Economic Policy Paper
on
High-Value-Added and Export-Oriented Business Sector:
Agro-Based Industries

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Economic Policy Paper on
A High-Value-Added and Export Oriented
Agro-based Industries

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Table of Contents

1. AGRO-BASED INDUSTRIES IN BANGLADESH

The Agribusiness sector is a 'chain' of industries directly and indirectly involved in the production, transformation and provision of food, fibres, chemicals and pharmaceutical substrates.

'Links' in the agribusiness 'chain' include the following industrial sectors :

- **Primary production** of commodities such as unprocessed food, aqua-culture, fibre, chemical and pharmaceutical substrates.
- **Tertiary transformation** of the 'commodities' into 'value added' products where the value is derived from the process of transformation.
- The **supply of inputs** to the primary and tertiary sectors.
- **Retail and wholesale** provision of commodity and value added food, fibre and related products to consumers.
- And the **provision of services** such as education, banking, finance, investment and technical advice to all links in the chain.

Agribusiness encompasses all activities from the 'paddock to the consumer' that are relevant to the eventual production transformation /value adding, distribution and retailing of food, fibre and associated products.

"**Agribusiness** is an alternative nomenclature for **food or fibre systems" –** where the system encompasses the complex chain of interactions that facilitates the production of commodities, their transformation and eventual delivery to the consumer[1].

The **Agribusiness Value Chain** is another term used to describe **agribusiness.**

The Agribusiness Value Chain is made up of both **'knowledge'** and **'effort'** inputs. **Knowledge** inputs into the agribusiness value chain include :

- Agricultural and agribusiness **education.**
- The **'services'** sector, including banking, finance, legal consulting and advisory services.
- And **policy and regulatory** activities in regional, state and federal governments.

Effort inputs into the agribusiness value chain include:

- Production of commodities such as meat, grains, aquaculture, other animal products, horticultural produce, plant and animal fibre, agri-forestry, etc.
- The supply of inputs for the production of food, fibre, chemicals and pharmaceutical substrates and for adding value or transforming commodities.
- Value adding activities such as transformation of agricultural commodities by processing, preparation, packaging and distribution.
- And the marketing and retailing of commodities and value added food and fibre products.

[1] This definition is from the web page of the Agri-Business Association of Australia.

2. RATIONALE FOR FOCUSING ON AGRO-BASED INDUSTRIES

The present study focuses on high value added export oriented agro-based industries. As stated earlier, value adding activities consist of the following:

Transformation of agricultural commodities by processing, preparation, packaging and distribution. The present study focuses both on Agro and Agro-processed products where value has been added by the above process.

Growth of agro-based industries has become crucially important to Bangladesh because of the following reasons:

1. The agricultural sector has been stagnating. There has been no real acceleration of agricultural growth despite extensive Governments efforts with respect to seed-fertiliser-water technology. The government has embarked upon market-oriented reforms since the eighties which will, it is expected, provide demand stimulus to the growth of the sector. Agro-based industries will play a vital role here.

2. With the phasing out of the Multi-Fibre Arrangement (MFA), a crisis is looming in the exports of readymade garments. Garments dominate the total exports of Bangladesh and are the biggest earners of foreign exchange. The quota received under the MFA facilitated the growth of such exports from Bangladesh. However, under the Uruguay Round Agreement the MFA will be phased out. After this phasing out Bangladesh will have to face stiff competition from larger producers who are highly competitive such as China, India, Pakistan, etc. Hence there is a need to increase the competitiveness of the garments industry and at the same time we have to find new items of exports. Agro-based industries' products have high export potential. Already Bangladesh is exporting agro- and agro-processed products.

3. Contribution to poverty alleviation : About 84 per cent of the population live in rural areas and are directly or indirectly engaged in a wide range of agricultural activities. The Grameen Bank, NGOs, the Bangladesh Rural Development Board, etc. have been financing agro-based projects which contribute to poverty alleviation.

3. PROCESSED PRODUCTS FROM FRUITS AND VEGETABLES

There is a whole range of products that are prepared from fruits and vegetables, which are shown below in Table 1.

Table -1

Some Products from Important Fruits and Vegetables

Fruit or Vegetable	Candy	Pulp or Puree	Pure Juice (Plain)	Cordials	Squashes	Syrups	Barley Waters	Jam	Jelly	Marma-lade	Cheese	Preserve
Amra	$	$	$	$	$	*	$	*	*	$	@	*
Banana	*	*	$	$	$	@	$	@	@	$	$	@
Cashew Apple	@	$	*	*	$	*	$	*	$	$	$	*
Guava	*	*	$	$	$	*	$	*	*	$	*	@
Grape-fruit	*	$	*	*	*	*	*	*	*	*	$	$
Jack-fruit	*	@	$	$	*	*	$	*	*	$	$	@
Lime	*	$	@	$	*	*	*	$	$	$	@	*
Mango	*	*	$	*	*	*	*	*	$	$	@	*
Papaya	*	*	$	$	*	*	$	*	*	$	@	$
Pineapple	*	$	*	*	*	*	$	*	*	$	$	*
Tomato	*	*	*	$	$	$	$	$	$	$	$	$
Carrot	*	$	$	$	$	$	$	*	$	$	$	*
Cauliflower	*	$	$	$	$	$	$	$	$	$	$	$

*-Suitable @-Partially suitable $-Not suitable

Some of the products are described below.

FRIED PRODUCTS

Starchy foods like bananas can be fried as chips and eaten as snacks. This kind of product has a shelf life of several weeks.

1. Bottled and Canned Products

   Fruits can be preserved in jars with hot sugar syrup and vegetables in jars with hot brine. The jars are sealed and pasteurized. Squashes and syrups can also be made in bottles. Fruits and vegetables can be preserved in hermetically sealed sanitary cans. Canning machinery is capital-intensive at the initial stage.

2. Dried Fruits and Vegetables

   Dried fruits, vegetables, herbs and spices are high-value, low-volume products. Drying/dehydration can be done in cabinet type solar driers and hot air driers using gas/electricity as the source of energy. Bio-gas as a source of energy may be a possibility in rural areas. Osmotically dried fruits are a special kind of product which has vast export potential.

3. Chutneys

   Chutney is made from a variety of fruits and vegetables with sugar, spices and sometimes vinegar. Most products are boiled, which helps pasteurization.

4. Pickles

   Vegetables such as cucumber, cabbage, olive, onion, etc. are fermented by lactic acid bacteria, which can grow in a low concentration of salt. Sometimes sugar is added to increase the rate of fermentation or to make the product sweeter. Vegetables may be packed in vinegar; salt and sometimes sugar is added to produce a variety of pickled products.

5. Salted Vegetables

   Chopped vegetables can be preserved in salt by arranging them in alternate layers of vegetable and salt in a sealed container. High salt content can be washed away before consumption.

6. Jam, Jelly and Marmalade

   Jam is a solid gel made from fruit pulp, juice of a single fruit or combination of fruits. In mixed fruit jam, the first named fruit should be at least 50 per cent of the total content. Sugar content should be between 68-72 per cent. Jellies are produced by using filtered juice instead of fruit pulp and are crystal clear. Marmalade is produced mainly from clean citrus juice and has fine shreds of peel suspended in the gel. Fruit content should not be less than 20 per cent.

7. Juices

There is growing a trend in urban centres for consumption of juices. The base material is fruit pulp. Fruit juices should be pure juices.

8. Squashes, Cordials

These are diluted with water according to personal taste before drinking. Squashes are made with 30 per cent fruit and sugar syrup. Cordials are crystal clear squashes.

9. Syrups

Syrups are filtered juices, thickened by boiling until the sugar content reaches 50-70 per cent. Syrups can be made from a wide range of fruits.

10. Paste and Purees

The most common types are of tomato and garlic. The concentration of solids in the paste is normally around 36 per cent. In some preparations sugar, salt and vinegar are added to assist preservation.

11. Sauces

Sauces are thick, viscous liquids made from prepared fruits and/or vegetables with salt, sugar, spices and vinegar.

12. Fruit Cheese

Fruit cheeses are fruit pulps that are boiled until they have a final sugar content of 75-85 per cent. They are made as solid blocks and can be cut into bars and cubes.

13. Fruit Leather (Aam Sattya)

After the fibres and other materials are removed from the fruit juices, they are boiled and spread over a fine cloth and dried in the sun. Mangoes are most suitable for this recipe.

14. Papain

Papain is an enzyme found in the skin of the unripe papaya. It neutralizes protein and is industrially used as a meat tenderizer. The dried latex contains this enzyme.

15. Bromelin

Similar enzymes can be obtained from pineapples and are used in tanneries for the graining of finished leather.

4. STATUS OF AGRO-BASED INDUSTRIES

In rural Bangladesh the agro-processing enterprises consist of about one fifth of the total number of non-farm micro-enterprises generating a quarter of the total rural employment. Table 2 and 3 below show some of the major micro-enterprises and industries along with their contribution in respect of employment generation, poverty alleviation and GDP growth.

Table -2

Distribution of SMEs by Broad Industrial Sectors

Industrial Sectors	No. of Enterprises		Employment	
	No.	%	No.	%
Manufacturing	160	41.00	899	38.39
Agro-processing	76	19.00	571	24.38
Services	156	40.00	872	37.23
Total	392	100.00	2342	100.00

Source : Baseline survey on micro-enterprises, MEDU (Micro-Enterprises Development Unit), Agrani Bank, Dhaka, 1997.

(a) In the BUP (Bangladesh Unnayan Parishad) 1992 study, agro-based and agro-support MEs together constituted nearly 50 per cent of the total sample units (54 enterprises) with service activities accounting for roughly 22 per cent and miscellaneous categories for the remaining 20 per cent.

(b) Table 2 presents data on the number of MEs and their contributions to employment by desegregated industry types comprising the broad sectors. The sub-industry classification has been made in such a way that the products produced by a ME fall under a single product heading.

(c) It will be noted from the table that four industry sub-sectors dominate the MEs; these are food and allied products, textiles, fabricated metal products and wood products. A similar ranking of sub-industry categories also emerged from the BUP study of 54 MEs, with these four major sub-sectors together accounting for about 98 per cent of the sample MEs and about 99 per cent of the workers engaged in them. In the Kranti sample, these proportions are respectively 87 per cent of the total enterprises and 92 per cent of the total workforce engaged in them. **Thus, the industrial composition of the small-scale and micro-industries in the rural areas at the national level.**

Table -3

Number of ME Enterprises and Employment by Industry Types[2]

Industry Types	Enterprises		Employment	
	No	%	No	%
Food and allied Industry				
Poultry farming	14	4.5	37	1.9
Bakery production	15	4.8	144	7.6
Milk production	11	3.6	79	4.1
Rice mills	3	1.0	7	0.4
Rice boiling and milling	23	7.4	319	16.6
Flour mills/wheat crushing	3	1.0	10	0.5
Chira/Muri processing	4	1.3	18	0.9
Oil mills	11	3.6	42	2.2
Ice and ice-cream making	4	1.3	19	1.0
Fisheries	1	0.3	6	0.3
Dairy farms	1	0.3	4	0.2
Beef fattening	1	0.3	1	0.1
Sub-total	91	29.45	686	35.8
Fabricated metal products, machinery and aluminium household goods	2	0.7	24	1.3
Engineering workshops (lathe)	20	6.5	136	7.1
Engineering workshops (welding)	34	11.0	197	10.3
Bobbin manufacturing	3	1.0	27	1.4
Brassworks	3	1.0	22	1.2
Blacksmithy	1	0.3	3	0.1
Radio assembling	3	0.3	3	0.1
Rickshaw/van assembling	9	2.9	27	1.4
Shakha manufacturing	1	0.3	3	0.1
Poultry cage making	1	0.3	7	0.4
Sub-total	75	24.3	449	23.4
Textiles :				
Tailoring	40	12.9	227	11.8
Ornaments	19	6.2	145	7.6
Screen printing	1	0.3	4	0.2
Handlooms	11	3.6	124	6.5
Fish-net making	1	0.3	11	0.6
Plastic rope making	1	0.3	7	0.3
Sub-total :	73	23.62	518	27.0
Wood, cane and bamboo :				
Cane and bamboo works	4	1.3	30	1.6
Woodwork	22	7.1	17	0.9
Saw mills	11	3.6	77	4.0
Industry Types	Enterprises		Employment	
	No	%	No	%

[2] Decimals are rounded off.

Sub-total : Others :	377	12.0	124	6.5
Printing press	5	1.7	22	1.2
Packaging	1	0.3	4	0.2
Photography	16	5.2	44	2.3
X-ray	2	0.6	18	0.9
Footwear making	2	0.6	14	0.7
Pottery	3	1.0	13	0.7
Sanitary ware	3	1.0	13	0.7
Tiles making	1	0.3	11	0.6
Sub-total :	33	10.7	139	7.3
Total :	309	100	1916	100

Source : MEDU, 1997.

The MEs are small-scale units, which are labour intensive and use mostly traditional technologies that are widely known. While the overwhelming majority of the sample MEs covered by both the Kranti and BUP studies were found to be dependent on traditional technologies, certain mechanised production techniques were in use by industries such as rice mills, wheat crushing mills, oil mills, saw mills, flour mills, metal works, printing and publishing works, ice-cream plants and engineering workshops. The range of technologies used by these industries covers almost the entire spectrum, from simple indigenous techniques learned at home to sophisticated, imported machine tools. Lack of knowledge about modern technology, non-availability of foreign exchange, low production capacity and high running costs, etc. were the major problems prohibiting use of modern technology. While nearly two-thirds of the MEO (Micro-Enterprises' Owners) in both studies indicated their willingness to introduce new and improved technologies to achieve savings in production costs and increase profitability, the majority of them had no idea about how to introduce technological changes and adopt modern technologies. Further, unwillingness resulting from inertia and lack of innovativeness and, above all, the liquidity crisis appeared to be the most important reasons for the predominant use of traditional technologies by the MEOs. Unfortunately, like their counterparts in other small-scale rural industries, the MEOs do not appear to have adequate awareness of the virtues of change and modernisation.

Similar industrial and product composition of the rural industries in Bangladesh emerged from the Rural Industries Study Project (RISP) carried out by the BIDS (1981) with a sample of roughly 57,000 small and cottage industrial units.

5. EXISTING SCENARIO OF AGRO-PROCESSING INDUSTRIES IN THE FORMAL SECTOR

While the above enterprises are in the informal sector, catering to the restricted local market, in the formal sector the processing of fruits and vegetables is a major industry. It has wide backward and forward linkage and great export possibilities. Such fruit and vegetable processing industries produce, as stated earlier, fruit juice, squash, sauce, ketchup, jam, jelly, marmalade and similar other products on a small scale. The packaging materials they use are mostly glass/plastic containers and flexible packs, which are produced locally. At present 62 Agro-Processors have been registered with the Bangladesh Agro-Processors Association (BAPA).

SOME SELECTED AGRO-PROCESSING INDUSTRIES

1. Pran Food Factory –Ghorasal

This food-processing unit was established in 1992-93 in the private sector. The industry has now twelve lines of production : Canning lines for processing fruits and vegetables, returnable bottling unit with crown caps for fruit juice, production of sherbet, squash, production of jam, jelly, pickles, achar in glass bottles, jars with pilfer proof caps/metal caps, tetrapack unit for mango and orange juice, dry food products (chanachur & similar other products), extruded products (chips), dehydration unit for mango leather, candied jack-fruit, orange drink in plastic bottles, mineral water unit, two units for making plastic bottles for mineral water and orange drink.

Raw materials are procured through contract farming or from suppliers. The industry has a programme for production and processing of baby corn, baby cucumber, mushroom and other food products for export. Pineapple and mango are the two main fruits being handled, with a future programme for tomato and guava.

The sanitary cans are being imported from Thailand, returnable bottles from India, and crown caps from Sri Lanka. The glass bottles and jars with pilfer proof and metal caps are locally made. The glass bottles/jars are not of international standard and are far from perfectly neutral. Lug caps are not locally made and have to be imported.

Recently the industry installed a tetrapack plant for processing mango and orange juice and an extruder with processing unit for production of chips. The industry is also exporting canned fruit products, achars, pickles, etc.

2. Multiple Juice Concentration Plant (MJCP) at Mohra, Kalurghat, Chittagong.

The plant was set up in 1983 by the Muktijodhya Kalyan Trust in the public sector for bulk concentration of pineapple and tomato juice. Annual production capacity is 1600 tonnes of pineapple concentrate and 1800 tonnes of tomato paste. It has a quality control laboratory for testing the products. The plant, however, is not running regularly. During the season the plant operates for a short time and the products are supplied to local food industries. The plant has no outlet for a local market. It is reported that the cost of production does not make it commercially feasible.

3. Rangamati Food Products, Rangamati

This is a canning plant set up in 1981 in the private sector for producing canned food of various kinds. The main raw material is locally produced pineapple. Only 25-30 per cent of the capacity is now utilised.

4. Afsar Food Industries, Kamrangir Char, Dhaka

This industry has a very good canning plant, tube ice plant and cold storage facilities. The canning line has facilities for seaming round and deep drawn cans. It has a double chamber horizontal autoclave for heat-processing of canned products. In 1970 and later on the industry produced and exported canned hilsa fish and shrimp. But it has been lying

idle for the last few years. The new management is now planning to initiate production of various kinds of food products under a new name.

6. STATUS OF AVAILABLITY OF AUXILIARY CHEMICALS AND PRESERVATIVES

6.1 SALT AND SUGAR

The Bangladesh Sugar and Food Industries Corporation can manufacture refined sugar of pharmaceutical grade in one of their sugar mills provided there is a demand for it. The quality of sugar they are producing for the local market is not suitable for use in processing exportable products.
Rahman Chemical Ltd. produces starch, glucose, dextrose and liquid glucose and fructose syrup. Liquid glucose and fructose syrup can be used in fruit juice preparation and in canning and preservation of fruits.

6.2 FOOD COLOURS AND FLAVOURS

There are a few agencies importing these chemicals from the UK and Germany. Trans World Services imports certain food colours and flavours from the UK.

6.3 CHEMICALS

These include citric acid, pectin, CMC (carboxymethylcellulose), preservatives like sodium benzoate and NA/K metabisulfite. These are all imported. Some are imported from China, Japan, Sweden and other countries. The quality of these chemicals varies and it is very difficult to use them for production of quality food products for export.

7. STATUS OF AVAILABILITY OF PACKAGING, FILLING AND SEALING EQUIPMENT

There is a wide range of packaging materials that can be used for the packaging of foods. Glass jars and bottles can be made available from local glass works. Because of heavy weight, high bulk and fragility, glass containers are expensive to transport long distances. Plastic pots and bottles are now increasingly becoming popular for lower production and distribution cost. Pots can be heat sealed with a foil lid and with a snap on plastic lid. For dried products and some other kinds of products, different types of plastic films are being increasingly used. The properties of some of the films are given in Table-3. These films can be heat sealed with an impulse sealer with adjustable time and temperature control.

8. ISSUES RELATED TO AGROBASED INDUSTRIES POST-HARVEST LOSS

One of the major problems faced by agro-based industries is the post-harvest loss. There is no data available for the extent of losses of perishable commodities in Bangladesh. Rabbi carried out a study in 1980-82 and found the extent of loss in paddy to be about 6-7 per cent from farm to farmer's house. Kranti Associates found storage and transit losses in rice to be 10.36 per cent. In 1984 Kazi Maziruddin carried out a study along with Rabbi on the extent of post-harvest losses in potato and found the loss to be :

a) On the farm : 6.8 per cent
b) BADC cold storage : 8.1 per cent

The amount of post-harvest losses of fruits and vegetables has been reported to be between 5-25 per cent in developed countries and 20-50 per cent in developing countries. Post-harvest loss has been reported to be 40-43 per cent for perishable commodities. This is a clear indication that developing countries are yet to evolve appropriate technologies to minimise post-harvest loss. Bangladesh is not an exception. Post-harvest losses in Bangladesh can be generally ascribed to :

(i) Inherent perishability of fruits.
(ii) Harvesting before maturity in the case of mangoes, bananas, pineapples, etc.
(iii) Traditional methods of harvesting employed and rough handling and indiscriminate selection of fruits from heaps at various sites.
(iv) Unsatisfactory methods of packing.
(v) Adverse post-harvest conditions and abnormal weather conditions at the time of maturity and harvest of fruits.
(vi) Lack of proper technology for handling, storing and processing.

The development of appropriate technology for reducing post-harvest losses can be highly cost-effective and can have an immediate impact on total production. Further appropriate post-harvest technology should be developed, particularly for export markets, to maintain competitiveness.

8.1 IMPROVING POST-HARVEST HANDLING

Fruit harvesting, handling, grading, packaging, storing, and transportation practices followed by the growers and traders are all developed locally and these techniques do not meet the standard requirement. Fruits are either manually harvested or handpicked. As a result, the damage caused to harvested fruits is high. Packaging and storage of fruits are often done in an improvised manner. Only highly perishable items are packed, mostly in bamboo crates. No refrigerated transport is used. Hardly any post-harvest treatment is resorted to except in the case of bananas and mangoes, where some artificial ripening is done.

Measures to improve post-harvest handling should be taken by the private sector with help from the Ministry of Agriculture. The Mango Research Centre at Chapai Nawabganj should take strong measures for improving post-harvest handling and packaging. Similar approaches can be made by the private sector in different growing and production areas like Madhupur and Sylhet for pineapple handling, packaging, and transport.

Transportation of fruits from production point to the market place suffers from a number of constraints, mainly the lack of an adequate number of medium-size trucks, poor road network including unsafe bridges, inadequate ferry capacity, and also the declining river transport capacity due to deteriorating landing facilities and the silting up of rivers. The railway plays a negligible role in transport of fruits.

Fruit marketing is done almost entirely by the private sector. Numerous traders buy the produce either at the farm gate or at primary or secondary markets on behalf of the wholesale commission agents, who operate in the major consumption areas.

There are about 10,000 rural markets where marketing of agricultural commodities takes place. The physical facilities of these markets are poor, to say the least. The unhygienic conditions of these markets contribute significantly to the rapid deterioration of the produce.

8.2 UPGRADING TRADITIONAL TECHNOLOGY FOR FOOD CONSERVATION

Food processing technology has not developed in the proper manner. Whatever technologies are available are home-based or of the cottage industry type. The necessary infrastructure is also lacking. The food processing technologies in the country at present are limited to the preparation of traditional products, e.g. pickles, achar, mango leather, salad *and* brined products, jam, jelly, etc. The existing food processing industries should effect their own improvement by taking advantage of emerging technologies and making more efficient use of existing technologies which are adapted to local conditions. There is a need for R&D activities in this direction by national institutes like the Institute of Food Science & Technology, BCSIR, and the Post-Harvest Technology Division, BARI. In order to upgrade traditional technology the following steps are necessary :-

i) To create awareness of the importance of agro-processing at all levels.
ii) To develop the necessary trained manpower.
iii) To develop appropriate technology.
iv) To prevent food losses by :-
    a) Improving the farm- and village-level storage structure.
    b) Improving rodent control.
    c) Creating facilities for handling and processing fresh produce.

8.3 PRIORITY AREAS

Drying/Dehydration

(a) Natural sun-drying combined with artificial methods when fuel is available is a convenient technology for drying vegetables and fruits. Cabinet-type solar driers in rural households should be very effective for food preservation during the dry season.
(b) The variety of food products which will benefit from improved technology in the field of sun-drying and dehydration is enormous. Dehydration technology ranges from large-scale industrial dehydration to small-scale driers suitable for villages and households. The absence of adequate cold storage and transport facilities do not adversely affect dried products because they are lightweight and can be stored and transported easily. Solar drying is accessible to most farmers and small businessmen because of low capital cost and ease of operations. Along with drying techniques and facilities, the markets for dried fruits and vegetables also have to be developed.
(c) Jam, jellies, squashes, syrups, pickles and achars can easily be prepared on a small scale. All these products should be standardised properly.
(d) Honey production can be increased and its quality improved by appropriate technology. This will also make available beeswax for cosmetics industries.

9. INDIGENOUS INDUSTRIES

There are some local industries which are not thriving due to various reasons. One such industry produces a kind of sweet using sesame seed (tiler khwaja) mainly in the northern part of the country. It may be worthwhile to look into the problems of this industry for its proper development and growth.

If we have to promote the agro-processing industry it should be done in the domain of the private sector. Prospective entrepreneurs should come forward to establish food-processing industries and promote processed products for local and export markets. Potatoes hold a great promise for product development and export.

10. MARKETING OF AGRO- AND AGRO-PROCESSED PRODUCTS

Market research and the development of an effective marketing strategy are essential components of establishing and running a small food processing plant. There is always a number of different markets where processed food products, particularly fruits and vegetable, and livestock and fisheries products can be sold. Within the broad spectrum of the market there are a number of segments that may have different needs for particular types of products. When a particular segment is identified by the producer, this is known as a 'market niche', and a product that is sold for a single market segment is known as a 'niche product'. The importance of identifying the different segments is three-fold : i) It is possible to tailor the product quality for a particular group of customers. ii) The promotional strategy of a product can be designed for a particular segment. iii) The distribution and sales outlets can be located where people in a particular segment usually buy their food.

Because of the small size of the farms and still smaller marketed quantity, the agricultural marketing system of Bangladesh is atomistic, fragmented and widely dispersed all over the country to serve over 10 million farm households. The farmers generally sell their produces from their homes or in the nearest rural primary/assembly markets.

Marketing of the agricultural products in Bangladesh typically passes through six stages: growers, assembly beparis (traders), distributing beparis, aratdars (commission agents)/cum wholesalers-retailers-consumers. The stages are not all distinct and an agent in one stage can interact with several agents operating at different stages of marketing. This feature of rice marketing indicates the absence of complete specialisation of function by market functionaries but it widens the choice of one agent in terms of selling his product to someone, giving him the highest return, and this increases the competitive strength of the market.

There are over 7,500 rural primary/assembly markets in the country, most of which lack adequate space, basic facilities and amenities and satisfactory transportation facilities. The absence of space creates problem of access to the markets by the farmers while a lack of transport facilities results in higher transportation cost and lessens competition in the markets by limiting the numbers of traders. Absence of basic facilities like covered sheds results in deterioration of the quality of the produce due to exposure to the sun and rain. Realisation of excess market toll and charges, deductions and malpractices by traders due to absence of any government agency to ensure proper management of the markets, reduce the farmer-level price and oblige the farmers to sell their crops from their homes at a much lower price. Lack of market information at the growers' level puts them at a disadvantage when bargaining with the buyers, particularly when selling from homes. However, the farmers' main problem has been identified as the low price of the crops in the post-harvest period when the small farmers sell most of their crops. Sometimes, when there is an absolute lack of buyers the traders force the farmers to sell on credit and make unusual delays in payment of the price. Farmers cannot hold back the stock due to lack of storage facilities and requirement of cash. The storage facilities at the grower and trader level are inadequate and there is also a substantial storage loss.

In general, marketing margins are quite low. Apart from sugarcane, there is no government regulation creating any impediment to a competitive market structure. However, studies have shown that there is a scope for reduction of marketing costs by regulation of market charges and practices, improvement of transportation and port facilities, improvement of the law and order situation by stopping illegal collection of tolls by different agencies, and reduction of storage losses. In this area performance of SHOGORIP – a project dealing with provision of storage cum credit facilities -- is noteworthy. This project was started on a pilot basis in the early eighties by the Swiss Government in cooperation with the GOB. The target group farmers stored their crops in small godowns, built by the project authority at the village level, and borrowed from banks against the stored crops and thus avoided the post-harvest sale at the lowest price.

10.1 LIVESTOCK MARKETING

The marketing of different species of livestock and their products remains unorganised. A number of intermediate traders are involved in 'mediating' the flow of commodities from the farmers to the consumers. This 'intermediation' raises the marketing cost and hence the margin. The gross marketing margin was the highest for milk, followed by eggs, poultry and live cattle. The net margin and the rate of return on capital were also very high for milk. The perishable nature of milk made its trading a risky job and the traders earned high profits, which had to allow for the risk premium. The farm-gate price was adequate for the farmers for cattle, poultry and eggs. The share of the retail price reaching the farmers tended to be lower for milk than for poultry, eggs and live cattle.

Fluctuation of commodity prices by seasons and regions reveals the inefficiency of the local marketing system for livestock. Studies show that there is a considerable difference in the prices of live animals and livestock products in different seasons and regions. Thus the price of live cattle tends to escalate by 20 to 40 per cent during Eid-ul-Azha.

Furthermore, the price of draught-cattle goes up by 25 to 30 per cent prior to the peak cultivation season. In the case of other livestock and their products, the seasonal price spread remains higher for milk, followed by eggs, but is lower for fowls. The spatial price spread for live cattle, milk and chickens also shows significant variations amongst different regions (Alam, 1995). The seasonal variation in the demand for and supply of different products results in variations in the product price over different seasons and regions.

The most important problem faced in the marketing of livestock products is the inadequate provision for processing and preservation of the output. Moreover, the communications network has not yet developed sufficiently to facilitate easy and safe transfer of livestock commodities to the market. As a result, the producers tend not to obtain a remunerative price for their produce.

10.2 FISH MARKETING

Fish is a perishable commodity which, after its harvest, has to be promptly marketed. However, the country's poor infrastructure and transportation facilities prevent the efficient marketing of our fish. Moreover, icing, processing, grading and freezing systems tend to be unscientific and inadequate, so it is difficult to make the fish available to the final consumers in an acceptable form.

In the rural markets, fish is generally sold by small-scale traders. They make little effort to ice or process the fish before they take the catch to the market place. In towns and cities, however, big traders and aratdars tend to be involved in the marketing chain. They can afford to keep the fish on ice for a day or two before they take them to the retail consumers.

Due to the high seasonality and perishability of fish and the limitation of the facilities for processing or freezing the catch, as well as due to the inadequacies of infrastructural and transportation facilities, fish prices are subject to considerable variation. Significant temporal and spatial price fluctuations occur in the marketing of fish. The magnitude of the temporal price fluctuation was estimated to range from 54 to 449 per cent for hilsa fish and the spatial price fluctuation was found to range from 15 to 54 per cent for rui (Alam, 1993). The efficiency of the fish marketing system can also be judged from the estimate of marketing margins. Recent calculations show that the gross marketing margins vary from 30 to 50 per cent for native carps. About 10 to 12 per cent of the fish catch is spoiled in the course of its marketing and becomes unsuitable for human consumption. Nuruzzaman (1993) estimated that about 30 per cent of the total fish catch is lost every year due to inadequate handling, processing and distribution facilities.

The marketing cost and profit margins earned from shrimp exports have been calculated. It was observed that the producer received 67 per cent of the CIF price. Marketing costs accounted for 7 per cent of the end price, while the trader's profit accounted for 26 per cent of the CIF price. The rate of return on the trader's capital was estimated at 36 per cent. The available evidence indicates that the export market for shrimps was competitive. A high demand for Bangladeshi shrimps in the international market (particularly in the USA and Japan), coupled with a large number of processors/exporters relative to the total production of shrimps, made the domestic market competitive and ensured a higher price to the producers.

The wholesale fish markets are run by a few aratdars who advance money to the petty traders for supplying fish. The fish traders also provide advances to the fishermen who are thereby bonded to sell their entire catch to their financiers. The fishermen lack bargaining power and thus operate in an imperfect market. However, the domestic market for fish is always a seller's market, because of which the traders do not face any compulsion to improve the quality of the fish marketing system.

Fish processing is important from a marketing point of view. A number of pelagic fish species are caught from the sea in abundance but they are not fully absorbed in the market. The surplus can be processed and canned to last for years together. Some of the marine fish species are not attractive in their natural shape, but processing can change their appearance and make them presentable to the consumers. There are 118 plants at Cox's Bazar, Chittagong, Khulna and Shatkhira for processing marine fish and shrimps. Recent studies indicate that these plants operate at only 30 to 40 per cent of their capacity. The most important reasons for such under-utilisation of the processing plants are the lack of traditional materials needed for processing and the frequent failure of electricity. If these plants process non-traditional sea fish, the consumption of such fish as well as the capacity utilisation of the processing plants could be ensured.

11. PREPARING PRODUCTS FOR EXTERNAL MARKETS

Crops processed and unprocessed

Promotion of exports involves : (i) production of quality raw materials in required quantity, (ii) prevention of post-harvest loss, and (iii) proper processing.

The share of agro-products like vegetables, fruits and other items has remained at the same level during the last few years. Their share is around 9 per cent of VA of agriculture. The temperate, humid climate and the frequent rains can make Bangladesh a special place for some selected products if proper investment is made. The table shows that export of vegetables, fruits and betel leaves has been going on for quite a long time. Export earnings from all these products have been fluctuating. Exports of vegetables started from 1975-76. The export earnings increased steadily up to 1986-87; after that it started to decline, a trend which continued up to 1991-92. Again, exports started to rise from 1992-93, the trend of which continued up to 1995-96. In the case of fruits, in most years the export earning increased compared to the past. It started to rise rather rapidly from 1992-93 and continued up to 1995-96. In the case of betel leaves, the trend of exports is not stable. But all these products have attained a modest level of exports.

The destinations of these products are in Middle East and Emirates in the east and U.K. and U.S.A. in the West. The consumers of these products are not Arabs, or British or American; they are the Bangladeshi immigrants living in those countries. So it is a kept market. But if we want to expand our exports of these products we have to sell to the non-Bangladeshis who will buy them on the basis of quality, not on emotional and psychological grounds.

12. EVALUATION OF THE ACTIVITIES HORTEX FOUNDATION

Some time back an organization called the Hortex Foundation was created with the objective of providing guidance, assistance, monitoring facilities and marketing intelligence to the potential and actual agro-products exporters of Bangladesh.

The organization started to achieve some of its goals by exporting some agro-products since 1997. Already Hortex has had an understanding with BRAC* for the production, transportation and export of some selected agro-products, basically for the European market. They started with the production of French beans at Chandina and Kashimpur. Some selected farmers in these two places started to produce French beans and exported their products through BRAC to the U.K., France, Holland and Belgium. Twenty-seven tons of fine beans in 1997 were exported by Hortex and again 24 tons were exported in 1998 along with an additional twelve tons of bobby beans to the same markets. The level of exports of beans would have been higher had there were no bad weather in November, 1998.

Improper packaging has been a big barrier in the export business; however, Hortex has been able to develop different types of packaging materials and cartons for the export market. At present okra is also being produced at Chandina and Joydevpur for export. Hortex is also trying to export potatoes to the Singapore market. There is a big international demand for French beans produced in Bangladesh, but marketing, air transportation and packaging are the main constraints. At present Kenya exports about seventy per cent of the fine beans while Egypt exports most of bobby beans to the European market.

The Hortex Foundation has been exploring markets for new agro-products like baby pineapples. South America is the major supplier of this product to Europe, U.S.A. and the Middle East. A limited quantity of baby pineapples can be exported to this market if the packaging can be done properly. As Chittagong is the main production point, it can be sent directly from there by air. The Foundation is also trying to make an agreement with Australia for the production of Broccoli as the climate of Bangladesh is congenial for its production. Hortex has been exploring new markets for potatoes in 1998-99. In fact, for the first time, Bangladesh has successfully exported a small quantity of potatoes to Sri Lanka, Singapore and Malaysia in 1998-99 on an experimental basis. The export was organized by ATDP in collaboration with BRAC.

A report on rural rapid appraisal on Agricultural Exports is given in the annexure.

The Hortex Foundation has some organizational limitations but it has already emerged as the growth center for the export of agro-products. If it can overcome these limitations, it can become the main export body for product marketing and promotion of horticulture. The perceived constraints and shortcomings have been identified as follows:

a. Training and skill formation for selected horticultural products is still lacking.
b. There is a shortage of entrepreneurs who are skilled exporters of these products.
c. The packaging industry is outdated.
d. Transportation for these products is not adequate.
e. There is a serious shortage of refrigerated vans and modern cartons.
f. Airfreight facilities, rates and schedules are not adequate, suitable and positive.
g. Aggressive marketing and marketing intelligence is also lacking.

In view of the above it is recommended that suitable packaging materials have to be produced in Bangladesh and Hortex should organize training and line up credit for the agro-producers and exporters. Airfreight has to be ensured regularly at a lower rate and no delay and cancellation should be allowed. The Export Promotion Bureau (EPB) should act as the coordinator between producers, exporters, the Hortex Foundation and Bangladesh Biman.

12.1 PROCESSED PRODUCTS

These are canned foods and dehydrated products. For preservation by canning the existing can-making plant at Chittagong, set up by BSFIC, needs modernization. Sanitary cans may be manufactured locally with proper organization.

With regard to dehydration, two approaches can be made : (i) simple dehydration, (ii) osmotic dehydration.

Certain vegetables like bitter gourds, plantains, potatoes, and fruits like bananas and pineapples can be dehydrated. In the case of fruits, more sophisticated products can be made by osmotic dehydration of pineapples, mangoes, jack-fruits. These products can be promoted in the export market, but they should be presented in attractive packages. Such packages can be made locally from imported food-grade polystyrene and plastic materials. The finished product can be presented in polythene. The design and dies for making trays can be made locally. It will not be difficult to produce quality products, pack them in attractive packages and promote them in the export market.

12.2 SEMI-PROCESSED PRODUCTS

The present trend is to import certain fruits and vegetables in bulk in a semi-preserved form, to be processed into a finished product in the importing countries. This requires less cargo space than processed products in finished form in retail packs. The other advantage is that the importing countries can reprocess the products according to the tastes of their consumers. On the other hand, the exporting countries do not have to set up full-fledged processing plants.

Preservation of green vegetables like gherkins, green jack-fruits, green mangoes is possible by preserving the prepared pulp in bulk quantity in brine. Fruits can be semi-preserved in sugar syrup with metabisulphite (S02). These semi-preserved products are packed in food-grade polythene bags, put in plastic drums and sealed according to the specification of the importing countries.

Another type of product is concentrated fruit juice, which can be exported in aseptically sealed flexible packages. The importing countries dilute and process it in different forms according to local tastes.

The Multiple Juice Concentration Plant at Chittagong has prospects of exporting concentrated pineapple juice, provided the cost of production is competitive in the international market.

12.3 NEW PRODUCTS FOR EXPORT

These are Baby Corn, Gherkin (Baby Cucumber), Mushroom, Baby Pineapple, Okra, Lichi, French Bean, Bobby Bean, etc., all of which can be grown in Bangladesh. Mango pulp and honey also have good prospects for export. Standardization of quality for export is essential.

Baby Corn, French Beans and other vegetables can be processed in cans or in glass jars. Gherkins can be preserved in brine in plastic drums or in glass jars in bulk quantity. Mushrooms may be canned or dehydrated. Canned mushrooms have better prospects for export. Honey is another product which has good prospects for export to Middle Eastern countries if properly standardized.

12.4 OTHER PRODUCTS

Production of mixed fruit leather and powdered spice mixtures, prepared according to specific recipes, can be improved and developed. Continuous monitoring, in terms of both quality and quantity, is necessary for developing a new product.

In order to enter the export market it is necessary to collect relevant market information from the importing countries about the preferences of the consumers for different kinds of processed products and the possible prices for such products. It will not be very difficult to produce and export processed products if there is an increase in the production of quality materials and proper development in the processing and packaging industries The export potential of selected semi-processed and processed product is shown in Table-5.

Table -5

Export Potential of Selected Agricultural Semi-processed/Processed Products from Bangladesh

Item	Processed Products		Potentiality					
			Processing		Market Demand		Marketing	
			Present	Future	Technological improvement	Present	Future	Improvement Necessary
Fruits								
JACK-FRUIT	Seed Power		*	*	Flavour	*	0	Consumer preference
	Ripe carpel in canned		X	*	Packing MD	X	*	Pre-harvest and post harvest
	Green Carpel in doz. Dehydrated	Brine In	*	*	Packing	*	*	Technology
	Dehydrated		*	*	Flexible Packing	*	*	Development
PINEAPPLE	Juice concentrate Slice Gush Dehydrated	Canned	X X *	* * *	Aseptic HD Packing Flexible Packing	X X X	* X *	Production Cost
MANGO	Pulp Slice canned Dehydrated Leather Chutney				Aseptic Packing HD Packing Flexible Packing Neutral glass/plastic jar	 X X * * *	 * * * * *	Cost of Production
PAPAYA	Dehydrated		*	*	Improve Variety Flexible Packing	X	*	Varietal Development
	Slice canned (mixed fruit)		X	*	Packing	X	*	Production Cost
BANANA	Powder Dehy-chips Canned-mixed fruit		* * X	* * *	Flexible MD Packing Packing	X	*	Market Development Lower cost of Production
LICHI	Canned		X	*	Packing HD	X	*	High International Demand
	Dehydrated		*	*	Flexible Packing			Cost of Production
VEGETABLES								

TOMATO	Juice canned Plastic Bottle		X	*	Packing MD	*	*	Production Cost
	Paste		*	*	Aseptic Packing	*	*	Cost of Production
SNAKE BEAN	Canned				Packing MD	*	*	Cost of Production
WHITE GOURD	Dehydrated		*	*	Flexible MD	*	*	Cost of Production
ASH GOURD					Packing			Cost of Production
BABY CORN	Canned				Packing HD	*	*	Cost of Production
GHERKIN	Pickled in drum				Packing HD	*	*	Cost of Production
PLANTAIN	Chips				Flexible LD Packing	*	*	Market Dev.
X= No Prospect			HD= High Demand			MD= Moderate Demand		
* = Fair Prospect			LD= Low Demand			O= Good Prospect		

Source : JICA (1994).

In another study JICA found out the export potential of fresh agricultural products from Bangladesh, which is shown in the Table 6 below.

Table 6

Export Potential of Fresh Agricultural Products from Bangladesh

Items	Preservation Quality (duration)	Transport Mode	Storing Condition	Major Constraints	Potentiality	
					Present	Future
Fruits						
Jack-fruit						
(a) Green (veg.)	7-10 days	Ship/Air	Normal	Transport Cost	*	0
(b) Ripe (fruit)						
Natured	3 days	"	"		*	0
Pineapple	2-3 weeks	Air/Ship	"	Transportation Cost, Variety, Harvesting Technique	*	
Mango						
(a) Green (veg)	10-12 days	Ship/Air	"	Transportation Cost	*	0
(b) Ripe (natured)	3-5 days	Air	"	Variety	*	0
Papaya						
(a) Green (veg)	10-15 days	Ship/Air	"	Transportation Cost	*	*
(b) Banana (natured)	1-2 weeks	Air	"	Transportation, Cost Variety, Pre-Post harvest handling	*	*
Lichi	4-7 days	Air	Normal & Cooling	Transportation, Cost-variety, short duration, preservation care	*	0
Melon	2-3 weeks	Air	Normal	Transportation Cost, Timing of export	*	0
Star-fruit	2 weeks	Air	"	Variety	*	0
Indian Olive	2 weeks	Air	"	Variety	*	*
Amlaki	1-2 weeks	Air	"	Variety, grading	*	*
Tamarind						
Ripe – without skin & seed only pulp	10-15 weeks or more	Ship/Air	"	Preservation	*	*
Hog plum	2-3 month	Ship/Air		Transportation Cost	*	*
				Variety, grading		
Vegetables						
Tomato Fresh	One week	Air	Normal	Transportation Cost, Variety, with longer keeping quality.	X	*

String beans	3-5 days	Air	Normal	Keeping Quality	0	0
Snake gourd	3-5 days	Air	Normal	Keeping Quality	*	*
Sweet gourd	2-4 months	Ship	Normal	Transport cost	*	*
Bitter gourd	3-5 days	Air	Normal	Transport cost, preservation	*	*
Plantation	10 days	Air	Normal	Transportation cost, Variety	*	*
Cucumber	4-10 days	Air	Normal	Transportation cost, Variety, timing	0	0
Amaranthus	5-10 days	Air	Normal	Variety	*	0
Brinjal	7 days	Air	Normal	Variety	*	0
Green peas	5-7 days	Air	Normal	Variety	*	0
Green chilli	5-7 days	Air	Normal	Transportation cost, Variety	X	*
Okra (ladies' finger)	5-7 days	Air	Normal	Transportation Cost, Variety	*	*
Betel leaves	5-7 days	Air	Normal	Transport cost, variety, preservation	*	*
Coriander leaves	2-3 days	Air	Normal Cooling	Transport cost, variety, preservation	*	0
Mint	5-7 days	Air	Normal Cooling	Transport cost, variety, preservation	*	0
Mushroom	2-3 days	Air	Normal Cooling	Transport cost, variety, preservation	*	0
Cut-flowers	5-10 days	Air	Normal Cooling	Technology	X	0
Orchids	2 weeks					
Cauliflower	3-4 weeks	Air	Normal	Transportation, variety, preservation, develop summer variety	*	0
Broccoli	3-4 days	Air	Normal		*	0
Cabbage	7-10 days	Air	Normal		*	0
Carrot	15-20 days	Air	Normal		*	0

In general keeping quality depends on state of maturity, harvesting time and pos-harvest handling.

Source : JICA- Project Formulation Survey on Export Possibility of Agricultural Production in Bangladesh, March, 1994.

13. EXPORT OF LIVESTOCK AND FISHERIES

Both livestock and fisheries products have grown steadily over the years. The growth rate increased particularly in the 1990s. The share of these two sub-sectors in total exports was about 14 per cent in 1994/95.

Over 80 per cent of total production of processed hides and skins is exported in the form of wet blue leather and leather products. The export value of leather and leather products was Tk.9 billion in 1994-95 and Tk.9.9 billion in 1995-96. Leather ranked fourth in the list of Bangladesh's exports. The absolute value of exports originating from livestock has increased but the relative share in the total value of exports has declined in recent years due to the increase in the value of exports of readymade garments. A large number of hides and skins is either lost or qualitatively deteriorates every year due to faulty flaying and processing. This can be minimized by providing training to rural youths in specific areas as well as by technological up gradation of both the urban slaughterhouses and the local tanneries.

The available evidence indicates that the export market for shrimps was competitive. It has been observed that the producer received 67 per cent of the CIF price. Marketing costs accounted for 7 per cent of the end price, while the trader's profit accounted for 26 per cent of the CIF price. The rate of return on the trader's capital was estimated at 36 per cent.

A high demand for Bangladeshi shrimps in the international market (particularly in the USA and Japan), coupled with a large number of processors/exporters relative to the total production of shrimp, made the domestic market competitive and ensured a higher price to the producers. Some developed countries have put up non-tariff barriers to export of frozen fish from Bangladesh. Such a problem, if it recurs, needs to be resolved through the WTO dispute settlement mechanism.

Table-7 below shows the exact position of the Export of Non-Crop Agricultural Products and the Share of Sub-Sector of Total Export.

Table -7

Year	Export Value (crore Taka)			Sub-sector share to export (%)		
	Livestock	Fisheries	Forestry	Livestock	Fisheries	Forestry
1985-86	180.25	356.25	1.26	7.41	14.65	0.05
1986-87	409.70	424.05	1.41	12.56	12.99	0.04
1987-88	455.20	454.12	0.39	11.95	11.93	0.01
1988-89	434.50	471.89	0.91	10.61	11.51	0.02
1989-90	584.24	478.77	0.53	11.74	9.62	0.01
1990-91	483.54	526.62	0.59	7.98	8.64	0.01
1991-92	565.83	524.35	6.17	7.45	6.91	0.08
1992-93	616.28	700.29	3.82	6.66	7.57	0.04
1993-94	766.70	920.96	1.47	7.59	9.12	0.01
1994-95	903.71	1306.94	2.42	6.48	9.38	0.02
1995-96	986.54	1336.74	1.72	6.21	8.42	0.01

Source : BBS

For export three kinds of products have good prospects: processed products, semi-processed products, and fresh produce. The trend of agro-product exports can be seen in the following Table No.4.

Table -4

Exports of Some Major Agro-products from Bangladesh

(Value of in thousand Taka)

Sl. No.	Name of Products	1972-73	1975-76	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
1.	Vegetables	NA	1853	16223	29530	56963	78791	102022	408442	531111	461463	299339	259700	154104	208003	313224	323557	348604	593372
2.	Fruits	NA	NA	498	1560	4058	5435	7934	23885	9506	23141	15724	22850	45702	28127	50711	52602	78454	139422
3.	Betel Leaves	NA	682	15752	20098	28161	30639	35662	128560	104189	67011	37514	8450	20999	36968	73923	59369	61700	97823
Agro-products as % of VA of Agriculture		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.54	9.06	8.96	8.92	8.89	NA	NA	NA

NA= Not Available

Source : Export Promotion Bureau (EPB)

Table -4

Exports of Some Major Agro-products from Bangladesh

(Value of in thousand Taka)

Sl. No.	Name of Products	1972-73	1975-76	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
1.	Vegetables	NA	1853	16223	29530	56963	78791	102022	408442	531111	461463	299339	259700	154104	208003	313224	323557	348604	593372
2.	Fruits	NA	NA	498	1560	4058	5435	7934	23885	9506	23141	15724	22850	45702	28127	50711	52602	78454	139422
3.	Betel Leaves	NA	682	15752	20098	28161	30639	35662	128560	104189	67011	37514	8450	20999	36968	73923	59369	61700	97823
Agro-products as % of VA of Agriculture		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.54	9.06	8.96	8.92	8.89	NA	NA	NA

NA= Not Available

Source : Export Promotion Bureau (EPB)

14. MARKETING IN EXTERNAL MARKETS

A marketing mission to Europe and the Middle East, organised by the Hortex foundation, reveals the following :

All countries have some demand for special items such as Apple, Banana, Small Papaya and Honey Queen type Pineapples, and possibly Lichees for the French market. The Ethnic Surinam market may offer some prospects for several Indian vegetables like Yard Long Bean, Okra, Green Chilli, Eddoes and Betel Leaves, which are now supplied by Thailand and the Central American countries. Small opportunities may also exist for some tropical flowers.

Belgium and France have a large demand for X-fine French Beans. In the Netherlands the market mainly asks for Bobby Beans, and X-fine are still considered to be specialised products. Snow Pea is a future potential crop of export from Bangladesh.

The number of direct air connections is limited to two weekly flights to Brussels and one to Paris, all by Biman. Yet the Biman rates for air freight at 1.25 US$/kg are competitive when compared to the rates from other producing countries.

All these prospective markets require high standards of packaging and product quality and, apart from French Beans, potential volumes per item are limited. This problem can be overcome partly, since the airports of Amsterdam, Brussels and Paris are at only 250 km. distance from each other and so importers often combine shipments. Samples and small commercial consignments of other items can be included in the French Bean shipments in order to discover markets for them.

14.1 PACKAGING AND DISPLAY

The 'South Asian' retail shops display fruits and vegetables in the baskets of the shop as well as in the original cartons. However, at wholesale stage, the original packaging is used and plays an important role in presenting the produce to the retailer in an attractive manner. Bangladeshi products, in their bamboo baskets, make a poor presentation.

Waxing of cartons is only practised in South America and is related to the use of hydro-cooling. Generally sizes and types of cartons are specific for the product, but certain cartons, like the Kenyan bean box, are quite universal and are also used for other products like Snow Pea and Okra.

Resent positions of Bangladeshi fresh vegetables and fruits (Asian vegetables) in both the Middle East and UK markets are quite comparable. The buyers are confined to the Bangladeshi community and the quality and price levels are positioned in the lowest market segment. Product range is limited to South Asian vegetables and some fruits.

14.2 PRODUCE QUALITY

Poor quality causes a high percentage of rejected vegetables, especially in the UK, where air transportation takes a longer time and quality standards are slightly higher. Here, poor quality relates to the irregular shape & size of the produce, different maturity indices, insect & disease infestation, mechanical injury, ageing, moisture loss, etc. In particular, the most perishable products, like Chillies, Hyacinth, Yard Long Beans and Bitter Gourd, have a high spoilage percentage of 5-10%, which even increases to 30% during the hot summer months.

Short shelf life also causes damage, and it was observed that decay had clearly started before departure from Dhaka airport. Insect & disease infestation is not only harmful for consumer appreciation, but also poses a threat with regard to phyto-sanitary regulations in the importing countries.

As a consequence, Bangladeshi exports may lose their market share. This is clearly the case of the Yard Long Bean in the UK, where South American competitors offer a much better product. Upcoming legislation in importing markets, requiring stricter standards for quality of the produce, may create future obstacles for Bangladeshi exports.

14.3 PACKING

Packaging of Bangladeshi exports consists mainly of round bamboo baskets and second-hand cartons of different shapes. As a consequence, the products are not properly positioned. For instance, Yard Long Beans in round baskets become misshapen and damaged. The second-hand cartons usually have no ventilation holes and do not have the necessary strength, which causes bruising of the produce. Moreover, the irregular shapes of the cartons gives rise to rough handling by the airline staff.

Apart from its impact on quality, the present packaging is very unattractive to buyers and promotes an extremely poor image of the produce of Bangladesh.

14.4 CARGO SPACE

From June to October every year freight space on all airlines to the Middle East is fully booked, but as far as the UK is concerned, the cargo capacity of Bangladesh Biman is filled round the year. During the hot season in the Middle East, Bangladesh could export double the quantity if transport were available. Operation of cargo planes offers no solution; the cost of freight would increase two-fold, from 30 to more than 60 taka per kg. In addition, operation of cargo planes brings about logistical problems, since arrival time of the planes is unpredictable and quantities of at least 30 tons need to be sent at a time.

Thus far all fresh produce is being exported by air, and no other means of transport have been employed. Part of the space allocated to vegetables is even used for dry foodstuffs, such as dried spices and puffed rice (muri).

14.5 PAYMENT BEHAVIOUR

Payment behaviour by customers is frequently cited as a major problem. This may be related to the structure of the export business. All exporters sell similar products and competition is not based on quality or specialization, but mainly on price. In some cases, delivery on credit basis is even used as a marketing tool. The vegetable trade, both at the export and import level, is characterized by a relatively high turnover of companies leaving or entering the business.

14.6 FLIGHT DELAY

Very frequently Bangladesh Biman is late in arrival at the destination. It causes considerable damage to the fresh produce.

15. AREAS OF OPPORTUNITY

Several new areas of opportunity for Bangladeshi products have been identified, and will be discussed in this section. Upgrading (a) and increasing volumes (e,f) of the present product line of Indian vegetables, meant for the ethnic markets, offer good prospects for the short and medium term. The advantage of this market is that immediate progress can be achieved by adopting a proper production system and taking relatively simple measures. On the other hand, entering the regular markets at this stage is only possible through special pilot projects, involving research and rigorous control at all levels. Moreover, with the exception of French Beans, potential export volumes are limited.

a) Upgrading Export of Traditional (Indian) Vegetables to the UK and the Middle East
Generally 20-30% higher than the ones presently obtained. In addition, the high spoilage rates, that currently occur and severely reduce the profit margins, can be avoided.

b) Netherlands Ethnic
In the Netherlands the ethnic trade of Surinam food has demand for tropical vegetables, including Betel Leaves, Green Chilli, Okra, Golden Apple (Amra), Yard Long Bean and Banana Leaves. Part of their supplies originates from Asia, mainly Thailand.

c) Exotics in Regular Markets
In all the European markets certain Bangladeshi products, mainly fruits, could find buyers in the regular markets, where they are regarded as "exotics". Opportunities exist for small Pineapple (Queen), Papaya (Solo variety), Apple Banana and Lichees. These markets, however, require very high standards of packaging and quality, and potential volumes are limited.

d) The UK, Belgium and France have a large, and still growing, demand for Extra Fine French Beans, while in other European countries it is a smaller but growing special item. Provided a product of top quality can be delivered, export from Bangladesh seems economically feasible.

e) Utilise Available Cargo Space
During the period outside the peak season, from October to May, sufficient air space is available to the Middle East destinations, and market volume for certain items can be increased, particularly for products that cannot be grown in the Middle East, such as Pineapple, Papaya and Guava. Packaging needs improvement to the standards of our competitors (India & Sir Lanka).
The Middle East airlines also offer cargo space to the UK during the same period. At present most exported products cannot withstand the delays and temperature changes that occur during the flight transfers in the Gulf States. However, when quality of the produce will be improved it will become possible to utilise this available freight space. In addition the potential markets for traditional produce in USA and Australia, that could not be served thus far due to distance, might be opened.

f) Sea Transportation
During the peak season in the Middle East, export volume may be increased by using sea transportation in refrigerated containers for less perishable items. Similar products are presently shipped from South America to Europe in about two weeks, the same duration that is required for reaching the Middle East from Chittagong.

16. MANAGING QUALITY ASSURANCE

One of the major factors in export development is quality assurance. This has two aspects : i) standardizing the quality of processed product and ii) ensuring the safety of these products for human consumption. The management should work with the processing and quality control staff to go through each stage of processing from purchase of raw materials and ingredients to consumption of final products, to identify which factors could influence either the quality or safety of the products and then devise procedures that control these factors. The quality should conform to the standard specification of BSTI for exportable items and also should conform to the specification of the importing countries. The safety of these processed products can be assured by implementation of a system known as HACCP (Hazard Analysis Critical Control Point). The different types of contamination are : i) microbial, ii) biological, iii) chemical, and iv) physical.

Control methods can be developed to prevent contamination from these sources. It may be mentioned that fruit and vegetable products have a lower risk of food poisoning than meat and dairy products. Bangladesh has not yet been able to develop and organise export-oriented fruit and vegetable processing industries. Inspection and quality control systems have also not been developed to meet the requirement.

The Bangladesh Standard and Testing Institution (BSTI) is primarily responsible for the preparation of standard specifications, and for promoting standardisation and quality control. BSTI can certify products for local consumption or for export and issue licenses for production. The BSTI cannot execute its authority properly for lack of infrastructural facilities and adequate manpower.

In the private sector Society General de Surveillance (SGS) Group of companies offer limited service for inspection and quality control to local manufacturers and exports on payment basis. The core activity of the group is inspection and monitoring in connection with trade and shipping of raw materials, agricultural products and other items. The group operates in various business sectors. The agricultural product services, and the environment and health-related services, are relevant in relation to food processing and preservation.

17. MARKETING OF AGRO-PRODUCTS AND E-COMMERCE

The Internet is being extensively used for marketing of agro-products. The convenience of such transactions include the following:

- Electronic purchase orders are cheaper than paper purchase orders.
- **Selling goes on 24/7/365**
- Traditional selling takes more time to complete and receive sales revenue than E-Commerce. The company gets paid faster also.
- Electronic selling virtually eliminates processing errors which in turn makes selling cheaper, more convenient and faster.
- E-Commerce gives businesses an instant global reach.
- We can offer more products than we can physically stock on the shelves of a store.

All the agri-businessmen of the developed countries are involved in E-Commerce. Some of the major web sites are:

Agribusiness Association of Australia---- www.agribusiness.asn.au
Canadian Agri-Marketing Association--- www.cama.org/who.html
AgriNet, Inc, CA, USA ---------- www.agrinetinc.com/NetServices.html
Market Asia ---------- www.marketasia.org

Market Asia personnel have worked extensively with industry association staff in Asia and elsewhere in the establishment and maintenance of Internet-based information systems. Their current partners include:

Agribisnis Indonesia On-Line
Agribusiness Information Center - India
Sri Lanka Agribusiness On-Line
Bangladesh Agribusiness Online
Global Agribusiness Information Network

There are many other websites providing information on agribusiness in various countries. Some published newsletters which are circulated to the members free of cost. Some sites provide order forms. In Bangladesh E-commerce is still difficult because of banking regulations.

18. CONSTRAINTS TO AGRO- PRODUCTS EXPORTS AND NEEDED POLICY INTERVENTIONS

Constraints to agro-products are varied. Problems encompass the process of production, transportation and marketing/export. Any agro-product requires a well-developed integrated system from planting to marketing in order to give maximum returns to growers. Development of such a system requires effective teamwork among researchers of several disciplines around each specific product or group of products. But in Bangladesh this integrated approach is absent and the existing co-ordination between the several parties involved in this is meager. There is a Mango Research Institute at Chapai Nawabganj. But other exportable fruits like Banana, Pineapple, etc. have several major production points such as Barisal, Chittagong, Sylhet, Narsingdi, etc. But production is unscientific and without any planned approach. The Hortex Foundation or any NGO can be involved in this area.

Production of fruits and vegetables should have a long-term, nationally integrated plan. In Bangladesh, long-term plans, programs and strategies are lacking. The private sector has to be organized and it should come up with proposals for agro-processing and exports in line with the PRAN enterprise. Moreover, the functions and scope of the Hortex Foundation have to be expanded with additional technical manpower. Marketing is another area which is confronted with various problems. The producers do not get buyers on a sustained basis or after harvesting. Moreover, transportation is a serious problem.

Agro-products are perishable and fragile goods, which require refrigerated vans and storage. These facilities are lacking or inadequate now. The export facilities, both physical as well as procedural, are not adequate. Particularly, the facilities at the export points (airports, sea ports, etc.) are also very limited.

Private exporters usually collect fresh produce from local and wholesale markets according to the required specification, size, weight, shape, etc. These are taken to packing areas where the produce is graded, sorted and packed in fibreboard cartons. Recently, the exporters have arranged to get a supply of cartons of different size for different commodities. These are then bound with strings and taken to the airport for export. They are exported to the European or Middle Eastern markets, mainly to ethnic groups residing in those areas. There is ample scope for improving the situation. The potential to develop new agro-crops for export to existing and new export markets is high, and the new crops could easily be introduced into Bangladesh by means of several different agro-administrative systems. The preferred system may be one in which a network of producers' and growers' units supply produce to an exporter on a contractual basis, thereby adding value to a final product. In order to enter the normal markets in these countries it is necessary to keep the levels of chemicals within the limits of acceptability in the importing countries. The Hortex Foundation has made a breakthrough in this direction by exporting French Beans to European markets.

19. POLICY ACTIONS FOR PROMOTING AGRO-PROCESSING

The measures already taken by the government:

Tariff on raw materials	NBR reduced rates
Incentives for exports	10 per cent of FOB value for flower export
Duty-free reefer vans	NBR waived duty
High duty on cans, jars	NBR reduced rates

Finally the fiscal measures in budget of 1999-2000 to stimulate agro-processing:

Sl. No.	Items	Previous Rate (%)	Reduced Rate (%)
	Import Duty		
1.	Tetrapack: food, drinks	30-40	25
2.	Glass bottles, jars	15	5
3.	Natural polymers etc. in primary form	25	15
4.	Rubber gloves	30-40	15
5.	Unpainted plain film	40	25
6.	Stainless steel	40	15
7.	Rope, twine, nylon cord, others	30-40	25

Source : ATDP

20. NEED FOR FURTHER ACTIONS

1. National Agricultural Policy (April, 1999)/Industrial Policy 1999

   In the National Agricultural Policy 1999 more emphasis should be given to post-harvest handling and promotion of agro-processing. These are the two important areas for proper development of agriculture. In the Industrial Policy 1999 fruit and vegetable processing should be included as a thrust sector.

2. (a) Development of Manpower

Proper development of horticulture and promotion of agro-processing require manpower at different levels.

The Department of Food Technology, BAU, should be strengthened for this purpose. The Department of Food Technology, Dhaka Polytechnic Institute, is offering a three-year course. This should also be strengthened.

The University of Comilla has introduced a four-year degree course in Food Science and Technology. When properly developed, this university will be able to produce qualified persons for food-processing industries.

(b) Development of Suitable Varieties

The Horticulture Division of BARI should try to develop varieties suitable for export and processing. The varieties should have uniform size and shape, better flavour and texture to withstand processing conditions. These seeds should be patented.

(c) Development of Post-Harvest Technology

BARI is in an advantageous position to develop post-harvest technology (handling, grading, packaging, storage, transport) for exportable commodities. Technological support may be obtained from the Institute of Food Science & Technology (BCSIR). The Ministry of Agriculture should encourage the private sector to come forward to develop post-harvest handling technology in the areas of production, e.g. Modhupur and Sylhet for pineapples and Munshiganj for bananas. The Mango Research station at Chapai Nawabganj should extend its activities to post-harvest handling of mangoes at its present premises.

3. Research and Development

The Institute of Food Science & Technology (BCSIR) and the Post-Harvest Technology Division of BARI should cooperate to develop processes for high value crops like baby corn, French bean, okra, mushroom, etc. for export. BLRI and FRI should be strengthened in order to develop high value livestock and fisheries export products.

4. (a) Incentives for Development of Food Processing Industries

The fiscal policy of the government should be conducive to development. Anomalies in duties and taxes should be sorted out. Cash incentives should be given to promote agro-processing and encourage export.

(b) Import Restrictions

In the interest of the proper development of horticulture and agro-processing, reefer vans and refrigerated containers should be exempted from duty and VAT. Similarly, duties and taxes on raw materials and auxiliary chemicals required for processing should be further liberalised.

5. Establishment of New Industries

   New food-processing industries should be established to make the best use of available horticultural produce. The government should assist entrepreneurs and processors to establish linkage between processing, packaging materials and equipment. It should also encourage foreign direct investment (FDI) through joint ventures.

6. Strong collaboration between public and private sectors (NGO/Exporters/Exporter Groups/Farmers' Cooperatives) should be encouraged to establish a location-specific and profit-earning 'Export Production and Marketing Center' for agricultural crops in general, and horticultural crops in particular. This will help sustainable production of produce of exportable quality and make them available at the port of embarkation (air or sea) on exporters' requisition. There is a need for export farmers' group formation. Production planning based on export market demand, technology dissemination on importers' requirements, credit management, infrastructure development i.e. packing house with a cool room facility near the center for post-harvest handling (sorting & grading), packing according to international standards and transportation by refrigerated vans are some of the responsibilities that may be undertaken at the proposed "Export Production and Marketing Center". Established importing firms may be invited to participate as the technical partners in the establishment of the center.

7. Development of strong, economic and standardized packing suitable for a wider product range is needed. For this purpose, the existing packing industry may be reoriented to manufacture cartons of international standard or a separate industry may be established as a turnkey project. Imports of paper and/or finished cartons for the purpose of packing fresh produce for export should be exempted from import duties.

8. The Hortex foundation may be strengthened, balanced and modernized to act as a 'Center of Knowledge' for all matters related to the promotion of the export of horticulture crops. This center should have the responsibility of developing and disseminating pre- and post-harvest technology, including information on market intelligence. The foundation, in collaboration with research organizations, should determine the criteria for export quality, including the maturity index for each crop, and monitor at the airports/sea ports whether the produce complies with the minimum standards in respect of quality and packaging. More strict criteria will be applied for exports using the common 'Logo' and the print 'Bangladesh Produce' on the carton.

9. The Hortex Foundation should encourage increased production of suitable varieties of fruits and vegetables for export. The formation of companies in the private sector should be encouraged in order to sustain such activities

10. As a short term measure, the exporters must avoid the current practice of procurement of fresh produce through middlemen from the wholesale markets of Dhaka and sorting, grading, packing, and storing the produce in poorly ventilated godowns. They should procure directly from the producers and instruct the farmers to practice hydro-cooling at the collection or the production point, especially during the summer months. Also they have to monitor the sorting and grading, and provide cartons (preferably waxed) of uniform shape & size. Packing in bamboo baskets, second-hand cartons and gunny bags

has to be abolished. The produce should be protected from sunlight and transported during the coolest time of the day to the exporters' godowns or to the cold storage of BADC at the airport. The exporters are advised to install, as early as possible, air-cooling facilities at their godowns to increase the shelf life of the produce. Filling materials like paper may be used between two fruits to avoid bruising during transportation. They also should collect information on the quality of their produce from the importers and adhere to their suggestions for further improvement of the quality and packing.

11. A separate cargo house to handle fresh produce with air cooling facility should be built by the Civil Aviation Authority at the Zia International Airport.

12. In order to have continuous market information, the Bangladesh embassies abroad should be represented by professional Agricultural Attachés. Commercial Attaches should be appointed from the private sector with adequate salary.

13. The Export Promotion Bureau (EPB) has to be given more power by making it a really autonomous body and restructuring its organization and strengthening policy and planning. The EPB should include representatives of the BSTI (Bangladesh Standards and Testing Institute) in its governing body. This will ensure quality of the exports.

14. The BSTI needs to be strengthened. Its chemical laboratory needs to be modernised to inspect the quality of exportable agro- and agro-processed products.

15. The plant quarantine system needs to be developed, which in turn will increase the exportability of our agro- and agro-processed products.

16. A one-stop-cell has to be activated in the true sense with expanded power and resources. There should be a separate export cell with an advisory body which should have adequate representation from the business community. The officials of the export cell will travel around the world to explore markets, and once new export orders are received, the concerned officials will get incentives in addition to normal remuneration.

17. In order to undertake large-scale production of agro-based products, it is necessary to expand contract farming.

21. OTHER RECOMMENDATIONS

The following constraints need to be removed :

i) Shortage of space in air cargo.
ii) Offloading of cargo – (perishable commodities).
iii) No facilities to prepare documents.
iv) No palletisation facilities for stacking.
v) Increase of freight charges along with devaluation of currency.
vi) No complimentary ticket facilities to explore markets.
vii) No cold room in the cargo shed.

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