

A SEMINAR PAPER
ON
STATUS OF VEGETABLE PRODUCTION AND MARKETING IN BANGLADESH

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ABSTRACT

The cultivation of vegetables in our country is increasing day by day. Now we are cultivating vegetables in 2.63 percent area of our cultivable land. Vegetable gives much more benefit to the farmers than the other crops. Vegetables can play a vital role in elevating the nutritional status of the Bangladeshi people who suffer from severe malnutrition. In Bangladesh, there are different types of agricultural markets through which agricultural products are exchanged. These are rural primary market, rural assembly market, rural secondary market, urban retail market. In Bangladesh vegetables are sold to wholesalers and retailers before reaching to the consumers. There is virtually a complete absence of specialized facilities and equipment for handling vegetables in the market. Sorting, display and sale are commonly done at the ground level from and into baskets. Although Bangladeshi fruits and vegetables are being exported to about 38 market destinations, the major buyers are, in fact, located in two regions: the UK and the Middle East. Bangladesh mainly exports fresh vegetables. However, during recent years export of processed as well as frozen vegetables had started on a limited scale. The usual supply chain is that the middlemen collect orders from exporters, go to the producing areas, collect crops from farmers/local markets and arrange to deliver the same to the exporters on the day of shipment. The marketing cost increases due to the opportunistic behavior of sellers and buyers each trying to take advantage of the other through such means as adulteration of the product, cheating on weights and measures and the breaking of delivery contracts. Vegetable marketing system is problematic and unorganized in Bangladesh which needs to be developed for the well being of the common people.

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CHAPTER I

INTRODUCTION

Agriculture is the backbone of the economy of Bangladesh. The development of Bangladesh depends largely on the development of agriculture sector which contributes 15 percent of the GDP (BBS, 2015). About 70 percent of the total population live in rural areas and directly or indirectly depends on agriculture for their live in rural areas and directly or indirectly depends on agriculture for their livelihood. About 63 percent of the labor forces are employed in agriculture of which 57 percent is employed in the crop sector. In Bangladesh vegetables are grown in 2.63 percent of cultivable land (BBS, 2015). Vegetables are rich sources of essential vitamins such as A, C, niacin, riboflavin and thiamin and minerals such as calcium and iron. They contribute to the intake of essentials nutrients from other foods by making them more palatable. They provide dietary fiber necessary for digestion and health and are essential for maintaining health curing nutritional disorders (Terry and Leon, 2011). There is a little chance for malnutrition to occur where the people take enough vegetables. In Bangladesh, the average per capita daily vegetable intake is 56g per day, whereas the recommended intake is 250g/day (FAO, 2015). Vegetables not only minimize the malnutrition but also maximize the financial returns. Vegetable generate cash to the growers. It helps to reduce dependence on rice. According to modern science, eating excess rice, which we do in general, is not good from the health point of view. Thus, to fulfill farmers economic demand they are getting more involved in vegetable cultivation along with rice cultivation (Ali and Hauk, 2012).

For Bangladesh, identifying the constraints on vegetables production is important to expand it, since the supply of vegetables is quite irregular in most Asian countries, including Bangladesh (Ali and Hauk, 2012). Only a small proportion of total cropped areas of Bangladesh are vegetables production. Most of the agricultural production in Bangladesh is strenuous in rice, occupying about 75 percent of total cropped areas, whereas only 7 percent of the total cropped land is used for horticultural crops, including root and tuber crops (BARI, 2017). The area under vegetable cultivation accounts for only 2.56 percent of the total cropped areas. From this small proportion of the cultivable land area, Bangladesh produces about 1.76 lac metric tons of vegetables annually, of which about 65 percent are produced in

winter and the rest in summer. Therefore, production is not well distributed throughout the year and produce for domestic use is relatively scarce in the off-season (DAE, 2016).

Marketing channel is predominantly controlled by the middlemen and post-harvest management is extremely poor. The ethnic market buyers, however, still follow the liberal policy for import, as there is no mandatory marketing barrier for entry of most of the Asian fruits and vegetables to the UK at the moment. Middle East markets are also behaving more or less the same way, although phytosanitary certificate is a requirement there (EPB and Hortex Foundation, 2016). Marketing is the performance of business activities that direct the flow of goods and services from producer to consumer or user. In Bangladesh, there are different types of agricultural markets through which agricultural products are exchanged. These are rural primary market, rural assembly market, rural secondary market, urban retail market. The rural primary markets are scattered over the entire country and are the first link for the growers in the market structure (Hossain, M.A., 2014). Farmers produce vegetable crops, which is particularly perishable in nature. It is estimated that a loss of about 25-40% of the vegetables occur due to rough prepackaging and improper handling, transportation and storage practices and the variation often depends on the type of vegetables (DAE, 2016). Some of the constraints both biotic and abiotic, which hamper the vegetable marketing, post-harvest losses, slow process of technology transfer, ignorance of people, weak storage capacity, marketing intelligence etc. (ADB, 2016)

From the above view points, the present study takes an attempt to depict the following objectives:

- To review the production level and consumption rate of vegetables in Bangladesh.
- To highlight different marketing system of vegetables in Bangladesh.
- To identify sustainable technology for increasing export of vegetables to other countries.

CHAPTER II

MATERIALS AND METHODS

This is an exclusively a review paper. So, no specific methods of studies are involved to prepare this paper. This paper mainly depends on the secondary data. Different published reports of different journals mainly supported in providing data for this paper. It has been prepared by comprehensive studies of various articles published in different journals, books and proceedings available in the libraries of Bangabandhu Sheikh Mujibur Rahman Agricultural University, Bangladesh Agricultural Research Institute, Bangladesh Agricultural Research Council, Hortex Foundation and Department of Agricultural Extension (DAE). Different information's has been collected through contact with respective persons, major professor and Internet facilities to enrich this information.

CHAPTER III
RESULT AND DISCUSSION

3.1 Area and production

In Bangladesh, more than 60 different types of vegetables of indigenous and exotic origin are grown. At present, total vegetable growing area in the country is about 225,153 hectares (2.47 acre is equal to a hectare), of which 65% are cultivated during winter (DAE, 2016). These crops were neglected and relegated in the past, as research and extension work mostly concentrated on cereals. It is, therefore, not surprising that vegetables contribute only 3.68% to the GDP with a production area of less than 2.63 of the total cropped area.

Table 1. Vegetables production during 2008-09 to 2014-15

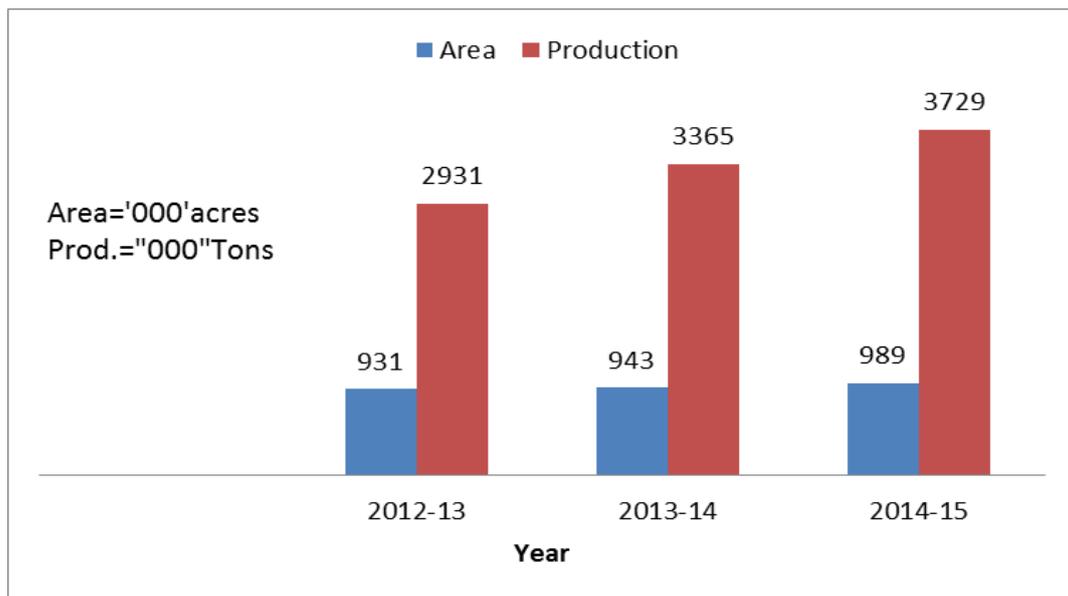
Year	Total Crop Area in (lac ha)	Vegetable Area in (lac ha)	% of Vegetable Area to Total Area	Production in (lac MT)	Yield/acre (MT)
2008-09	161.2	1.73	1.69	1.51	2.34
2009-10	158.6	1.87	1.75	1.61	2.56
2010-11	156.6	1.98	1.74	1.58	2.53
2011-12	154.9	1.96	1.71	1.64	2.62
2012-13	154.8	2.13	2.10	1.60	2.58
2013-14	153.4	2.19	2.13	1.64	2.61
2014-15	152.6	2.25	2.63	1.76	2.72

(Source: DAE, 2016)

It is observed from the table that there has been some increase in the acreage under vegetable production during the last 8 years over the preceding 8 years (30%), indicating a gradual transformation of agriculture to more value-added horticulture. One redeeming feature is that whatever increase in the production area of vegetables has taken place so far, that has contributed to the increase in the percentage of the total cropped area from 1.69 in 2008-09 to 2.63 in 2014-15, meaning that some other crops are losing their share in the total cropped area in favour of vegetables. Yield per acre, however, increased gradually more or less,

during this period. This shows that the productivity of the vegetables in 2014-15 was still at the same level of 7 years ago, i.e. 2008-09.

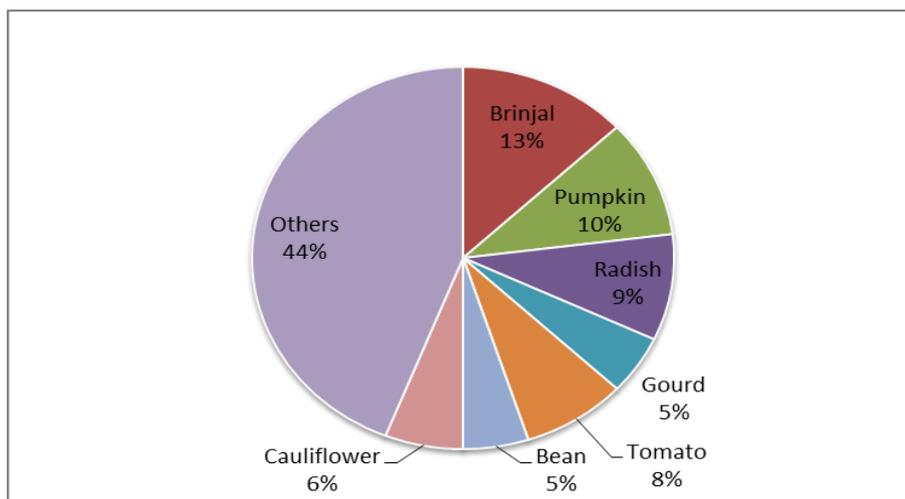
Production of vegetables has increased, but at a slow pace from 2931,000 tons in 2012-13 to 3729000 tons in 2014-15 respectively. The production area of vegetable is increasing gradually from 931000 acres in 2012-2013 to 989000 acre in 2014-2015 according to the Bangladesh Bureau of Statistic (BBS) report. (figure 1)



(Source: BBS, 2015)

Figure 1. Production of vegetables (2012-13 to 2014-15).

According to the Department of Agricultural Extension there are more than 60 types of vegetables are cultivating in our country. Among them 7 types of vegetables are cultivated in 56 percent of total cultivated area and other more than 50 vegetables are cultivating in 44 percent area under vegetable cultivation. Here brinjal are cultivating most of the area which is 13 percent of total vegetable area then pumpkin 10 percent radish percent and gourd, tomato, bean, cauliflower cultivating 5,8,5,6 percent area respectively which is shown in (figure 2).



(Source: DAE, 2016)

Figure-2. Percentage of area under different vegetables

3.2 Seasonality of vegetables

Based on the growing seasons, vegetables are categorized as summer/rainy season vegetables, winter season vegetables and all-season vegetables. Of the summer vegetables, various cucurbits, vegetable cowpea, hyacinth bean, stem amaranth, several aroids and Indian spinach are predominant. Winter vegetables include tomato, cabbage, Chinese cabbage, cauliflower, brinjal, carrot, spinach, bottle gourd, bush bean and radish among many others. Crops like okra, heat tolerant tomato, brinjal, carrot, spinach, many leafy vegetables, small onion, etc. can be grown any time of the year.

3.3 Cost of vegetables production

The cost of production of vegetables varies depending on crop, variety, time, place, and season. During the survey, farmers were asked to identify the major types of production costs on which they usually spend. According to the respondents, the production cost of vegetables can be categorized into eight major categories: land preparation, seeds and seedlings, manure and fertilizer, irrigation, pesticide, labor, lease/rent of land, and other expenses like fencing, shedding, mulching etc. Table 2 shows the allocation of average production costs of different vegetables in the areas of Bangladesh surveyed. (Ambia, G.M. 2014).

Table 2. Allocation of total production cost of some vegetables, in percentages

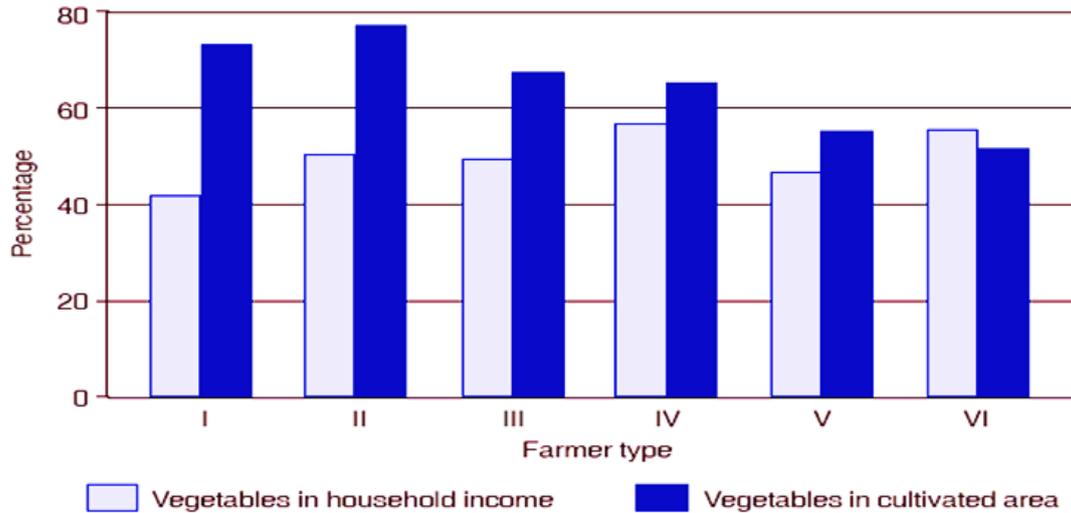
Item	Pumpkin	Bitter gourd	Okra	Tomato	Brinjal
Land preparation	3.55	4.14	4.95	5.02	3.86
Seed/seedlings	2.48	7.40	3.89	4.30	3.33
Manure/fertilizer	21.59	20.71	25.82	24.00	27.36
Irrigation	13.91	5.04	5.31	4.23	6.35
Pesticide	14.19	12.31	9.90	7.57	9.88
Labor	18.13	18.51	20.58	29.84	17.38
Lease/rent of land	22.86	14.23	19.19	15.37	25.72
Others	3.29	17.60	9.61	10.39	6.12

Source: Ambia, G.M. (2014).

In accordance the table 2 we can say that the vegetable farmers spent the largest portion of their production costs on manure and fertilizer, followed by labor costs. However, only a very small portion of production costs are due to land preparation, ranging from four to five percent. Expenditure for planting materials like seeds and seedlings in general, is about six percent for all vegetables. The average expenditure for irrigation and pesticides are about eight and ten percent, respectively. Since most of the growers are small and medium scale operators, they usually need to borrow land for cultivation round the year. On average, about 18 percent of total production costs are incurred for land rental fee and/or share-cropping arrangements for cultivation. In this regard, vegetables growers usually borrow land from other farmers in their locality, both large and small, who are not involved in or interested in cultivation.

3.4 Income on vegetable product

Farmers, on average, earn three-quarters of their income through farm-related activities, and approximately 60% of all farm cash income is vegetable-related (Figure 3).



(Source: AVRDC, 2012)

Figure 3. Significance of vegetables for livelihoods by farmer type

There is a strong increase from the earlier survey where between 27 and 40% of all farm cash income was reported to be related to vegetable production. Larger scale farmers derive around 55% of their total household income from vegetable cultivation (Ali and Hauk, 2012). Type I is small scale farmers having less than 0.40 ha cultivable land, Type II=0.41-.80 ha, Type III=0.81-1.10 ha Type IV=1.11-1.50 ha Type V=1.51-2.00h= ha. VI =Large Scale Farmers More than 2.00 ha cultivable land.

3.5 Vegetable Consumption

Per capita vegetable consumption is the lowest in comparison to the neighboring Asian countries. The consumption of vegetable in Bangladesh is the lowest among China, India, Korea and Thailand. Shown in table 3.

Table 3. Per capita consumption of vegetables in different country

SL.NO	Name of the country	Per Capita consumption of vegetable (g/day)
1	Bangladesh	56
2	China	292.05
3	India	228.76
4	Indonesia	117.53
5	Japan	432.6
6	Republic of Korea	684.38
7	Thailand	257.53

(Source: FAO, 2015)

In estimating the per capita availability of food items, BARC based its calculation on the population size and production for the year 2010-11, 2011-12, 2012-13, 2013-14 and 2014-15 respectively and the per capita food intake figure published by BBS in 2015. Sharp increase in per capita availability of vegetables is seen in the last two years as shown in (Table 4).

Table 4. Availability of per capita vegetables (2010-15)

Period	Availability (gm/capita/day)
2010-11	53
2011-12	55
2012-13	62
2013-14	68
2014-15	76

(Source: BBS, 2015)

Summer vegetables consumed by the farmers are 19.10% of total production whereas in winter vegetables 16.10% of total production. Winter vegetables are more sold compare to summer vegetables. Which are shown in table 5.

Table 5. Utilization of produced vegetables by the farmers

Crops	Consumed (% of Total Production)	Sold(% of total production)
Summer vegetables	19.10	80.90
Winter vegetables	16.10	83.90

(Source: EPB, 2016)

3.6 Export pattern of Fresh Vegetables (FV)

Bangladesh primarily exports fresh vegetables in horticulture sub-sector. If the export performance of fresh vegetables during the period 2010-11 to 2015-16 is analyzed, it is observed that the volume and value both increased in export over the previous year's period.

In the financial year of 2013-14, export of vegetables tremendously increased to the highest volume and gone up to 147.55 million US\$ after four decade of independence. This may be seen in the (table 6).

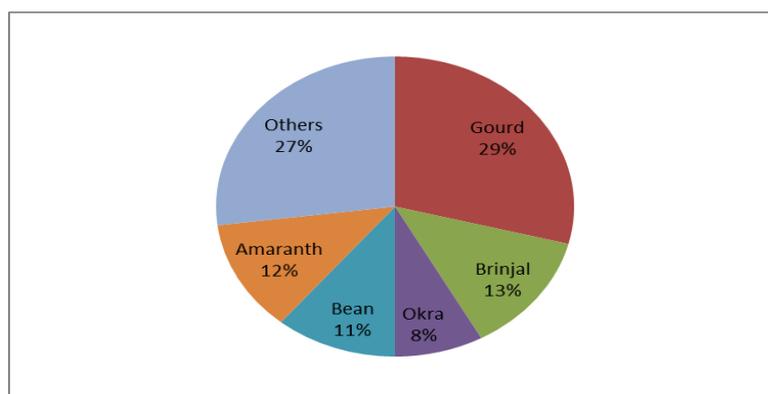
Again, in the year 2014-15 in the same way export declined about 30% than that of previous year and following year also shows declined due to restriction in EU countries on some vegetables. The major causes of restriction are a) Presence of quarantine harmful organisms in fruits, vegetables, betel leaves. b) Presence of brown rot agent and potato tuber moth in potato. c) Absence of product integrity. d) Documentary reasons etc. (Hortex Foundation, 2016).

Table 6. Export performance of fresh Vegetables during FY 2011-12 to FY 2015 -16.

Fiscal Year	Quantity Exported (MT)	Export Value (in Million US\$)	Export Growth On Value (%)
2010-11	36672	71.73	-
2011-12	39586	77.43	(+) 7.95
2012-13	56411	110.34	(+) 42.50
2013-14	75435	147.55	(+) 33.72
2014-15	52781	103.21	(-) 30.03
2015-16	53344	104.34	(+) 1.06

(Source: EPB and Hortex Foundation, 2016)

Bangladesh exporting more than 48 types of vegetables. Among them different types of gourd (pointed gourd, ridge gourd, bitter gourd, white gourd, teasle gourd, sponge gourd and bottle gourd) are exporting, which is 29 percent of total export of vegetable. Other them Brinjal, pumpkin, okra, cucumber, indian spinach, stem amaranth, radish bean etc are exported. According to the Export Promotion Bureau of Bangladesh the percentage of different vegetables which are exported are given in (figure 5).



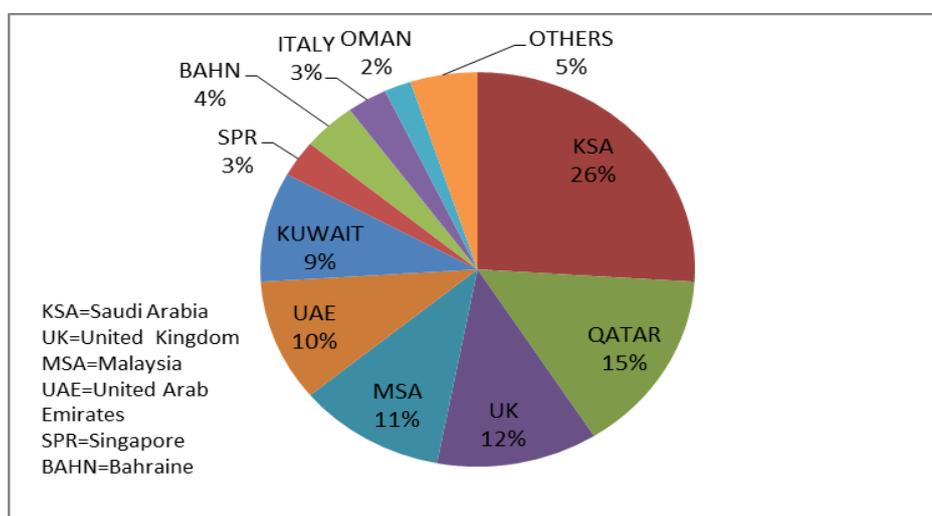
(Source: EPB, 2016)

Figure 4. Export percentage of different vegetables

3.7 Market outlets of fresh Vegetables

Although Bangladeshi vegetables are being exported to about 38 market destinations, but the major buyers are 10 (ten) countries, located in two regions: Europe (U.K. and Italy) and the Middle East. In the Middle East region again, the major market outlets are Saudi Arabia, Kuwait, Qatar and UAE (EPB, 2016).

These 10 individual markets together contribute more than 90% to the total export earnings from fresh vegetables from Bangladesh and as such, are considered as the most important market outlets for this sector. Figure 6 showing the market-wise outlets of vegetables from Bangladesh in FY 2015-16.



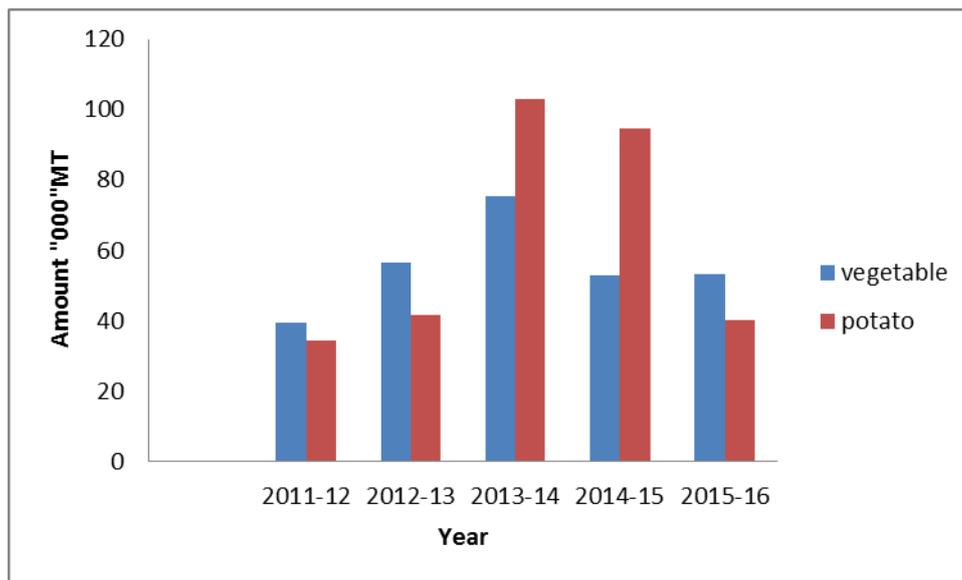
(Source: EPB, 2016)

Figure 5. Market Outlets of Fresh Vegetables

In fact, there has been no significant change in the export pattern of vegetables over the years. These 10 markets used to play the same important role till date, always lifting more than 90% of the total fruits and vegetables from Bangladesh. In terms of ranking, however, there had been occasional changes among the 4 Middle Eastern countries, U.K. always holding the third position and Saudi Arabia the topmost position. Italy, however, emerged as one of the 10 top-ranking markets for the first time in 2004-05 and continued till 2013 (Saleh M.A., 2014).

3.8 Comparison between year wise vegetable and Potato export

According to the Export Promotion Bureau and Hortex Foundation the total export of potato and vegetable were increased from 2011-12 to 2013-14. In 2013-14 fiscal year the export amount of potato and vegetables reaches in pic point and it was 103000 and 75435 metric tons respectively. But after that the export decreased both of them and reach minimum in fiscal year 2014-2015. The amount of potato and vegetables were 402320 and 53344 metric tons respectively shown in figure 7. (EPB and Hortex Foundation, 2016)



(Source: EPB and Hortex Foundation, 2016)

Figure 6. Comparison between year wise vegetable and Potato export

3.9 Vegetable Production and marketing system of Bangladesh

Vegetables in much of Asia and the Pacific region are grown by small-scale farmers who are unorganized and scattered in different locations, and this also applies to Bangladesh. Concentration on production is important because low production can affect all the players in agribusiness. At the production level, external factors such as weather and susceptibility to diseases and pests have significant effects on the output and quality of agricultural produce. Low production is also a result of limited access to inputs like irrigation, seeds, fertilizers, and credit, as well as of poor cultural practices, poor soil, and low levels of management skills. In addition, the two most important factors affecting the quality of the output are the

choice of the right cultivar and the maturity at which the crop is harvested (Hossain M.A., 2011). In addition, a low level of production may ultimately hamper the agro-industry supply chain. Vegetables are grown for 3 specific purposes as follows:

- ✓ Subsistence production in the homestead
- ✓ Commercial production; and
- ✓ Seed production.

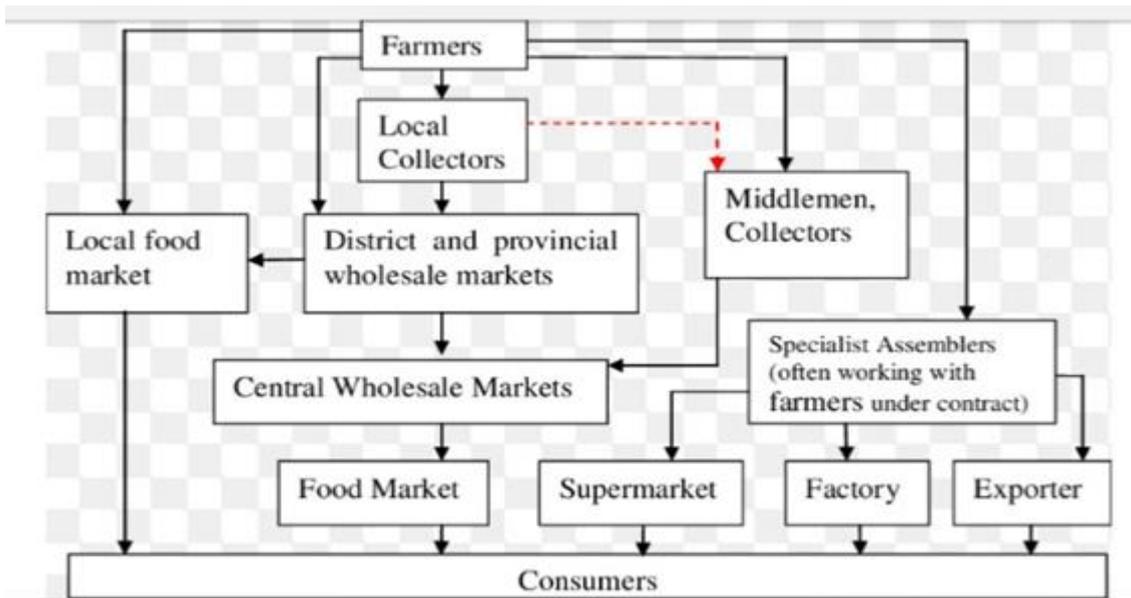
The most important horticultural production unit in Bangladesh is the homestead and almost without exception, women play the major role in managing homestead production. Commercial production so long was the domain of big landlords and mostly fruit crops were produced commercially. Recently, however, commercial productions of vegetables are also getting momentum and farmers with proper knowledge and skill are coming forward increasingly to undertake this venture. (Hossain M.A., 2011).

3.10 Exportable items of Vegetables

Bangladesh mainly exports fresh vegetables. However, during recent years' export of processed as well as frozen vegetables had started on a limited scale. The exporters mostly export their vegetables to Middle East, UK, USA, Canada, Singapore and Japan where Bangladeshis and other ethnic Asian live in large number. The major exportable vegetables are country bean, yard long bean, French bean, Okra, Pointed gourd, Teasle gourd, Bitter gourd, Taro, Chili among others. (Alam J., 2013)

3.11 Marketing channels

The present marketing intelligence system in Bangladesh is not yet organized. Communication systems to link wholesale and retail prices of commodities in different areas have not been strengthened. Vegetable are sold fresh or processed to the domestic and foreign markets (Figure 7). In Bangladesh this are sold to wholesalers and retailers before reaching to the consumers. Thus there is a tendency for prices to balloon tenfold (Islam, 2010).



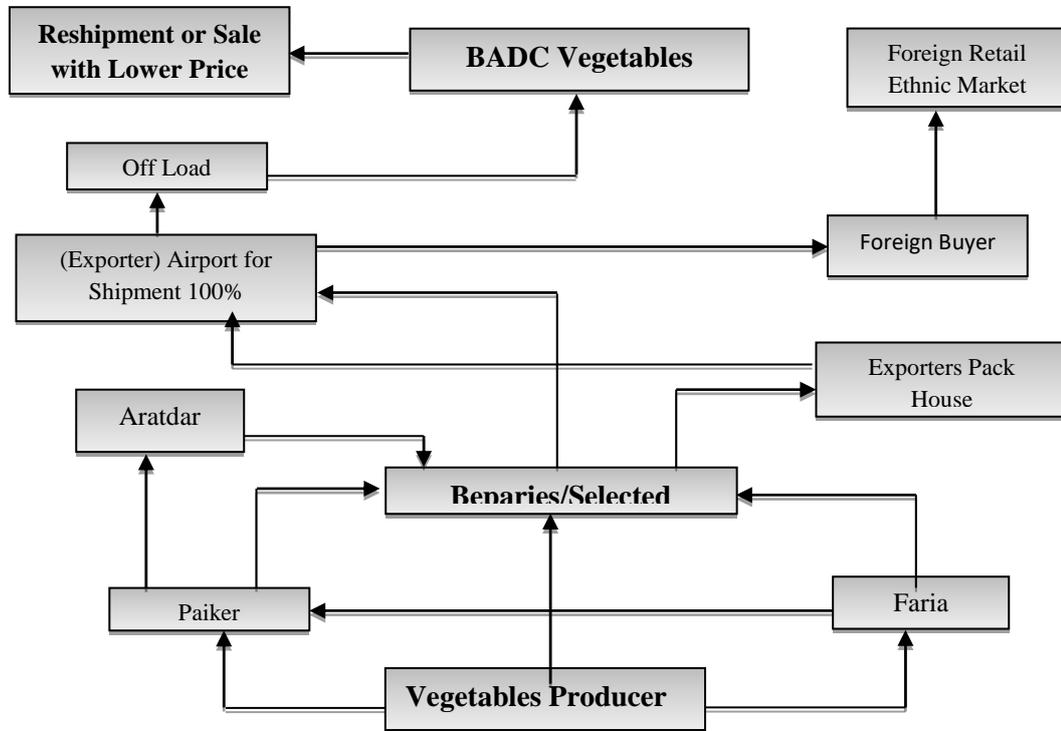
(Source: Islam, 2010)

Figure 7. Overall marketing channels of vegetable

3.12 Export Supply Chain of Vegetables

Members of the Bangladesh Fruits, Vegetables and Allied Products Exporters' Association mostly export fruits and vegetables from Bangladesh. The Association has a total of 252 members around 25 of them are reportedly active in export. These exporters are responsible for more than 90% of the total export of fruits and vegetables from Bangladesh (EPB, 2016). Some of the exporters are understood to be operating under two or more names for various business reasons, mainly for getting more space in the Biman air craft, as the limited available space is allotted to the active exporters by lottery. The other airlines operating from Bangladesh are reluctant to carry perishable cargo or the charges are much higher than the Biman for different destination. There is no cargo airlines which carry vegetables from Bangladesh to Europe or middle-East. Since quality consciousness is not that high at the export level, the exporters mostly remain satisfied with the traditional way of collecting the producers for export (EPB, 2016).. As has already been explained, they normally procure produces through middlemen who collect orders from various exporters, go to the producing areas, collect crops from farmer/local markets and arrange to deliver the same to the

exporters on the day of shipment (Figure 8). Recently, however, some of the ethnic market buyers, operating in countries outside the EU have started insisting for quality improvement and good packaging requirement.



(Source: Ahmed M.M., 2010)

Figure 8. Export channels of vegetable marketing.

A few exporters sending vegetables to Canada and the UK are using cool chain and improved cartons of international standard made out of virgin pulp to contain their buyers in such markets with support from Hortex Foundation. Fresh vegetables flow through two kinds of marketing channels in selected study areas, for local consumption and for export. In the export marketing channels, the vegetables producers sell their vegetables to Faria 15%, Paikers 10% and Beparies/Selected agents 75%. Beparies/Selected agents who work for exporters collect vegetables from the production areas. The exporters are investing money through Beparies/Selected agents for export quality vegetables. After sorting and sometimes packing, the Beparies/Selected agents hand over the vegetables to the exporters (Ahmed M.M., 2010).

3.13 Organizations involved in vegetable production and marketing

- Department of Agricultural Extension (DAE)
- Bangladesh Agricultural Research Institute (BARI)
- Bangladesh Agriculture Development Corporation (BADC)
- Department of Agricultural Marketing (DAM)
- Bangladesh Fruits, Vegetables and Allied Products Exporters Association (BFVAPEA)
- Bangladesh Agro Processors Association (BAPA)
- Bangladesh Standard Testing Institute (BSTI)
- Hortex Foundation
- BRAC

BRAC is the only organization in Bangladesh, which is organizing quality horticultural production through the contract growers. Presently, their export is around US\$1 million a year, which is about 10% of the annual horticulture export of Bangladesh (BRAC, 2015). Initially, BRAC was started horticultural operation as a producer organization only and a few private sector farms were introduced for export of their produces under a contractual agreement, but ultimately that didn't work.

Finally, BRAC (when the private exporters declined) had to be introduced to those market contacts and eventually its export started in 1997-98 (July-June) for the first time to the non-conventional West-European markets, beyond the horizon of traditional ethnic markets.

3.14 Production and packaging system

Main feature of the production system is almost the absence of any direct linkage between the exporters and the primary producers. Most of the produces are procured through the middlemen. In general, orders from foreign buyers are received before a few days of shipment and passed on to the middlemen. They procure the produces from farmers and arrange transportation of the same to Dhaka on the day of export shipment. The transportation is usually arranged either on the bus top or by heavily loaded truck. Produces,

thus brought to Dhaka, are re graded and repacked in the shed of the exporters. The packaging materials used by exporters generally consist of bamboo baskets or secondhand cartons. There are, however, one or two exceptions, where crops are produced through contract farmers, delivered at the exporter's pack house nearby and then pre cooled, sorted, graded, packaged, stored and transported to the airport for export, maintaining proper quality and standard throughout the whole chain (Quddus M.M., 2013).

3.15.1 Constrains in Vegetable Production

The constrains of vegetable production are given below.

1. Unavailability of sufficient number of good varieties.
2. Inadequate supply of quality seeds.
3. High incidence of insects and diseases.
4. Lack of knowledge of farmers about scientific methods of crop management.
5. Unscientific post-harvest handling and heavy spoilage.
6. High price and low quality pesticides.
7. Crop and yield loss due to natural hazards (floods, heavy and untimely rain, drought, storms).
8. Scarcity of suitable land for vegetable production

(Source: Rashid, 2008; Quasem, M.A. 2013)

3.15.2 Constrains to marketing of vegetables

The constrains of vegetable marketing are given below

- Rural transportation is a key factor in determining market access for growers and traders. Many market participants are handicapped by undeveloped roads and absence of timely transportation facilities which is necessary for movement of perishable vegetables from the grower's premises. Vegetables from the remote areas particularly from the other side of the Jamuna and Padma often get delayed due to inadequate ferry services.

- Vegetables grown in the homestead and' nearby land are usually disposed of by the growers at the local markets who cannot bargain with the beparies and are compelled to sell at the price dictated by them.
- The condition of most of the rural assembly markets is far from satisfactory. In the absence of adequate space, shed, internal roads and water connection etc., the quality of the produce deteriorates.
- Proper packing and handling system has not been adequately developed in the country. Bamboo baskets and gunny bags are used in some cases while bulk loading is also practiced.
- Marketing credit facilities are limited in the country.
- Wholesale markets have not yet developed with facilities for easy movement of trucks loading, unloading, grading, sorting and packing of vegetables.
- Processing industry has not yet been adequately developed in the country because of high processing costs.

(Source: Rashid, 2008; Quasem, M.A. 2013)

3.16 Prospects of Vegetable Crops

With the promotion of vegetable crops as a whole, there will be a vast scope of agribusiness creating a lot of employment opportunities. This will have positive impact on our national economy. The possible fields relating to vegetable crop-based agribusiness are the following:

- Growing and handling of vegetables as a cash crop
- Transportation with refrigeration facility
- Cold storage facility
- Processing and preserving industry
- Vegetable (fresh and processed) export business
- Export oriented special vegetable growing farm;
- Marketing channel intermediaries
- Vegetable seed merchants
- Vegetable seedling nursery (e. g. grafted and potted seedling); and

- Special-type vegetable grower (e. g. sprout vegetable and mushroom)

(Source: Saleh, M.A. 2014)

3.17 Prospects of Vegetable Marketing for Small-scale and Part-time Growers

Marketing is important to all farm enterprises, regardless of size. Some farmers, such as cash grain farmers or dairy farmers, have large, well-established markets. They can use existing organizations to perform the marketing function for them, or they can band together, form a cooperative, and market their products jointly. Small-scale vegetable growers generally have more difficulty finding established markets; therefore, they usually develop marketing systems tailored to their unique situations. It is strongly recommended that one should identify and research their market before become a vegetable grower. (Quasem, M.A. 2013)

3.18 Improved techniques for market intelligence

The present market intelligence system is not well organized. The following are suggestions for improved market intelligence:

- In the interest of the national broadcasting of vegetables, market information through radio and television should be introduced.
- Prices and gathering of different vegetables of important markets should be published in separate bulletins.
- Vegetables growers, trader's/exporters associations should get the vegetable information bulletin of important markets.
- Grade and standardization of vegetables, knowledge of packing and quality control should be given to growers and traders both for local and export markets to increase the status of vegetables by organizing training programs to farmers, traders and exporters.
- The prices and demand of export market for different vegetables should be collected by the Department of Agricultural Marketing for distribution to exporters.
- The capacity of DAM should be increased.

(Source: Saleh M.A., 2014; Hossain M.A., 2011)

CHAPTER IV

CONCLUSION

Based on the findings of the study, the following conclusions are drawn-

- Vegetable production is in increasing trend but consumption percentage is not satisfactory in compare to other countries. So, daunting task are ahead to achieve the targets.
- Marketing system is problematic and unorganized in Bangladesh. Adequate parking facilities in production areas or near the airport and cold storage facilities at the airport will be necessary before the business of fresh perishable produce export can be expanded.
- Vegetable exporting has a bright future and a tremendous scope to increase the earning foreign currency through technological advancement and reduce the price risk faced by farmers and also known to the grading of vegetable and improved techniques should be followed.

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