

II Non-Product Specific AMS:

Non-product specific AMS is the aggregate support extended by the government towards agricultural producers not directly to any specific agricultural product but to all the inputs like electricity, seeds, fertilizer, irrigation and institutional credit used in the production process. Like product specific AMS, certain supports or policy measures related to investment, infrastructural services are exempted from non-product specific AMS calculation. (The detailed list is given in chart-I,in page 38).

The calculation of non-product specific AMS incorporates price paid by the farmers for the above mentioned tradable inputs and the reference prices. Empirically, the NPS AMS is the product of the gap between the two prices and the quantity of input or services used by the agricultural farmers in aggregate. In the case of non tradable inputs, budgetary outlay is taken into consideration to calculate the NPS AMS.

III Equivalent Measurement of Support:

Subject to provision of Article 6 in the original GATT Report, equivalent Measures of support shall be calculated in respect of all products where market price support as defined in annex 3 of the same report exists but for which the calculation of this component of the AMS is not practicable. For such products, the base level of implementation of the domestic support reduction commitments shall consist of a market price support component expressed in terms of Equivalent Measurement of Support which will be calculated by using the applied administered price and the quantity of production eligible to receive that price, or, where this is not practicable, the budgetary outlays used to maintain the producer price.

Chart - 1. Purview of Reduction Commitments and Exemption in Measurement of AMS.

Domestic Support	Commitment	Exemption
A. Product Specific AMS	If the total product Specific Current AMS exceeds 10 per cent thatn what it was in base period ,i.e, in 1986-88 triannium then it has to be brought under reduction commitments.	1. Direct payments under production limitation programmes (Blue Bos Instrument). 2. Domestic food aid. 3. Public stock holding for food purposes 4. Direct payment to producers. 5. Decoupled income support. 6. Government financial participation in : (a) income insurance and income safety net programme. (b) Crop insurance programme
B. Non-Product Specific AMS	If the current Total Non Product Specific AMS is 10 per cent more than that of the base period 1986-89 triannium average then it has to be brought under reduction commitment.	1. Green Bosx instrument e.g, (a) Research and Development (b) Pest and disease control 2. Training services 3. Extension and advisory services 4. Marketing promotion services 5. Infrastractural services 6.Structural adjustment assistance provided through investment aids.

Section II: Estimated Domestic Support to West Bengal agriculture:

Product Specific Aggregate Measures of Support:

According the Uruguay Round Agricultural Agreement (URAA), the Product Specific Aggregate Measures of Support is one of the two components for measuring the total AMS. The product specific AMS has to be calculated for each and every agricultural crops which enjoy Government declared market support through different type of market price support like procurement price, minimum support price etc. There are 22 crops in India which comes under the purview of the support prices declared by the Indian Government.But in the case of West Bengal, only two crops are enjoying this support which are (i) Paddy and (ii) Jute. So, here our major concern will be to calculate product specific AMS of these two crops :

Agricultural commodities receiving market support price are:

(i) **Paddy**	**(ix) Tur**	**(xvii) Soyabean**
(ii) Wheat	(x) Moong	(xviii) Cotton
(iii)Bajra	(xi) Urad	(xix) Jute
(iv) Jowar	(xii)Rapeseed	(xx) Sugar cane
(v) **Maize**	**(xiii) Mustard**	(xxi) Copra
(vi) Barley	**(xiv)Sunflower**	(xx) Tobacco
(vii)Gram	(xv) Safflower	
(viii)Ragi	(xvi)Groundnut	

Rice: Although due to fragmented land holding and lack of infrastructural facilities, West Bengal could not reap the advantages of Green Revolution in augmenting food grain production to an optimal level upto the end of '70s. The foodgrain production started gaining momentum during the '80s. Recent statistical analysis of data suggests that in West Bengal, during 1981 to 1991 growth rate for the production of food grains had been higher than in any other Indian state (Rogally et al., 1995). Abhijit Sen and Ranja Sengupta used both state and central government data to compare rates of output growth of rice and total food grains and showed that 'Growth in rice production is West Bengal in the 80's was 7.6 percent per year, compared to 6.1 percent in Orissa and 3.3 percent in Bihar. (Rogally et al., 1995).

For Calculation of the product specific AMS of Paddy, rice has been taken as a proxy because the AMS, according to GATT Agreement, is to be calculated by multiplying the gap of administered price and fixed external price of paddy by the marketable surplus of paddy. Since international price of paddy is not easily available so rice has been taken. For making the domestic and international prices comparable the usual methodology has been followed for converting paddy in rice by taking into account the processing cost and proportional availability of rice from paddy.

According to Table 3.1, it is clear that although per unit domestic administered price of rice has increased over time, the gap between the administered price and international market price, i.e., the extent of price support is negative all through the time span 1980-81 to 1993-94 except 1982-83 and 1986-87. This negative market price support has led to the negative total aggregate measure of support to rice. The extent of negative support has

increased from Rs. 1.06 million in 1980-81 to Rs.15.94 million in 1992-93, which indicates the increased indirect taxation of rice producers in West Bengal.

Jute: After rice, jute is the only major crop in West Bengal. Over the period from 1987-88 to 1993-94 the production of jute increased from 4.5 million tonnes to 5.64 million tonnes and the area decreased from 0.50 million ha to 0.48 million hectare. According to the data for the year 1993-94, the area under jute in West Bengal constitutes 53.9 percent of the total area under jute in India and the share of production of West Bengal jute to total all India production of jute is 66.5 percent. On the basis of government declared procurement price, the Jute Corporation of India procures jute from West Bengal.

To calculate the extent of product specific subsidy on jute, according to the GATT methodology, the total jute procurement by the Jute Corporation of India is considered as the marketable surplus of jute in West Bengal.

The table 3.3 deciphers that the fixed external price of raw jute was around 50 percent more than the procurement price during the latter phase of the time period taken i.e., 1988-89 to 1993-94. It was around 31 percent higher during the base year 1986-88. Due to the negative price support, the total extent of subsidy extended towards jute was negative, i.e. jute was indirectly taxed and this indirect taxation increased over a period of time from Rs. 37.14 million in 1983-84 to Rs. 561.6 million Rs. in 1992-93. The average negative support in the 1986-88 period was Rs. 281.2 million.

Total Product Specific AMS:

As per the Uruguay Round Agricultural Agreement, if the total product specific aggregate measures of support exceeds 10 percent of the value of total agricultural output for a developing country then only it will come under the reduction commitment agreements otherwise it will be exempted on the basis of de-minimus provision.

In the case of West Bengal the product specific AMS of rice and jute are negative which leads to a minimum total product specific AMS. This product specific subsidy is negative and has increased from Rs. 1.06 million in 1981-82 to Rs. 578.14 million in 1992-93 (see table 3.11). It is clear from the Table that the total product specific subsidy is negative all through the time span which indicates the prevalence of negative subsidy or indirect taxation in West Bengal agriculture.

SECTION II: Estimated Domestic support to West Bengal Agriculture.

Non Product Specific Support :

(I) **Seed Subsidy:** Because of the absence of comparable reference prices (f.o.b/c.i.f.) of imported seed it is not possible to work out the direct estimation of subsidy on supply of quality seed to farmers. Generally the West Bengal State Seed Corporation is the only governmental organisation which supplies quality seeds of different agricultural crops to the

farmers in the state. Alternatively, as a proxy measure, the total losses incurred by this seed corporation can be taken as the extent of subsidy extended by the government towards the farmers of West Bengal, although, it is not the true measure of actual subsidy on seed. It is because of the fact that the total loss incorporates many other operational inefficiencies and, hence, leads to overestimation of support, Table 3.5 deciphers that in most of the years, starting from 1980-81 to 1993-94, the WBSSC has earned profits excluding the years 1983-84, 1984-85 and 1985-86. In these three years the total losses of the WBSSC is Rs. 2.37 million, Rs. 8.60 million and Rs. 5,28 million respectively. Assuming that all the categories of farmers purchase seeds from WBSSC and use according to their share in operational holding, the estimates of subsidy on seed, according to the proportion of loss availed of by the medium and large farmers can be made. According to the operational area under cultivation the proportion of small and marginal farmers is 66.44 per cent. So, the 66.44 percent of loss of WBSSC has to be exempted and the rest, 33.56 percent which goes to the medium and large farmers has to be considered as the total non product specific component of AMS. According to table 3.7 the total NPS-AMS on seed for the years 1983-84, 1984-85 and 1985-86 are Rs. 0.79 million, Rs. 2.89 million and Rs. 1.77 million respectively whereas for the rest of the years it is negative. In the base period 1986-88, the average NPS-AMS on seed is altogether negative to an extent of Rs. -9.18 million which rules out the problem of reduction commitment.

(II) <u>Electricity Subsidy</u>: The West Bengal State Electricity Board (WBSEB) is the sole Government authority which supplies electricity to the agricultural sector on concessional rate. Basically there are different methods to calculate subsidy on electricity supplied to agriculture.

Among them three major procedures are:

(a) Subsidy in the form of losses insured by the electricity board;

(b) Opportunity cost of electricity supplied to agricultural sector, and

(c) based on difference between the supply cost and cost of recovery.

For simplification, the actual cost of electricity supplied approach has been taken in our study because of several reasons :

Firstly, the total loss which the WBSEB incurred for supplying electricity to agricultural sector may be due to the inefficiency of operational process, over-staffing and other internal institutional problems.

Secondly, a large amount of electricity supplied to this sector is in late night due to the minimum use of electricity in other sectors at that time. So, the opportunity cost is very low during these hours. Because of these serious difficulties involved in any attempt to calculate these inefficiency of opportunity cost, the third method, that is the difference between cost of production and amount recovered is chosen to calculate the total NPS-AMS component through electricity.

The third method of electricity subsidy calculation has certain advantages. First of all the prices per unit electricity supplied to different sectors are easily available in the case of the WBSEB. However, this method cannot take care of the administrative inefficiencies and leakage/losses which inflates the cost calculation.

According to the information given in table 3.6 the average expenditure on per unit electricity sold to West Bengal agriculture and the recovery rate show a clear opposite

pattern of movements during the time span 1980-81 to 1993-94. The Table brings out that while the average expenditure has steadily gone up over time, the recovery rate per unit sale of electricity to agriculture showed a clear downswing during this time span leading to a increase in the share of unrecovered expenditure. It is clear from this table that when the share of unrecovered expenditure was 28.41 per cent in 1980-81, it skyrocketed to 85.56 percent in year 1993-94. In the years 1991-92 and 1992-93, the share was even more being 89.44 percent and 88.12 percent respectively.

The NPS-AMS through electricity has been increasing over time ranging from Rs 5.89 million in 1981-82 to Rs 398.91 million in 1993-94. the NPS-AMS for the years 1988-89 to 1993-94 are quite high with a maximum of Rs 398.91 million in 1993-94 which to more than 5 times of that of the average base year subsidy 62.91 million Rs in 1986-88 (see **Table 3.7**).

(III) **Fertilizer Subsidy**: To provide cheap chemical fertilizer to the agricultural producers, a budgetary support is being extended by the Government on fertilizer prices. It consists of the support provided on imported and domestically produced fertilizers. The fertilizer subsidy is extended by the government either through meeting the gap between import and controlled domestic price or by reimbursing fertilizer plants. Although the consumption figures of different fertilizers are available in nutrient terms, i.e., Nitrogen (N), Phosphorus (P) and potash (K), the import and domestic prices are available in terms of their respective compounds e.g, urea, D-amonium phosphate and muriate of potash. To simplify the calculations, conversion of import parity as well as domestic prices have been done into equivalent nutrient (N-P-K) prices

as per their chemical composition which is given in Table 3.8. The table shows that except for the year 1986-87, the domestic price for N remained lower for the entire period from 1981-82 to 1992- 93, where as for phosphorous, the domestic price was higher than import prices in almost each of the years during the first half and was lower in the second half. the import price of K was always higher than domestic price for the entire time period 1981-92. According to the **Table 3.9**, the aggregate subsidy in fertilizer is positive all through the time span 1981-93 except 1986-87 when it is Rs. 2.66 million if we consider only the case of medium and large farmers. Although during the first half of this time period the extent of subsidy was quite small it was much higher in the second half and the extent of subsidy in 1992-93 is more than 26 times of the subsidy extended in the initial year 1981-82 (in 1981-82 total extent of fertilizer subsidy was Rs. 29.81 million where as in 1992-93 it is Rs. 779.68 million).

(IV) **Credit Subsidy:** The financial Institutions like the Primary Agricultural Cooperative Societies (PACS) and different Commercial Banks extend generally two types of credit towards the rural farmers (a) Short terms loans and (b) medium and long term loan. Short term loans are basically advanced for a shorter duration like 6 to 12 months whereas the medium term and long term loans are advanced for relatively longer period which is more than one year. The division of loans into these two categories is based on the purpose of utilization of loans. Basically, the short term loans are advanced for incurring the variable costs like, purchase of seed, fertilizer, pesticides etc., whereas the long term loans are meant for long term investment in irrigation, infrastructure, farmhouse building etc. Naturally, the interest rate charged on different type of loan depends on the purpose and amount of loan. But on the whole, the interest rates charged for the loans advanced towards agriculture is substantially lower than the

rates of interest charged for loans advanced to the other non-priority sectors like large scale manufacturing sector, trading, export credit, housing finance etc. So, the difference between the concessional interest charged to agriculture and interest rate for the other sectors times the total amount of credit advanced for agriculture gives the total subsidy on credit.

As per the GATT rules, the credit subsidy is considered under the head of Non Product specific AMS and it has to be calculated on the basis of differential interest charged times the amount of loans advanced. There are certain guidelines in GATT Report which are to be followed in the calculation of NPS-AMS on credit. The important point in the calculation is that the entire subsidy cannot be considered as the NPS-AMS on credit because the part of it which goes to the small and marginal farmer has to be exempted from reduction commitment and only the advances made to the medium and large farmers have to be taken into account. Secondly, in the calculation of subsidy, only the short term advances have to be considered because the longer term loans are meant basically for investment purpose which is again exempted from reduction commitment (Original Report of GATT on Agriculture, 1994). And the third is that since the rural Primary Agricultural Cooperative Societies (PACS) require their borrower members to keep 10 percent of the total amount of borrowing as share money, this amount is also to be deducted while calculating NPS-AMS on credit.

In nutshell, the NPS-AMS on credit is the differential interest times the total short term advances made by the commercial banks and PACS after the necessary adjustment of the share money of the PACS.

NPS-AMS on credit = [(interest in non priority sector-interest rate in Agl.) * {(Total short term advance of commercial Banks) + (Total short term advance of PACS-Share money)}]

The data on outstanding advances and the subsidy on credit in West Bengal is given in Table 3.10. According to this table the short term outstanding advances towards medium and large farmers are steadily increasing, ranging from Rs. 558.4 Million in 1980-81 to Rs. 1124.3 million in 1991-92. The fluctuation in the total subsidy is mainly due to the irregular behaviour of the interest rate differential.

(V) **Irrigation Subsidy:** For major and medium irrigation the total cost of operation consists of mainly 1) interest on invested capital 2) depreciation cost and 3) operation and maintenance cost (OM). According to GATT methodology, since the charges on investment and the construction had to be exempted, the gap between the operation and maintenance cost (O & M) and recovery amount is considered to be the subsidy on irrigation extended to the farmers. Moreover, the share of the marginal and small farmers has to be deducted to calculate the amount of NPS-AMS. Empirically :

NPS-AMS on irrigation = [*O & M-Gross receipt] - [Share of the small and marginal farmers*]

In West Bengal, irrigation is an acute problem and the gravity of the situation is brought out by Table 3.11. The share of subsidy in M-O cost hovers around 81.61 to 86 percent from 1981-82 to 1993-94 being slightly less in 1983-84 and 84-85. The share of subsidy in gross receipt is abnormally high ranging from 73.69 percent in 83-84 to 539.33 percent in 1993-94. The average base year subsidy is Rs. 43.23 million, whereas the actual subsidy on irrigation ranges from Rs. 9.74 million in 1981-82 to Rs. 78.91 million in 1992-94.

Total Non-Product Specific AMS:

The support extended towards the West Bengal farmers through seed, electricity, fertilizer, irrigation and credit constitute the total non-product specific AMS on West Bengal agriculture. Table 3.13 shows that the total NPS-AMS has increased from Rs. 55.47 million in 1981-82 to Rs. 1189.03 million in 1992-93. Due to non-availability of data for certain inputs, particularly seed, for the years 1993-94 the actual total NPS-AMS has been underestimated for those years. But even then the percentage share in value of agricultural output is significantly less than the ceilings for reduction commitment of 10 percent. As we see in this table, the percentage share of NPS-AMS in value of agricultural outputs is hovering around 0.01 to 0.73 in almost althrough the time span 1981-82 to 1993-94, Whereas the NPS-AMS is slightly more than 0.05 percent with maximum of 0.73 and 0.72 respectively for the years 1991-92 and 1992-93. In the triennium base period 1986-89, the average percentage share of NPS-AMS is 0.3 percent.

Total Aggregate Measures of Supports (AMS) :

Total Aggregate Measures of Support is the sum of Total Product Specific Aggregate Measures of Support and the Non Product Specific Aggregate Measures Of Support. On import hypothesis, Total Aggregate Measures of Support (TAMS) throughout the period 1981-82 to 1993-94 was well below the prescribed 20 per cent. The extent of positive support as a percentage of the base year (1986-89) value of agricultural output for West Bengal ranged

between 0.03 per cent in 1985-86 to 0.75 per cent in 1991-92 (Table 3.14). The total AMS is negative for the years 1984-85 and 1986-87 with the extent of 0.08 per cent and 0.26 per cent respectively. This indicates that even if the GATT agreement is signed, there would not be any detrimental effect of it on subsidy structure of West Bengal agriculture. Moreover, according to the 1991 census data the area under small and marginal holding is 66.44 per cent. Hence, the major chunk of the West Bengal farmers will remain outside the clutches of the subsidy reduction commitment even if West Bengal crosses the GATT prescribed extent of subsidy which is 20 per cent of the value of output of the triennium average.

Table 3.1: EXTENT OF MARKET PRICE SUPPORT TO RICE IN WEST BENGAL

(OER)

Year (1)	Import Price (Rs./Ton) (2)	Admn. Price of Rice (Rs./Ton) (3)	Price Support (3-2) (Rs./Ton) (4)	Extent of Price Support {4/2}*100 (5)	Marketable Surplus ('000 Ton) (6)	Extent of Support (4*6) (Rs. Milln.) (7)
1980-81	2050	1880.00	-170	-8.29	6.24	-1.06
1981-82	2621.7	2171.34	-450.4	-17.18	4.58	-2.06
1982-83	2106.5	3261.33	1154.79	54.82	3.71	0.94
1983-84	2519.7	2407.35	-112.40	-4.46	6.64	-0.75
1984-85	2565.6	2513.65	-52.04	-2.03	6.79	-0.35
1985-86	6347.2	2577.89	-3769.33	-59.38	6.68	-25.18
1986-87	2620.6	2806.12	185.50	7.08	7.12	1.32
1987-88	4106.9	2945.50	-1161.47	-28.28	7.89	-9.16
1988-89	3987.6	3305.73	-681.94	-17.10	9.15	-6.24
1989-90	5006.9	3825.03	-1181.87	-23.61	9.47	-11.19
1990-91	5933.6	4308.21	-1625.41	-27.39	8.97	-14.58
1991-92	9032.1	4854.90	-4177.24	-46.25	10.27	-42.90
1992-93	7161.8	5499.28	-1662.54	-23.21	9.95	-16.54
1993-94	10123.	6126.00	-3997.00	-39.48	9.91	-39.61

Source : 1. Statistical Abstract of India - Various Issues

2. Monthly Statistics of Foreign Trade, DGCIS, Calcutta - Various Issues

Table 3.2: EXTENT OF MARKET PRICE SUPPORT TO RICE IN WEST BENGAL

(SER)

Year (1)	Import Price (Rs./ Ton) (2)	Admn. Price of Rice (Rs./ Ton) (3)	Price Support (3-2) (Rs./ Ton) (4)	Extent of Price Support {4/2} *100 (5)	Marketable Surplus ('000 Ton) (6)	Extent of Support (4*6) (Rs. Milln.) (7)
1980-81	2460	1880.0	-580.00	-6.91	6.24	-3.61
1981-82	3146.1	2171.3	-974.80	-14.32	4.58	-4.47
1982-83	2527.8	3261.3	733.48	45.68	3.71	2.72
1983-84	3023.7	2407.3	-616.35	-3.72	6.64	-4.09
1984-85	3078.8	2513.6	-565.18	-1.69	6.79	-3.84
1985-86	7616.6	2577.8	-5038.7	-49.49	6.68	-33.66
1986-87	3144.7	2806.1	-338.62	5.90	7.12	2.41
1987-88	4928.3	2945.5	-1982.8	-23.57	7.89	-15.65
1988-89	4785.2	3305.7	-1479.4	-14.25	9.15	-13.54
1989-90	6008.2	3825.0	-2183.2	-19.67	9.47	-20.68
1990-91	7120.3	4308.2	-2812.1	-22.83	8.97	-25.23
1991-92	10838.5	4854.9	-5983.6	-38.54	10.27	-61.45
1992-93	8594.18	5499.2	-3094.9	-19.35	9.95	-30.79
1993-94	12147.6	6126.0	-6021.6	-32.90	9.91	-59.67

Source : As in Table 3.1.

Table 3.3 : EXTENT OF MARKET PRICE SUPPORT TO JUTE IN WEST BENGAL

(OER)

Year (1)	Import Price (Rs./Ton) (2)	Admn. Price of Jute (Rs./Ton) (3)	Price Support (3-2) (Rs./Ton) (4)	Extent of Price Support {4/2}*100 (5)	Marketable Surplus ('000 Ton) (6)	Extent of Support (4*6) (Rs. Milln.) (7)
1980-81	NA	NA	NA	NA	NA	NA
1981-82	NA	NA	NA	NA	NA	NA
1982-83	NA	NA	NA	NA	NA	NA
1983-84	2164.50	1850	-314.50	-14.53	118.08	-37.13
1984-85	4507.04	1950	-2557.04	-56.73	122.78	-313.95
1985-86	3030.30	2150	-880.30	-29.04	313.38	-275.87
1986-87	3614.46	2250	-1364.46	-37.75	261.36	356.61
1987-88	3333.30	2400	-933.30	-28.00	74.38	-69.42
1988-89	4838.71	2500	-2338.71	-48.33	110.93	-259.43
1989-90	5641.03	2950	-2691.03	-57.39	79.92	-215.07
1990-91	6230.53	3200	-3030.53	-54.55	115.11	-348.84
1991-92	8800.00	3750	-5050.00	-48.32	64.08	-323.60
1992-93	8800.00	4000	-4800.00	-561.60	117.00	-561.60
1993-94	8707.12	4500	-4207.12	-3.7	0.88	-3.7

Source : As in Table 3.1.

Table 3.4: EXTENT OF MARKET PRICE SUPPORT TO JUTE IN WEST BENGAL

(SER)

Year (1)	Import Price (Rs./Ton) (2)	Admn. Price of Jute (Rs./Ton) (3)	Price Support (3-2) (Rs./Ton) (4)	Extent of Price Support {4/2}*100 (5)	Marketable Surplus ('000 Ton) (6)	Extent of Support (4*6) (Rs. Milln.) (7)
1980-81	NA	NA	NA	NA	NA	NA
1981-82	NA	NA	NA	NA	NA	NA
1982-83	NA	NA	NA	NA	NA	NA
1983-84	2597.40	1850	-747.40	-12.12	118.08	-88.25
1984-85	5408.45	1950	-3458.45	-47.28	122.78	-424.63
1985-86	3636.36	2150	-1486.36	-24.207	313.38	-465.80
1986-87	4337.35	2250	-2087.35	-31.461	261.36	-545.55
1987-88	3999.96	2400	-1599.96	-23.33	74.38	-119.01
1988-89	5806.45	2500	-3306.45	-40.28	110.93	-366.79
1989-90	6769.24	2950	-3819.24	-39.75	79.92	-305.23
1990-91	7476.64	3200	-4276.64	-40.53	115.11	-492.28
1991-92	10560.00	3750	-6810.00	-47.82	64.08	-436.38
1992-93	10560.00	4000	-6560.00	-45.45	117.00	-767.52
1993-94	10448.54	4500	-5948.54	-40.26	0.88	-5.24

Source : As in Table 3.1.

Table 3.5 : SUBSIDY ON SEED IN WEST BENGAL

(Rs. Million)

Year	Losses incurred by State Seed Corp.	Share of Small and Marginal Farmers*	Subsidy to Medium and Large Farmers
1980-81	-1.57	-1.04	-0.53
1981-82	-4.8	-3.19	-1.61
1982-83	-9.46	-6.29	-3.17
1983-84	23.65	15.71	7.94
1984-85	85.97	57.12	28.85
1985-86	52.77	35.06	17.71
1986-87	-138.15	-91.79	-46.36
1987-88	-190.15	-126.34	-63.18
1988-89	-86.68	-57.59	-29.09
1989-90	-35.46	-23.56	-11.90
1990-91	NA	NA	NA
1991-92	NA	NA	NA
1992-93	NA	NA	NA
1993-94	NA	NA	NA

Note : * Estimates based on 66.44 per cent area cultivated by small and marginal farmers in West Bengal

Source : C.A.G Reports (Commercial) on West Bengal for different years.

Table 3.6: COST OF RECOVERY PER UNIT OF ELECTRICITY SUPPLIED TO THE AGRICULTURAL SECTOR IN WEST BENGAL

(Paise/KWH)

YEAR	Average Expenditure on Per unit Sold	Recovery Per Unit of Electricity Sold	Subsidy Per Unit To Agriculture	% of Revenue Unrecovered (4/2)*100
1980-81	49.00	35.08	13.92	28.41
1981-82	62.00	35.00	27.00	43.55
1982-83	72.48	37.28	35.20	48.57
1983-84	91.26	37.00	54.62	59.46
1984-85	88.31	34.21	54.10	61.26
1985-86	100.21	35.29	64.92	64.78
1986-87	104.06	36.39	67.67	65.03
1987-88	106.62	24.80	81.82	76.74
1988-89	123.92	19.52	104.40	84.25
1989-90	136.10	19.41	116.69	85.74
1990-91	157.19	20.08	137.11	87.23
1991-92	163.69	17.28	146.41	89.44
1992-93	161.90	19.23	142.67	88.12
1993-94	175.40	25.32	150.08	85.56

Source : Annual Report on the Working of State Electricity Board and Electricity Departments, Planning Commission, Oct. 1995.

Table 3.7 : EXTENT OF SUBSIDY ON ELECTRICITY SUPPLIED TO AGRICULTURE SECTOR IN WEST BENGAL

Year	Electriity cconsumed by the Agricultural Secctor (Ml.KWH)	Subsidy per unit of Electricity sold to Agriccultural Serctor (Ps/KWH)	Support to agriccultural sector on Electriccity (Million Rs)	Support to Small and Marginal Farmers (Million Rs.)	AMS of Electricity to Agriculture (4-5) (Million Rs.)
1980-81		13.92			
1981-82	65.03	27.00	17.56	11.67	5.89
1982-83	92.95	35.20	32.72	21.74	10.98
1983-84	11.15	54.26	60.31	40.07	20.24
1984-85	124.07	54.10	67.12	44.60	22.53
1985-86	144.88	64.92	94.06	62.49	31.57
1986-87	137.43	67.67	93.00	61.79	31.21
1987-88	135.65	81.82	110.99	73.74	37.25
1988-89	343.28	104.40	358.38	238.11	120.27
1989-90	391.06	116.69	456.33	303.18	153.14
1990-91	408.73	137.11	560.41	372.34	188.07
1991-92	614.77	146.41	900.08	598.01	302.07
1992-93	729.61	142.67	1040.93	691.60	249.33
1993-94	792.00	150.08	1188.63	789.73	398.91

Source : 1. Statistical Abstract - Various Issues 2. Same as in Table 3.6

Table 3.8: IMPORT PARITY AND DOMESTIC PRICES FOR DIFFERENT FERTILISERS

(Rs Per Ton)

	Nitrogenous (N)		Phosphetic (P)		Potassic (K)		Per Ton Subsidy on		
Year	Import Price	Domestic Price	Import Price	Domestic Price	Import Price	Domestic Price	N	P	K
1981-82	5771.63	5108.70	4647.00	5827.04	3655.89	2166.67	662.93	-1180.04	1498.22
1982-83	5573.11	5108.70	4817.85	5827.04	2773.67	2166.67	464.41	-1009.19	607.00
1983-84	5226.39	4673.91	4723.57	5453.69	2492.02	2000	552.48	-730.15	492.02
1984-85	6549.02	4673.91	5058.08	5453.69	2827.00	2000	1875.11	204.36	827.00
1985-86	7051.91	4673.91	5589.17	5453.69	3096.70	2000	2378.00	135.48	1096.70
1986-87	4918.68	5108.70	5751.32	5827.04	2884.99	2166.67	-190.00	-75.72	718.32
1987-88	5754.43	5108.70	6191.66	5827.04	3071.69	2166.67	645.74	263.62	851.02
1988-89	6517.78	5108.70	7849.21	5827.04	4070.32	2166.67	1409.09	2022.19	1903.65
1989-90	7534.17	5108.70	7898.77	5827.04	4598.55	2166.67	2326.48	2071.75	2431.88
1990-91	9213.04	7173.91	5746.83	8149.34	5146.56	3033.33	2039.13	-2402.5	2113.23
1991-92	11034.2	6694.18	8466.23	7570.89	4552.32	2833.33	4385.06	895.35	1718.99
1992-93	11787.1	6000.00	9655.19	11130.4	5226.88	3313.83	5717.83	-1475.25	2093.05
1993-94	NA	NA	NA	NA	NA	NA	NA	NA	

Source : 1. Gulati, A. (1990) : "Fertiliser Subsidy : Is The Cultivator Net Subsidised ?" IJAE, Vol. 45(1)

2. Fertiliser Association Of India, New Delhi.

Table 3.9 : EXTENT OF SUBSIDY ON DIFFERENT TYPES OF FERTILIZERS IN WEST BENGAL

Year	Fertilizer consumed ('000 Tons)			Per Ton Subsidy on (in Rs)			Subsidy on (Rs. Million)			Total Subsidy	Subsidy to Non-Small/marginal Farmers
	N	P	K	N	P	K	N	P	K		
1980-81											
1981-82	156.93	62.47	39.06	662.93	-1180.04	1489.22	104.03	-73.72	58.17	38.84	29.81
1982-83	165.77	56.21	40.23	464.41	-1009.19	607.00	76.98	-56.73	24.42	44.68	14.99
1983-84	238.66	77.32	53.18	552.48	-730.15	492.02	131.85	-56.45	26.16	101.56	34.08
1984-85	246.24	91.89	67.59	1875.11	204.39	827.00	461.73	18.78	55.90	536.42	180.02
1985-86	256.83	92.31	59.62	2378.00	135.48	1096.70	610.73	12.51	65.38	688.62	231.10
1986-87	304.02	113.82	81.37	-190.02	-75.72	718.32	-57.77	-8.62	58.45	-7.94	-2.66
1987-88	347.65	128.92	84.66	645.73	364.62	905.02	224.49	47.01	76.62	348.12	116.83
1988-89	365.67	158.96	110.32	1409.08	2022.17	1903.65	515.25	321.44	210.02	1046.71	351.28
1989-90	381.63	175.76	113.71	2326.47	2071.73	2431.88	887.84	364.12	276.54	1528.50	512.96
1990-91	411.90	206.78	134.33	2093.13	-2402.51	2113.23	839.91	-49.68	283.87	626.98	210.41
1991-92	387.69	210.43	157.36	4385.07	895.34	1718.99	170	188.41	270.51	2158.96	724.22
1992-93	424.68	212.64	93.69	5787.13	-1475.24	1913.55	245.77	-31.37	179.28	2323.25	779.68
1993-94	425.31	183.21	136.57	NA	NA	NA	NA	NA	NA		

Source : As in Table 3.8

Table 3.10 : OUTSTANDING ADVANCES OF SCBs AND PACs AND SUBSIDY ON CREDIT IN WEST BENGAL

Year	Outstanding ST towards > 2 ha		ST >ha loan	Interest subsidy based on trade	
	SCBS	PACs	SCB+PACS	Percentage	Total (Million)
1980-81					
1981-82	252.5	305.9	558.4	1.90	10.03
1982-83	400.3	305.9	706.2	1.90	12.84
1983-84	350.7	305.9	656.6	2.25	14.09
1984-85	469.9	246.4	716.8	2.25	15.57
1985-86	737.0	240.3	977.3	1.25	11.92
1986-87	612.7	240.3	853.00	1.50	12.44
1987-88	477.9	240.3	718.2	1.50	10.41
1988-89	527.4	240.3	767.7	1.81	13.46
1989-90	613.2	240.3	853.5	1.81	15.01
1990-91	471.0	240.3	711.3	1.70	11.68
1991-92	706.2	418.1	1124.3	0.50	5.41
1992-93	-	-	-	0.50	-
1993-94	-	-	-	0.50	-

Source : Reports on Currency and Finance - Various Issues

Table 3.11 : EXTENT OF IRRIGATION SUBSIDY ON MAJOR AND MEDIUM IRRIGATION PROJECTS IN WEST BENGAL

(In Rs. million)

Year	Operation & Maintenance (O & M) Expenses	Gross Receipts	Difference (O & M less Receipts) [2-3]	Share of Small and Marginal Farmers	Irrigation Subsidy [4-5]	Share of Subsidy in O-M cost [%]	Subsidy as percentage of Gross Receipts	Subsidy percent of crop output
1980-81								
1981-82	32.52	3.49	29.03	19.29	9.74	81.61	278.80	0.002
1982-83	46.51	4.99	41.52	27.59	13.93	81.63	279.42	0.003
1983-84	54.85	17.16	37.69	25.04	12.65	62.82	73.69	0.002
1984-85	50.97	13.08	37.89	25.18	12.72	67.97	97.22	0.002
1985-86	82.70	9.00	73.70	48.97	24.73	81.48	274.94	0.004
1986-87	129.75	7.74	122.01	81.06	40.95	85.98	529.24	0.006
1987-88	138.24	9.42	128.82	85.59	43.23	85.20	459.09	0.005
1988-89	145.92	10.35	135.56	90.07	45.50	84.94	439.40	0.005
1989-90	155.36	10.50	144.86	96.25	48.62	85.25	463.18	0.005
1990-91	148.24	11.93	136.31	90.57	45.75	84.07	383.55	0.004
1991-92	192.76	13.36	179.40	119.20	60.21	85.09	450.73	0.004
1992-93	194.55	15.70	178.84	118.82	60.02	84.05	382.22	0.004
1993-94	249.76	14.63	235.13	156.22	78.91	86.07	539.33	0.004

Source : 1. Combined Finance and Revenue Accounts of the Union and State Governments in India

2. Government of West Bengal, Financial Accounts, West Bengal Government Press.

Table 3.12 : TOTAL PRODUCT SPECIFIC AMS TO WEST BENGAL AGRICULTURE

(in Rs. Million)

Year	Product Specific Subsidy to Rice	Product Specific Subsidy to Jute	Total AMS
1980-81	-1.06	NA	-1.06
1981-82	-2.06	NA	-2.06
1982-83	0.94	NA	0.94
1983-84	-0.75	-37.13	-37.88
1984-85	-0.35	-313.95	-314.30
1985-86	-25.18	-275.87	-301.50
1986-87	1.32	356.61	357.93
1987-88	-9.16	-69.42	-78.58
1988-89	-6.24	-259.43	-265.67
1989-90	-11.19	-215.07	-226.26
1990-91	-14.58	-348.84	-363.42
1991-92	-42.90	-323.60	-366.52
1992-93	-16.54	-561.60	-578.14
1993-94	-39.61	-3.7	-42.67

Table 3.13 : NON-PRODUCT SPECIFIC AMS TO WEST BENGAL AGRICULTURE

(OER) (Rs. in million)

Year	Credit Subsidy	Irrigation Subsidy	Fertilizer Subsidy	Electricity Subsidy	Seed Subsidy	Total	Percent of Value output of agriculture
1980-81	-	-	-	-	-	-	-
1981-82	10.03	9.74	29.81	5.89	-0.53	55.96	0.001
1982-83	12.84	13.93	14.99	10.98	-1.61	51.13	0.001
1983-84	14.09	12.65	34.08	20.24	-3.17	77.89	0.13
1984-85	15.57	12.72	180.02	22.53	7.94	238.78	0.36
1985-86	11.92	24.73	231.10	31.57	28.85	328.17	0.43
1986-87	12.44	40.95	-2.66	31.21	17.71	99.65	0.10
1987-88	10.41	43.23	116.83	37.25	-46.36	161.36	0.25
1988-89	13.46	45.50	351.28	120.27	-63.18	467.33	0.50
1989-90	15.01	48.62	512.96	153.14	-29.09	700.64	0.67
1990-91	11.68	45.75	210.41	188.07	-11.90	444	0.35
1991-92	5.41	60.21	724.22	302.07	NA	1091.64	0.73
1992-93	NA	60.02	779.68	349.33	NA	1189.03	0.72
1993-94	NA	78.91	-	398.91	NA	477.82	0.25

Table 3.14: TOTAL AGGREGATE MEASURES OF SUPPORT (AMS) TO WEST BENGAL AGRICULTURE

(Rs. Million)

Years	Product Specific AMS	Non-Product Specific AMS	Total AMS (2+3)	Total AMS as per centage of value of base year Agri. Production (4/5)*100
1981-82	-2.06	55.96	53.90	0.06
1982-83	0.94	51.13	52.07	0.05
1983-84	-37.88	77.89	40.01	0.04
1984-85	-314.30	238.78	-75.52	-0.08
1985-86	-301.50	328.17	26.67	0.03
1986-87	-355.93	99.65	-255.64	-0.26
1987-88	-78.53	161.36	82.83	0.09
1988-89	-265.67	467.33	201.66	0.21
1989-90	-226.26	700.64	474.38	0.49
1990-91	-363.42	444.00	80.58	0.08
1991-92	-366.52	1091.64	725.12	0.75
1992-93	-578.14	1189.03	610.89	0.63
1993-94	-42.67	477.82	435.15	0.45

CHAPTER IV

ACREAGE RESPONSE TO PRICES OF THE MAJOR CROPS OF WEST BENGAL

Introduction:

According to the final negotiations on agriculture in Uruguay Round of GATT agreement, the calculation of Aggregate Measures Of Support (AMS) has been agreed upon to calculate the level of protection given to the farmers by the government in a particular year. One of the major rationales of trade liberalization in agriculture is that developing countries are likely to derive a large advantage as a result of withdrawal of subsidy by the developed countries and consequent rise in world price of agricultural commodities. However, developing countries could benefit from expected rise in price of agricultural commodities if their production responds to price incentives. The farmers may be highly responsive to the fluctuation in price of the farm produce if the agriculture is significantly market oriented or they may not at all respond to price if they are still in the subsistence level. To be able to decide this issue it is important to know the basic agrarian structure of the developing economy. Therefore, it becomes important to examine the influence of price on total agricultural production.

The basic purpose of this chapter is to examine the acreage response of prices of two major crops of West Bengal, i.e, rice and jute. This chapter has been divided into two sections. Section I deals with the materials and methods while Section II is devoted to the

results and the discussion.

SECTION I : MATERIALS AND METHODS

To study the farmers response to prices in allocation of area under different crops, a number of studies have been made so far for explaining the acreage response of prices in developed and developing economies, and, in most of the cases, Nerlovian model of supply response is used either as such or with some modifications. For instance, in original Nerlovian model no risk factor has been incorporated but, many economists have included it in the equation for explaining the acreage response of prices in developing agrarian economies.

Regarding the choice of independent variable 'prices', different economists have taken different types of prices like procurement price, whole sale price or the farm harvest price. While some economists advocated the merits of absolute price as a best explanatory variable others prefer the relative profitability of one crop over its competing crop. Problems also crop up regarding the specification of 'risk', another independent variables which represents the risk factor. The two most used methods for capturing risk are the moving standard deviation or co-efficient of variation of prices of the preceding three years.

In our study the farm harvest price of autumn rice and jute have been incorporated in the model. This is because in West Bengal, most of the farmers are small and marginal and they sell their produce immediately after the harvesting in most of the cases

because they cannot afford to store it for long in expectation of better market price.

The co-efficient of variation in prices and relative profitability have been taken as the independent variables in the models. Standard Deviation has not been taken as a measure of risk since the distribution of standard deviation is not normal and hence, the estimate with standard deviation may not be a 'BLUE' estimate.

To check the relative importance of absolute price and relative profitability, both are taken separately in different models. The relative profitability has been calculated by dividing the value productivity of the crop in question by that of its competing crop by using the following formula :

Relative Profitability,

$$RP_{ij} = [\{(Yield_i)*(Price_i)\}/\{(Yield_j)*(Price_j)\}]$$

where, i and j in the subscript are crop in question and its competing crop respectively.

The major two crops in West Bengal are rice and jute. In our study, instead of total rice, only autumn rice is taken care of because rice is produced in West Bengal in three different seasons - autumn, winter and summer while jute, the competing crop to rice is produced only during autumn. Therefore, total rice is likely to make the estimate biased.

Specification of Model :

The model used in this study is of Nerlovian type along with the risk factor. The functional form of this model is as follows :

$$A_t = a_0 + a_1P_{t-1} + a_2A_{t-1} + a_3\sigma P_{t-1} + U_t.$$

We have taken the log-linear form of this equation while estimating the results. The co-efficients of this estimated log-linear equation gives directly the respective elasticities of different independent variables.

Since we used absolute farm harvest price and the relative profitability, separately for rice and jute each, there are altogether four equations which are as follows :

Equation 1 :

$$LogAR_t = a_0 + a_1LAR_{t-1} + a_2LP^R_{t-1} + a_3\sigma LP^R_{t-1} + U_1.$$

Equation 2 :

$$LogAR_t = a_0 + a_1LAR_{t-1} + a_2LRP^R_{t-1} + a_3\sigma LRP^R_{t-1} + U_1.$$

Equation 3 :

$$LogAJ_t = a_0 + a_1LAJ_{t-1} + a_2LP^J_{t-1} + a_3\sigma LP^J_{t-1} + U_1.$$

Equation 4 :

$$LogAJ_t = a_0 + a_1LAJ_{t-1} + a_2LRP^J_{t-1} + a_3\sigma LRP^J_{t-1} + U_1.$$

where,

AR_t = Acreage under rice for the year t.

AR_{t-1} = Lagged acreage under rice.

AJ_t = Acreage under jute for the year t.

AJ_{t-1} = Lagged acreage under jute.

P^R_{t-1} = Lagged farm harvest price of rice.

P^J_{t-1} = Lagged farm harvest of rice.

RP^R_{t-1} = Lagged relative profitability of rice over jute.

RP^J_{t-1} = Lagged relative profitability of jute over rice.

σP^R_{t-1} = Co-efficient of variation in lagged price of rice.

σP^J_{t-1} = Co-efficient of variation in lagged price of jute.

σRP^R_{t-1} = Co-efficient of variation in relative profitability of rice over jute.

σRP^J_{t-1} = Co-efficient of variation in relative profitability of jute over rice.

SECTION II : RESULTS AND DISCUSSION .

The result of the acreage response of absolute farm harvest price for rice and jute are summarised in Table 4.1 and Table 4.3 respectively. In Table 4.1, the results of two sub-equations, equation-1a and equation-1b are given. Equation 1a has been run without the risk factor and equation-1b has been run with the risk factor. This is done to see whether the inclusion of the risk factor can increase the explanation of variation in the dependent variable ,i.e, acreage under a particular crop or not. This can be checked with the variation in the value of R-square. The same procedure has been followed for the above mentioned rest three equations and the results have been given in Table 4.2, Table 4.3 and Table 4.4 respectively.

Table 4.1 : Regression Co-efficients, t-Values and Level of Significance of Acreage Response of Rice to Farm Harvest Price.

Equation	Variable	ß value	t Value	Level of Significance	R^2
1a.	AR_{t-1}	0.399	1.099	0.304	0.40
	P^R_{t-1}	0.301	1.074	0.314	
1b.	AR_{t-1}	0.036	0.106	0.918	0.64
	P^R_{t-1}	0.516	2.061	0.078*	
	σP^R_{t-1}	-0.125	-2.199	0.064*	

Note : The '*' indicates the level of significance at 10 per cent level .

Rice : The results in Table 4.1 shows that although in case of equation 1a, the lagged price and the lagged area under rice are both insignificant and the R-square is very low, around 0.40, the independent variable, the lagged price turned out to be significant in equation 1b. The co-efficient of variation in price, in equation 1b is also significant with its expected negative sign. The R-square in the equation is 0.64 which implies that due to inclusion of the co-efficient of variation, the risk factor, the R-square has increased.

Table 4.2 : Regression Co-efficients, t-Values and Level of Significance of Acreage Response of Rice to Relative Profitability.

Equation	Variable	ß value	t Value	Level of Significance	R^2
2a.	AR_{t-1}	0.651	2.785	0.024**	0.645
	RP^R_{t-1}	0.331	2.752	0.025**	
2b.	AR_{t-1}	0.676	2.418	0.046**	0.647
	RP^R_{t-1}	0.353	2.094	0.075**	
	σRP^R_{t-1}	0.013	0.199	0.847	

Note : The '**' indicates the level of significance at 5 per cent level.

The Table 4.2 shows that the lagged area under relative profitability of rice over jute is significant at 5 per cent level but the co-efficient of variation of lagged relative profitability does not have any significant impact on acreage response. Due to the inclusion of the risk variable the value of R-squares has increased very insignificantly, i.e, from 0.645 to 0.647.

If we compare Table 4.1 with Table 4.2 is very much clear that the risk involvement in the change in the lagged absolute farm-harvest price is very high and this

fluctuation plays an important role in area allocation in favour of rice while on the other hand, inclusion of risk factor does not materials the increase in the explanatory power of the equation.

The value of R-squares (0.64) entails that the absolute price alone cannot explain much of the variation in dependent variable. There are certain other factors which influence the decision towards allocation of land under rice. Relative profitability is one such independent variable. From Table 4.2 it is clear that the relative profitability of rice in West Bengal significantly influences the decision of area allocation under rice. The elasticity of the risk factor involved in relative profitability of rice, which is represented by the co-efficient of variation has turned out to be insignificant.

In both the cases of absolute price and relative profitability, the R-square, is 0.64. This indicates that apart from price influence on acreage response the influence of some other excluded factors are also quite important. One of these excluded factors is perhaps the increasing marginalisation of West Bengal agriculture. The number of small and marginal holding in West Bengal is 91.44 per cent and the area operated by small and marginal farmers is 66.44 per cent of their respective total during 1990-91. During 1985-86, they were 90.02 per cent and 63.34 per cent respectively (Chart 4.1). The average size of holding of the small and marginal farmers combined was 0.95 hectare in 1985-86 and after a slight improvement it became 1.00 hectare in 1990-91. This marginal nature compels the farmers to devote more land in favour of food grains, especially in favour of rice so far as West Bengal agriculture is concerned. This is because of the fact that since the land area is a major constraint, farmers

generally prefer to put it first in favour of rice and only later go on for commercial crops. Among other factors, the pattern of input use and their ability and accessibility also play crucial roles in decision making of farmers regarding area allocation. This notwithstanding, farmers do respond to relative profitability and shift area in favour of commercial crop if relative profitability levels are high.

Chart 4.1 : Information About the Number, Area and the Average Size of Operational Holding in West Bengal

	Small+ Marginal		Total		Per cent of Total	
	1985	1991	1985	1991	1985	1991
1. # of Operational Holding ('000)	5518	5746	6130	6284	90.02	91.44
2. Area Operated ('000 ha)	3574	3758	5643	5656	63.34	66.44
3. Avg. Size of Operational Holding (in ha)	0.95	1.00	0.92	0.90		

Source : Agricultural Census 1985-86 and 1990-91.

JUTE : Table 4.3 shows that the area allocation in favour of jute is highly responsive to the lagged absolute farm harvest price and its level of significance is at 1 per cent . The elasticity of lagged co-efficient of variation is insignificant which establishes the fact of less risk proneness of acreage response to absolute farm harvest price of jute.

A comparison of R-squares among different equations brings out that the explanatory power of relative profitability including risk involved works out to be the highest in the case of jute. Both, the farm harvest price as well as the relative profitability of jute, are significant at 1 per cent level. The sign of the risk factor is not negative but it can be ignored because of its insignificant value.

profitability of jute, are significant at 1 per cent level. The sign of the risk factor is not negative but it can be ignored because of its insignificant value.

Table 4.3 : Regression Co-efficients, t-Values and Level of Significance of Acreage Response of Jute to Farm Harvest Price.

Equation	Variable	ß value	t Value	Level of Significance	R^2
3a.	AJ_{t-1}	0.351	1.76	0.11	0.618
	P^J_{t-1}	0.237	3.33	0.01***	
3b.	AJ_{t-1}	0.160	1.11	0.30	0.621
	P^J_{t-1}	0.423	4.57	0.002***	
	σP^J_{t-1}	0.008	0.24	0.815	

Note : The '***' indicates the level of significance at 1 per cent level.

Table 4.4 : Regression Co-efficients, t-Values and Level of Significance of Acreage Response of Jute to Relative Profitability.

Equation	Variable	ß value	t Value	Level of Significance	R^2
4a.	AJ_{t-1}	0.171	1.335	0.218	0.845
	RP^J_{t-1}	0.431	6.244	0.00002***	
4b.	AJ_{t-1}	0.160	1.11	0.30	0.846
	RP^J_{t-1}	0.419	4.57	0.003***	
	σRP^J_{t-1}	0.008	0.42	0.815	

Note : The '***' indicates the level of significance at 1 per cent

The above inter crop study between rice and jute shows that the price elasticity of acreage response for rice is slightly better than jute whereas relative profitability elasticity of acreage response is higher in case of jute than that of rice (Table 4.5) . This indicates that rice is a more important crop in West Bengal and unless jute has edge

Table 4.5 : The Elasticity of Price and Relative Profitability To the Acreage Response of Rice And Jute

Crop	Price Elasticity	Elasticity of Relative Profitability
1. Rice	0.52	0.35
2. Jute	0.42	0.42

over rice in terms of relative profitability the farmers would not go in for its production on a large scale .

CHAPTER V

Summary and Conclusion :

The basic purpose of the Uruguay Round Agricultural Agreement (UR-AA) was to smoothen out the distortion in the marketing of agricultural inputs in the international market. To meet this objective, certain rules and disciplines have been framed and put in practice which are designed to reduce and gradually eliminate the differential governmental supports on promotion of export, domestic support on production and marketing and on food subsidy. But most of these rules apply at the national level. For example, the estimation of domestic support to various commodity is done for the country as a whole. Nevertheless, the GATT rules would have implications at the regional level also. But these implications would differ for different regions since India is a conglomeration of diversified agro-climatic regions with varied socio-economic conditions. Naturally, the implications of trade liberalization through subsidy reduction commitments and export promotions deserve the region wise or state level desegregated study. The agricultural trade liberalization through globalization of international trade not only influences the governments' attitude towards the agrarian development as a whole but also it has a spread effect and influences the individual decision making towards the change in land allocation and cropping pattern. The probable outcomes of GATT agreement in the national levels viz, i) rise in prices of all agricultural commodities,

ii) decrease in the erratic nature of international price iii) increase in foreign exchange earnings and iv) expected increase in farmers' welfare and farmer's income are expected to benefit the Indian farmers. But the effects would not be the same for all the regions or the states. An attempt has been made in this study to estimate the likely impact of UR-AA on West Bengal Agriculture. The purpose is not only to judge the performance of West Bengal agriculture in terms of GATT obligations, but also to clearly bring out the extent of subsidies being given to agriculture in the state. The following broad conclusions can be drawn from the study.

Domestic Support to West Bengal Agriculture :

The Domestic Support consists of Product Specific Support and Non-Product Specific Support. The estimation of product specific and non-product specific support as per the GATT methodology reveal that -

only two crops - rice and jute are being procured every year by the government from West Bengal.

The border prices of those two crops are generally higher than the domestic prices throughout the time period 1980-81 to 1993-94 except for the two years 1982-83 and 1986-87 for rice.

In the case of rice, during the decade of 80's, while the gap between the domestic price and border price was small the gap increased remarkably during 90's leading to

the highest negative support to the extent of Rs. 42.90 million in 1991-92 followed by Rs.39.61 million in 1993-94. During 80's, the negative support was below the range of Rs. 10 millions with the exception of Rs. 25.18 million during the year 1985-86. This indicates a steady increase in the competitiveness of West Bengal rice in the international market.

Although both the border price as well as the domestic price have increased over time for jute, the rate of increase in border price was more. This led to a steady increase in the gap between border price and domestic prices resulting in increasing the negative support provided to jute in West Bengal. During the time period 1983-84 to 1993-94, the extent of negative support to jute was more than Rs. 300 million a year all through the time span, with a maximum of Rs. 561.60 million in 1992-93.

The Product Specific Support to West Bengal remained negative all through the time span except for the year 1982-83. This is because the extent of price support for both rice and jute remained negative althrough. Therefore, West Bengal agriculture is indirectly net taxed so far as product specific support is concerned.

Almost all the inputs, like, seed, fertilizer, irrigation, credit, and electricity were supplied to West Bengal farmers at the subsidised rate during the time span 1981-82 to 1993-94. The quantum of the Non-Product Specific Support has increased steadily from Rs.55.96 million in 1981-82 to Rs. 1189.03 million in 1992-93, with a slight decline in 1982-83 when the NPS-AMS was Rs. 51.13 million. All through the time period, the percentage of total NPS-AMS to total value of agricultural output for the triennium base 1986-89 is less than even 1 per cent.

The input wise Non-Product Specific Subsidy estimation for West Bengal shows that:

The NPS through electricity has been increasing over time ranging from Rs 5.89 million in 1981-82 to Rs 398.91 million in 1993-94. the NPS for the years 1988-89 to 1993-94 are quite high with a maximum of Rs 398.91 million in 1993-94 which is more than 5 times of that of the average base year subsidy 62.91 million Rs in 1986-88.

The aggregate subsidy in fertilizer is positive through out the time span 1981 to 1993 except 1986-87 when it was Rs. 2.66 million if we consider only the case of medium and large farmers. Although during the first half of this time period the extent of subsidy was quite small, it was much higher in the second half and the extent of subsidy in 1992-93 was more than 26 times of the subsidy extended in the initial year 1981-82 (in 1981-82 total extent of fertilizer subsidy was Rs. 29.81 million whereas in 1992-93 it was Rs. 779.68 million).

If we consider the loss incurred by the West Bengal State Seed Corporation as the basis for the calculation of total subsidy given to the farmers through seed then in most of the years, starting from 1980-81 to 1993-94, the West Bengal State Seed Corporation had earned profits excluding the years 1983-84, 1984-85 and 1985-86. In these three years the total losses of the WBSSC is Rs. 2.37 million, Rs. 8.60 million and Rs. 5.28 million respectively. The total NPS on seed for the years 1983-84, 1984-85 and 1985-86 are Rs. 0.79 million, Rs. 2.89 million and Rs. 1.77

million respectively whereas for the rest of the years it is negative. In the base period 1986-88, the average NPS-AMS on seed was altogether negative to an extent of Rs. -9.18 million which rules out the problem of reduction commitment.

The short term outstanding advances towards medium and large farmers are steadily increasing, ranging from Rs. 558.4 million during 1980-81 to Rs. 1124.3 million during 1991-92. The fluctuation in the total subsidy is mainly due to the irregular behaviour of the interest rate differential.

In West Bengal, irrigation is an acute problem. The share of subsidy in M-O cost hovered around 81.61 to 86 percent during 1981-82 to 1993-94, being slightly less in 1983-84 and 84-85. The share of subsidy in gross receipt was abnormally high ranging from 73.69 percent in 83-84 to 539.33 percent in 1993-94. The average base year subsidy was Rs. 43.23 million, whereas the actual subsidy on irrigation ranged from Rs. 9.74 million in 1981-82 to Rs. 78.91 million in 1993-94.

On import hypothesis, Total Aggregate Measures of Support (TAMS) throughout the period 1981-82 to 1993-94 was well below the prescribed 20 per cent. The extent of positive support as a percentage of the base year (1986-89) value of agricultural output for West Bengal ranged between 0.03 per cent in 1985-86 to 0.75 per cent in 1991-92. The total AMS is negative for the years 1984-85 and 1986-87 with the extent of 0.08 per cent and 0.26 per cent respectively. This indicates that even if the GATT agreement is signed, there would not be any detrimental effect of it on subsidy structure of West Bengal agriculture. Moreover, according to the 1991 census data the

area under small and marginal holding is 66.44 per cent. Hence, the major chunk of the West Bengal farmers will remain outside the clutches of the subsidy reduction commitment even if West Bengal crosses the GATT prescribed extent of subsidy which is 20 per cent of the value of output of the triennium average.

But the fact that subsidy reduction commitments do not appply should not detract from the fact that very large subsidies are being given on fertilisers by the central government and on irrigation and power by the state government. The subsidies by the state government have seriously affected its capacity to undertake investment in rural infrastructure.

Price Response of West Bengal Agriculture :

The supply response of both the crops viz, rice and jute in West Bengal has been studied by analyzing the acreage response of rice and jute to their respective absolute farm harvest prices and their relative profitability against their respective competitive crops. The result of this study reveal that :

The acreage response of rice to the farm harvest price shows that the area allocation in favour of rice is highly responsive to the lagged absolute farm harvest price.

The risk factor involved in price has also turned out to be significant in the area allocation in favour of rice. Its negative sign shows the negative relation between the fluctuation in price and area allocation.

The relative profitability of rice over jute significantly influences the decision of area allocation under rice in West Bengal.

The risk factor in relative profitability is insignificant.

The decision of area allocation under jute is significantly responsive to the lagged absolute farm harvest price although the response of the risk factor is not significant. This indicates that so long the previous year farm harvest price remained higher, the farmers devote more land under it expecting a higher immediate return from the crop. Since most of the farmers in West Bengal are small and marginal farmers so, to meet the recurring on-farm demand and to repay the loan taken, the farmers sometimes allocate a part of their land to jute and the proportion increases with the increase in the farm harvest price of jute.

Policy Packages for the Further Accelerated Development of West Bengal Agriculture

It is true that during the decade of 80's, the West Bengal agriculture has gained momentum in production due to increase in productivity, but still, the lack of proper public or private investment in infrastructure and the increasing number of small and marginal holdings come in the way of adoption of technological practices to an optimum level. These basic institutional inefficiencies call for a reshuffling and changes in the government policies for achieving further development of agriculture. Some policy packages which are the urgent need of the day have been given below :

1. Although rice and jute are the two major crops in West Bengal, potato, mustard and rapeseed are also grown in West Bengal particularly in Rabi season, on a large scale. These crops have a high export potential. Therefore, West Bengal agriculture can be

made more remunerative by allocating more land under these cash crops which earn more profit. The diversification towards these crops should be through vertical integration of production, processing and marketing.

2. With the existing cropping pattern of rice and jute there is always a scope for shifting the areas to higher value varieties. In rice, more area should be devoted to finer aromatic varieties by encouraging production of Basmati.

A special variety of potato is grown in the south west Bengal which is of shorter duration and becomes mature only within 60 days. Further, its starch contain is very high. The only problem which prevents it to be popular is that due to its high starch content, it cannot be stored in cold storages. But now a days with the advent of technology this limitation can be overcome. Through vertical integration in value addition, this potato could be converted into potato chips or to dust potato which have a high potential in international markets. Special care should also be taken for the jute cultivation. Due to moribund condition of the jute industry, the incentives to jute production was going down and it was being replaced by the polyethylene bags. But since recycling is not possible for this synthetic bags demand is once again reverting back to jute products in the international market.

3. To make the state's agriculture more competitive, the production cost has to be brought down effectively. This can be done either through technological development or through providing support to the agriculture. Although the government is providing price support through procurement prices, yet the procurement price is very low as compared to the international market prices of different crops. So, there is still enough

scope to adjust it upward. There is a case for withdrawal of excessive subsidies on inputs: This should enable the state government to increase its investment in rural infrastructure.

4. There is a dire need of close supervision for the state's agriculture during the implementation phase of the GATT Agreement for maximising gains from more trade in agriculture, for long term sustainability and for a higher growth of the sector.

5. West Bengal agriculture is characterised by the preponderance of small and marginal farmers. It is difficult for them to arrange and undertake export on their own. Therefore, there is a need of grass root level Cooperative Societies or other self help groups to enable these farmers to come together. These societies should also provide necessary expertise and create appropriate infrastructure for undertaking exports for these farmers.

Bibliography

Balasubramanyam, V.N. (1995) : "India's Trade Policy Review", *The World Economy*.

Baldwin, R.E (1995) : " An Economic Evaluation of The Uruguay Round Agreement", *The World Economy*.

Behrman, J.R. (1968) : **Supply Response in Underdeveloped Agriculture**; North Holland Publishing Company,

Bhalla G.S. (1995) : " Globalisation and Agricultural Policy in India", *Indian Journal of Agricultural Economics*, Vol. 50; No. 1 (Jan. - Mar.).

BM (1992) : "Eroding Political Support for Structural Adjustment", *The Economic and Political Weekly*, Jan.25.

Brando, A. and W.Martin (1993) : "Implications of Agricultural Trade Liberalization for the Developing Countries", World Bank Working Paper; No. WPS 1116.

Chandrashekhar C.P. (1993) :Agrarian Change and Occupational Diversification : Non Agricultural employment in West Bengal : *Journal of Peasant Studies* , Vol.20, No.2, January.

Cline, W.A. (1995) : " Evaluating the Uruguay Round", *The World Economy*, Vol.18, No.5.

Dasgupta, R. R. (1993) : " Subsidies, Patents and Market Access in Dunkel Draft", *The Economic and Political Weekly*, Vol.28, No.18; May 1.

Dean, J.M. (1995) : "The Trade Policy Revolution in Developing Countries", *The World Economy*.

Dhar, B. and C.N. Rao (1992) : "Complete Denial of Developing Countries' Interest", *The Economic and Political Weekly*, Feb.8.

Feketekuty, G. (1993) : "The New Trade Issues: Competition" OECD, mimeo.

Government of India, Ministry of Commerce(1992) : "The Uruguay Round of Multilateral Trade".

Gulati, A. (1990) : "Fertiliser Subsidy : Is the Cultivator Net Subsidised", *Indian Journal of Agricultural Economics*, Vol. 45; No. 1.

Gulati, A. and Sharma P.K. (1991): "Government Intervention in Agricultural Markets : Nature, Impact and Implications", *Journal of Indian School of Political*

Economy, (Apr.-Jun.).

Gulati A. and Sharma A.N. (1992) : "Subsidising Agriculture : A Cross Country View", *The Economic and Political Weekly*, Vol.27, No.39 (Sept.26).

Gulati A. and Sharma A. (1994): "Agriculture Under GATT: What it Holds For India?", *The Economic and Political Weekly*, (July 16).

Hamilton C. and J. Whalley (1995) : Evaluating the Impact of the Uruguay Round Results on Developing Countries", *The World Economy*, Vol. 18; No.5.

Hoekman, B.M and P. Mavroidis (1994): "Competition, Competition Policy and GATT", *The World Economy*, Vol.17; No.2.

Ingersent K.A, A.J. Rayner and R.C. Hine (1995) : "Ex-post Evaluation of The Uruguay Round Agricultural Agreement", *The World Economy*, Vol.18; No.5.

Junankar, P.N. (1981) : "Do Indian Farmers Maximise Profits?", *Journal Of Development Studies*, Vol.17; No.1.

Kaul, J.L. and D.S. Sidhu (1971) : "Acreage Response to Prices For Major Crops in Punjab - An Econometric Study", *Indian Journal of Agricultural Economics*, Vol.26.

Keayla, B.K. and B.Dhar () : "Indian Pharmaceutical Industry and Patent Regime For Drug Industry", National Working Groups on Public Laws.

Krishnaswamy, K.S. (1994) : "Agricultural Development Under New Economic Regime", *The Economic and Political Weekly*, June 25.

Lloyd, P. and G. Sampson (1995) :"Competition and Trade Policy : Identifying the Issues After the Uruguay Round", *The World Economy*, Vol.18; No.5.

Low, P. and A. Yeats (1995) :"Nontariff Measures and Developing Countries : Has the Uruguay Round Levelled the Playing Field ?", *The World Economy*, Vol.18; No.5.

Nayyar, D. (1992) :"Intellectual Property Rights and LDCs - Some Strategic Issues", *The Economic and Political Weekly*, Feb.

Neary, P.J. (1995) :" Trade Liberalization and The Shadow Prices in the Presence of Tariffs and Quotas", *International Economic Review*, Vol.36; No.3.

Nguyen, T., C. Perroni and R. Wigle (1995) :"A Uruguay Round Success?", *The World Economy*, Vol.18; No.5.

Panchamukhi, V.R, B. Dhar and Mohanty (19) :"Analysis of the Challenges Arising from the Agriculture Related Agreements of the Uruguay Round", RIS for the Non-Aligned and Other Developing Countries, New Delhi.

Rao, C.H.Hanumantha (1994) :"Reforming Agriculture in New Context", *The Economic and Political Weekly*, April 16-23.

Rao, V.M (1994) : "Agriculture and Liberalisation : Some Implications for Development Policies", *The Economic And Political Weekly*, April 16-23.

Rogaly B., B.Harris White and S.Bose: "Sonar Bangla? Agricultural Growth and Agrarian change in West Bengal and Bangladesh " , *The Economic and Political weekly* , July 22, 1995, Vol 30, No.29.

Saha A. and M. Swaminathan : " Agricultural Growth in West Bengal in the 1980's - A disaggregation by districts and crops" , *The Economic and Political Weekly*, March 26 1994.

Sen Abhijit (1992) " Economic Liberalisation and Agriculture in India " , *Social Scientist* , 20,11, November.

Shukla, S.P (1992) :"Gains of India From Dunkel Text Turned Negligible", *The Economic Times*, May 1.

Tarkunda, V.M (1994) :"Final GATT Agreement: An Assessment", *The Economic and Political Weekly*, Sept.3.

Thomas, P. S. Singh, A. Kanitkar, S. Ahmend and E. M. Johnson (1994): "Dunkel Text: Implications for Rural Sector", *The Economic and Political Weekly*, March 26.

Urff, W.V (1995) : "The Results of Uruguay Round Concerning Agriculture and Their Consequences", *Economics*, Vol.51.

Data Source & Govt. Publication :

Annual Report on the Working of State Electricity Boards and Electricity Departments (Power & Energy Division), Planning Commission, Government of India, Oct.'95.

C.A.G Reports (Commercial)on West Bengal.

Centre for Monitoring Indian Economy (CMIE) (1993) :" Performance of Agriculture in Major States , 1967-68 to 1991-96, Bombay.

Combined Finance and Revenue Accounts of the Union and State Government of India (upto 86-87), Government of West Bengal, WB.

Fertiliser Statistics, Fertiliser Association of India, New Delhi.

Economic Review , Government of West Bengal , Calcutta.

Financial Accounts, Government of West Bengal, West Bengal Government Press, West Bengal.

Monthly Statistics of Foreign Trade, DGCIS, Calcutta.

GATT Agreements - Final Text of Uruguay Round , 1994 , World Trade Centre , Bombay,(MVIRDC).

Report of The Committee on Agricultural Productivity in Eastern India, Reserve Bank of India (1984) , Vol I, Bombay.

Reports on Currency and Finance, Reserve Bank of India.

Statistical Abstract , West Bengal , 1978-89, Calcutta.

Statistical Abstract of India, Central Statistical Organisation Department of Statistics , Ministry Of Planning , Govt of India.