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AGRO-INDUSTRIAL DEVELOPMENT AND SUSTAINABILITY IN BANGLADESH - A STUDY

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Abstract

A study was conducted to know the current state of development sustainability of the agro-industrial sector in terms of its product diversity, export volume, export value, destination of the product by region and country. A structured questionnaire was prepared to do the random sampling survey and focused group discussion also held with the relevant stakeholder in agro-industrial sphere. The study revealed that in terms of value, the highest exported agro processed product is spices 21.46 million US$ (25%) and in terms of weight, the highest exported agro processed product is drinks (26735 ton). It is investigated that 81% of Bangladesh agro processed product goes to Asian market which value is US$ 70.13 million. In terms of export value, the major destination of Bangladesh agro-processed product is Kingdom of Saudi Arabia(KSA) which amount is 20.2 million US$. In terms of export in weight, the major destination of Bangladesh agro-processed product is India (24372.88 metric ton).

Keywords: Agro-based Industry, Exported Product, Diversity, Development & Sustainability

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Introduction

"Agro-industry" refers to the establishment of linkages between enterprises and supply chains for developing, transforming and distributing specific inputs and products in the agricultural sector (GAIF, 2008). FAO and UNIDO (2009) mentioned that the accelerated growth of agro-industries in developing countries poses risks in terms of equity, sustainability and inclusiveness.

The agro industry is regarded as the key component of the Bangladesh economy that mainly comprises of the post-harvest activities of processing and preserving agricultural products for intermediate or final consumption (Wilkinson and Rocha, 2009). This agrarian economy consists of 18.6% of the GDP and 47.5% of the total labor force (BOI, 2014). Bangladesh is reaching ahead to self-sufficiency in food production but an importer of many essential agricultural commodities and processed food products. Therefore, the agro-industry has huge opportunity to become an important and vital part of the manufacturing sector in developing countries like Bangladesh and the means for building industrial capacities. Agricultural commodities have comparatively higher value addition proposition than non-agricultural commodities and the growth of the different service sectors such as wholesale and retail marketing, hotel and restaurant, transportation, preservation, communication are overwhelmingly depended on agro-industrial sector (MOF, 2007). Therefore, broad-based development of the agro-products industry may improve both the social and physical infrastructure of Bangladesh. The sustainability of agro-industrial sector can be the single largest contributor to income and employment generation, create supply chain, improve agricultural productivity and enhance competitiveness of processed export products, reduce rural poverty, and foster economic advancement with sound environmental management practices.

There are very few studies on agro-products portfolio of the industry, industry's readiness to export, export volume and weight of agricultural commodity, destination of the exported products, challenges and risks of agro-industry. The objective of the study is to know the current state of development sustainability of the agro-industrial sector of Bangladesh; to identify the factors working as impediments to the sustainable development efforts in the country; to suggest for improving the impediments to the improvement of the sector.

It is hoped that the study on agro-industrial development and sustainability will be a notable investigation in Bangladesh. It is expected that this study will provide a theoretical-conceptual base to support the discussion on improvement of agro-entrepreneurship ecosystem in Bangladesh.

Materials and Methods

The study was conducted during the period March 2014 to February 2015 covering seventy-five leading agro-based industries in the country, which are presented in Table 1.

Table 1. Name of the of the agro based industry with factory address in Bangladesh

Sl. No.	Name of the of the industry	Factory address
1.	Agricultural Marketing Co. Ltd.	Ghorashal, Palash, Narshingdi, Dhaka
2.	Rashid Agro Food Products-1	Ballavpur, Kushtia Sadar, Kushtia
3.	BRAC Dairy & Food Project	Joydevpur, Gazipur
4.	Bangladesh Maize Products Ltd.	Baniarchala, Memberbarimor, Mirzapur, Gazipur
5.	Bishwas Auto Rice Mills	Allahar Darga, Doulatpur, Kushtia
6.	Square Consumer Products Ltd.	Meril Road, Salgaria, Pabna
7.	Haque Brothers (Industries) Ltd.	Tejgaon Industrial Area, Dhaka
8.	Bangas Limited	Daulatdia, Chuadanga
9.	Al-Amin Bread & Biscuits Ltd.	Maijdee Bazar, NoakhaliBinodpur, Noakhali
10.	Abul Khair Consumer Prod. Ltd.	277, Bayzed Bostami Road, I/A Chittagong
11.	Abul Khair Cond. Milk & Bev. Ltd.	277, Bayzed Bostami Road, I/A Chittagong
12.	Hashem Foods Ltd.	Bholta, Rupganj, Narayanganj
13.	Olympic Industries Limited	Keodhala, Madanpur, Sonargaon, Narayanganj
14.	Eurasia Food Proc. (Bd) Limited.	Gouripur, Ashulia, Savar, Dhaka
15.	Coastal Sea Foods Ltd.	BSCIC Industrial Estate, Sagarika Road,Chittagong
16.	BD Foods Ltd.	Bhawal, Mirzapur, Gazipur
17.	Pran Foods Ltd.	Ghorashal, Palash, Narshingdi
18.	Pran Agro Ltd.	Ekdala,Nator
19.	The Acme Agrovet & Beverage Ltd.	Dalivita, Dhamrai, Dhaka
20.	M.R. Rice Mill (Pvt) Ltd.	Dinajpur Sadar, Dinajpur & Taraganj, Rangpur
21.	Pran Beverage Ltd.	Ghorashal, Narsingdi
22.	Pran Dairy Ltd.	Pran Industrial Park, Baghpara, Palash, Narsingdi
23.	Bengal Meat Processing Ind. Ltd.	Vill: Korial, Post: Kasinathpur, Santhia,Pabna
24.	Danish Foods Ltd.	Shimrail, Shiddhirganj, Narayanganj
25.	ACI Foods Limited	Kutirchar, Sirajganj
26.	Dekko Foods Limited	Tetuljhora Hemayetpur Savar, Dhaka
27.	Asian Sea Food Limited	Labanchora,Khulna
28.	Haser Mohammad Auto Rice Mills Ltd.	Nayanpur, Mujahidpur,Dinajpur
29.	Banoful & Co.	East Nasirabad, Sholoshohor, Chittagong
30.	Rupsha Fish & Allied Ind. Ltd.	Paikpara, Rakhalgachi, Bagerhat
31.	Blue Water Sea Food	BSCIC Industrial Estate, Sagarika Road, Chittagong
32.	Asha Agro Industries	Ratanpur Bazar, Birampur, Dinajpur
33.	Bengal Biscuits	42-46 BSCIC I/A, Barisal
34.	Northern Agril. & Ind. Co. Ltd.	Ashulia, Bashaid, Savar, Dhaka
35.	Alhaz Agro-Industries (Pvt), Ltd.	Bokran Monipur (Nayapara), Gazipur
36.	Kazi Food Industries Limited	Baron, Ashulla, Savar, Dhaka
37.	Bangla Agri Foods	Palash, Sadar, Narshingdi
38.	Maati Agro Aqua Trade Int.	400, Tejgaon I/A, Dhaka-1208
39.	Mymensing Agro Limited	Mulgaon, Sandan Para, Kaligonj, Gazipur
40.	Prince Food Products Ltd.	Hemayetpur Bazar,Savar, Dhaka
41.	Paradise Food Products Ltd.	Hemayetpur Bazar Savar, Dhaka
42.	Swadesh Consumers Ltd	Lotifpur, Kashimpur, Gazipur Sadar, Gazipur
43.	Arku Foods Limited	Ramchandapur, Chapapur, Comilla-3500
44.	Igloo Foods Limited	71/A-71/B, Kadomtali I/A, Shyampur, Dhaka-1204
45.	Akij Food & Beverage Ltd.	Krishnapur, Dhamrai, Dhaka
46.	Banga Millers Ltd.	Charmirkamari, Joynagar Ishwardi, Pabna
47.	Rajshahi Mango Products Ltd.	Amodpur, Bagha, Rajshai
48.	Kishwan Agro Products Ltd.	79 Chadpur, Pirgonj, Natore
49.	M/S Dwi Tara Muri Mill.	Fateabad, Hathazari,Chittagong
50.	Ifad Multi Products Limited.	Bororangamaati, Zeribroad, Savar, Dhaka
51.	Harvest Rich Agro Ind. Ltd.	Bhulta, Rupgonj, Narayangonj
52.	Amrita Food Products	Amritanagar, Phangsha, Babugonj, Barisal
53.	M/S Razzak Oil Mill	Brick Field Road, Balarmpur, Dogachi, Pabna
54.	Janata Enterprise	269, Digambartala, Comilla
55.	Khandakar Consumer Food Ind. Ltd.	96 (80), Pm Road, Madangonj, Bandor,Narayanganj
56.	Intra Food Industries Ltd.	Anonto Bandh Dipchar Road, Bolorampur, Pabna
57.	Ampro Agro Processor	Ponditgram, Chatni, Natore
58.	Satkhira Foods Limited	Chuknagar, Dumuria, Khulna
59.	Transcom Consumer Products Ltd.	Fuldighi, Bogra
60.	Maa Agro Food Products	Kashinathpur, Santhia, Pabna
61.	Eurocross Frozen Foods (Bd) Ltd.	Unit: 5-8, BSCIC I/E, Khadimnagor, Sylhet
62.	Atlas Food & Beverage Ltd.	177, Tulshi vita, Kawltia, Bahadurpur, Gazipur
63.	Alin Foods Export Limited	20/8 Rajabari, Savar, Dhaka
64.	Ahmed Food Products (Pvt.) Ltd.	Ashulia Village,Boro-Rangamatia, Savar, Dhaka
65.	Sheikh Auto Rice Mill	Ballavpur, Poradah, Kushtia Sadar
66.	Bombay Sweets Co. Ltd.	Aylbohor, Shyampur, Kadamtoli, Dhaka
67.	Joaddar Auto Rice Mills	Dostopara, Jagati, Kushtia Sadar
68.	M/S Dada Auto Rice Mills	Khazanagar, Kushtia Sadar, Kushtia
69.	Fresh Agro Food Industries	Khazanagar, Kushtia Sadar, Kushtia
70.	Pragoti Agro Food Industries Ltd.	Khazanagar, Kushtia Sadar, Kushtia
71.	Kushtia Sugar Mills	Jagati, Kushtia Sadar, Kushtia
72.	Chua Agro Products Ltd.	Kapasia, Gazipur
73.	Rashid Rice Bran Oil	Baharpur, Dashuria, Ishwardi, Pabna
74.	Aman Feed Ltd.	Singhati, Railway station, Ullapara, Sirajgonj
75.	Emarald Oil Industries	Sheripara, Sherpur Sadar, Sherpur

In the study, a structured questionnaire has been developed for collecting quantitative as well as qualitative data on production, export volume, production technology (manual/automation) etc. from agro-based industries. Focus Group Discussion (FGD) also arranged to exchange views with the stakeholders in the agro-industrial arena like Bangladesh Bank, Export Promotion Bureau (EPB), and Agro-Business Promotion Council (ABPC) under Ministry of Commerce. Verbal informed consent of participants was also taken. The secondary data were collected from research journals, books, reports and webpage's available on the Internet etc. Preliminary data sheets have been crosschecked and screened through pre-testing, edited and coded at the field-level to adopt final data. The collected data have been analyzed (mainly addition/summation, subtraction, multiplication, division, percentage) in the excel sheet. Then analysed data have been presented with pie chart.

Results and Discussion

Scenario analysis

The agro-food processing industry in the country is primarily dependent on agro products, heterogeneous in nature, greater diversity in size, technology application, quality of products, processing, preserving, marketing and distributions systems. The agro-processing sector accounts for over 22% of all manufacturing production and employs about 20% of labor forces. All food processing enterprises account for 2% of the GDP (MOI, 2012). The sector is primarily dominated by small and medium enterprises with their strong linkage to the local production and high potential for processing, value addition and export. There are nearly 700 processed food-manufacturing enterprises in the country including homemade processing units of which, at least 30 enterprises are processing fruits and vegetables. The food-processing sector includes processing of cereals, pulses and oilseeds, bakery and confectionery, fruits and vegetables, dairy, carbonated beverages and non-carbonated fruit juices, drinks, other beverages and various other food items. Bangladesh itself with nearly 154 million populations possesses a huge domestic market for processed food (The Financial Express, 2009; http://www.charitywater.org).

A huge number of entrepreneurs in this industry are small in terms of their production and operations, and are largely concentrated in the unorganized segment. According to Bangladesh Agro-processing Association (BAPA, 2014), this segment accounts for more than 70% of the output in terms of volume and 50% in terms of value. Though the organized sector seems comparatively small, it is growing at a much faster pace.

The country produces the different Agro-Processed Products, which are, classified according to FAO Classification (http://www.fao.org) that shown in the Table 2.

Here it is observed that agro-based product has grown-up its base. It can also be said that the various agro-based manufactures are operating in the country. From the agro-basket, it is also stated that some products are newly innovated and entered in the market.

Here it is found that 100 types of agro processed products are gathered in Bangladesh export basket and major exported products are Juice, Drinks, Puffed Rice, Snacks, Spices, Chanachur, Biscuits, Mustard Oil, Pickle, Frozen Vegetable, Semai, Potato Crackers, Nuts, Jam-jelly, Candy, Meat, Mango Bar, Molasses and Flattened Rice (Source: Data collected from Focused Group Discussion with BAPA and EPB in the study period 2014). In 2005-06 financial year, the total export earning was 12.31million US$, in 2008-09, the agro-export earning was 27.05million US$, in 2009 -2010 the export was 52.28 million US$ and in 2010-2011 it was 59.15 million US$. The average growth from 2005-06 to 2010-2011 is 9.4 million US$ (Source: Data collected from Focused Group Discussion with BAPA and EPB in the study period 2014). It is very much inspiring that in 2011-2012 the export stood at 86.91 million US$ and the growth in 2011- 2012 was 46.93% compared to 2010-2011. Within 6 years the agro-export earning has 7 times than 2005-06 (commissioned year) in terms of value. In terms of volume (weight), the exported weight of agro-based product was 14901.45 ton in 2005-06 and it has increased to 80086.43 ton in 2011-12. The volume has increased more than 5 times in 6 years of time. Hence, it can be remarked that both in the term of volume and value of export, the agro-based product has shown steady growth from the year 2005-06.

In terms of value, the highest exported agro processed product is spices 21.46 million US$ (25%) followed by drinks 12.64 million US$ and puffed rice 9.77million US$ in 2011-2012 (Fig. 1).

Table 2. Classification of ccommodities with products of different agro based industries in Bangladesh

Classification of Commodities	Product Name
Cereals and Products	Rice, Wheat, Maize, Agro Seeds, Sweet Mixed Rice Ball, Choi Pitha (Cake), Pastry Sheet, Khichuri Mix (Spice), Firni Mix, Laschi, Biscuits, Chanachur, Flattened and Puffed Rice, Confectionery Goods, Semai, Noodles, Extruded Snacks, Various Kind of Paratta, , Rumali Ruti, Singara, Luchi, Chitai Pitha, Popcorn
Roots And Tubers and Derived Products	Frozen Potato Starch, Potato Crackers, Potato Flakes, Potato Chips, Alu Puri, Potato Biscuits
Sugar Crops & Sweeteners and Derived Products	Sugar, Molasses, Sweets, Candy, Babol Gum, Lolypop, Syrup of date Juice, Vinegar of Date Juice, Honey, Candy, Babol Gum, Lolypop, Syrup of date Juice, Vinegar of Date Juice, Honey, Jarda, Chocolate
Pulses And Derived Products	Chatpati, Dal-Puri, Dal Samusa, Papor, fried Mug and Motor Dal
Nuts and Derived Products	Frozen Nuts, Prepared Nuts, Fried Peanuts
Oil-Bearing Crops and Derived Products	Mustered oil, Mustered Kashundi
Vegetables and Derived Products	Frozen Kolmi Shak (leafy vegetable), Frozen Palong Shak, Frozen Lal Shak, Frozen Pui Shak, Frozen Sajna Data, Pickles of Vegetable & Spices, Vegetable sauces, Vegetable Spring Roll, Vegetable Samusa, Frozen Kachur Loti, Frozen Kachur Mukhi, Frozen Data, Frozen Karola, Frozen Bean Seed, Frozen Satcora, Frozen Ladyfinger, Frozen Bean, Frozen Potol, Coriander Leaf Pickle Frozen Jhinga, Frozen Kakrol, Frozen Nerkeli Kachu, Frozen Barboti, Frozen Radish, Frozen Mushroom, Vegetable Chips
Fruits and Derived Products	Frozen Black Berry, Frozen Guava, Narically (Coconut) Pob, Frozen Green Banana, Banana Chips, Pineapple Slice cane, Mixed Fruits Slice, Fruit Juice, Fruit Drinks, Fruit Jam, Fruit Jelly and Marmalade, Pickles of Fruit & spices, Chutney of Fruit & Spices, fruit sauces, Tomato Sauce/ ketchup, Tomato Paste, Mango Bar, Frozen Jackfruit Seed, Frozen Olive, Juice with Nuta-de-coco, Chalta Pickle
Fibres of Vegetal and Animal Origin	Jute and Jute made Products, Textile, Handicrafts
Spices	Salt, Bombay Chilli Powder
Fodder Crops and Products	
Stimulant Crops and Derived Products	Tea, Rose Water
Tobacco & Rubber and Other Crops	
Vegetable & Animal Oils and Fats	
Beverages	Mineral Water, Flavored Water, Milk Flavored Drinks
Livestock	
Products from Slaughtered Animals	
Products from Live Animals	Fresh Milk, Powder Milk, Flavored Milk, Active Milk Added Drinks, Ghee
Hides and Skins	
Other Livestock Products	

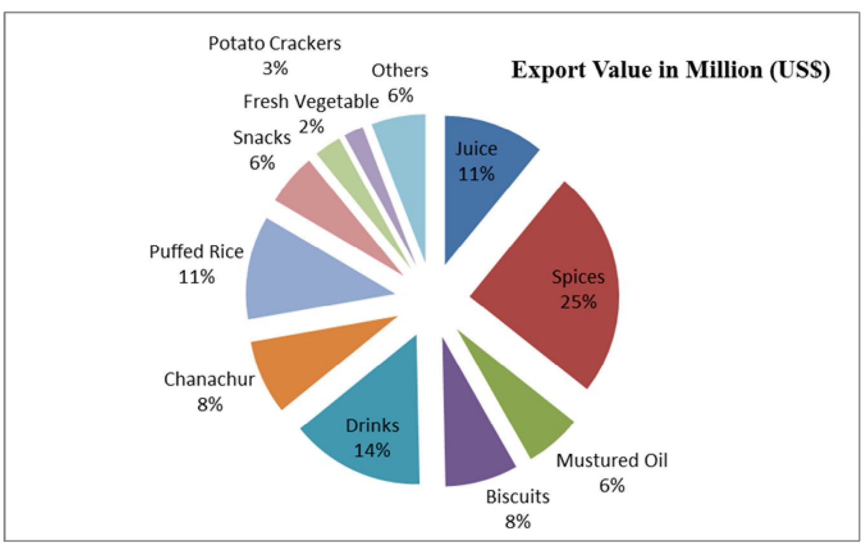

Fig. 1. Product wise export in 2011-2012 in value (Source: BAPA 2014, Bangladesh Bank 2014, EPB, 2014)

Again, in terms of weight, the highest exported agro processed product is drinks 26735.0 ton followed by juice 16230.8 ton and spices 9120.14 ton in 2011-2012 (BAPA, 2014; Bangladesh Bank, 2014; EPB, 2014). On the basis of Earning Foreign Currency in financial year 2011-2012, the major agro-product manufacturing companies are Pran Exports Ltd., Pran Agro Ltd., Pran Foods Ltd., Ibco Food Industries Ltd., Agricultural Marketing Co Ltd., Eurasia Food Processing (So) Ltd., M/s Azmi Foods Ltd., Square Consumer Products Ltd.; Pran Dairy Ltd. Alin Food Products Ltd (Source: Data collected from Focused Group Discussion with BAPA and EPB in the study period 2014).

The agro processed products of Bangladesh are entering into more than 94 countries all over the world such as UAE, Kingdom of Saudi Arabia, India, UK, USA, Bhutan, Malaysia, Kuwait, Singapore, Qatar, Somalia land, Nepal, Angola, Djibouti, Australia, Bahrain, Ghana, Senegal, Canada, Guinea Bissau, South Africa, Mauritania, Italy, Jordan, Belgium, Liberia, Maldives, Congo, China, Nigeria, Benin, Oman, Japan, Sierra Leone, Cyprus, Ivory Coast, Gambia, Burkina Faso, Sweden, Ecuador, Kenya, Togo, Greece, Afghanistan, Lebanon, Korea, Germany, Iran, Cambodia, Sudan, Hong Kong, Spain, Mauritius (Source: Data collected from Focused Group Discussion with BAPA and EPB in the study period 2014). This amply indicates the competitive strength of our growing entrepreneurs.

The Major destinations of agro-processed products are EU Countries, Middle East, South East, Africa and USA. 81% of Bangladesh agro processed product goes to Asian market which value is 70.13 million US$ followed by Europe 8% (6.79 million US$). It is calculated that in terms of export value the major destination of Bangladesh agro-processed product is Kingdom of Saudi Arabia (KSA) which amount is 20.2 million US$ seconded by United Arab Emirate (UAE) 20.1 million US$ and third position held by India 14.08million US$ (Source: Data collected from Focused Group Discussion with BAPA and EPB in the study period 2014). In terms of export in weight the major destination of Bangladesh agro-processed product is India which amount is 24372.88 metric ton followed by United Arab Emirate (UAE) 16785.00 metric ton and Kingdom of Saudi Arabia (KSA) 10078.93 metric ton.

Potentiality and development

The agro industry is considered as an extended arm of agriculture (The Hindu, 2004) and according to National Food Policy Capacity Strengthening Programme in Bangladesh (Shaheen *et al.*, 2013), new high yielding varieties of rice, vegetables, fruits and non-indigenous foods are constantly being introduced in the food chain of Bangladesh. Rising incomes and increased urbanization and the growing numbers of women in the workforce has altered the composition of food demand and engender greater demand for high-value commodities, processed products and ready-prepared foods in Bangladesh (Joshi *et al.*, 2007; FAO & UNIDO 2009). It is found that agro-processing industry is yet to be fully explored though the industry has the huge potentiality.

- Agro industry is the potential growing industry for Bangladesh due to country having large domestic market;
- Available semi- skilled and skilled labor force;
- Presence of optimum quality of land and water with the existence of a favorable natural environment throughout the year for grains, fisheries, poultry, horticulture, livestock production; a wide range of bio-diversity exists for different productions to provide ecosystem services;
- Higher value addition proposition. This sector possesses enormous potentiality of development by creating forward and backward linkage through alliance, partnership and investments. It is observed that there has been notable development in the production of varieties of processed food by application of innovative technology. Emphasis is laid not only on achieving a better understanding to developed new products but also improving the methods of production through modernization of technology, improving the quality, life, safety and packaging as well as marketing of the processed products. As the industry is growing rapidly, the food processing industry is opening up new opportunities in terms of investment, technology and export. The agro-food processing industry in Bangladesh represents one of the major potential sectors within the industrial segments in terms of its contribution to value addition and employment.
- It is observed that this industry's importance has been further multiplied by reaching to international markets due to its closer proximity to west & north eastern part (west Bengal and 7 sister states of India) of Bangladesh with another over 140 million homogeneous people in terms of food habit and culture.

By considering its importance, agro-based and agro-processing industry has been included in the thrust sector by the Government. This being the new sector, export at the early years in the last decade (2005-06) was not worth mentioning. However, in the recent years, it has started gaining momentum and agro-export base has been broadening. The total earning from agro-product has grown steadily. Both number of items of exportable traditional and non-traditional processed foods and the countries where exported, went on increasing.

Drawbacks and challenges

It is observed that the agro processing industry is heavily dependent on agricultural production (nature dependency) as most of its raw material is primarily agro products (Ministry of Commerce, Cambodia, 2007). The scarcity of cultivable land and water resources, non-uniform quality and irregular supply of raw materials, uncertain capital flow, inadequacy of appropriate technology, uncertainty of fair price, and impact of globalization on output price of agro-industrial commodity are challenges for further development of agro-industry.

It is found that agro-processing industries in-house R&D capacity is almost non-existent (Beintema and Kabir, 2006). Again, the applicability of new technology is very limited due to required human resources and the agro-industries rely heavily on the import of science & technology from abroad. The owners do not want to invest for the development of human and physical capital, applied research like product, process, service innovation in this area has not attained momentum still now in the country, and the agro-processing industries have little opportunity to create/generate knowledge. Therefore, the firms have no ability to turn knowledge into profitable goods and services.

It is observed that there is absence of linkage/network(s) of agents such as academician/researcher and entrepreneur to interact for generating, diffusing, utilizing agricultural technology and the agro-firms use outdated and worn-out tools & technology and bring out inferior quality products or production cost remains high.

It is investigated that under-developed physical infrastructure is a factor to impede sustainable agro-industrial development of the country. In the World Economic Forum's Global Competitiveness Report 2009-10, the country's infrastructure competitiveness was ranked 126th out of 133 countries, the lowest ranking among its South Asian neighbors. Transport facilities are severely lacking in Bangladesh, causing traffic bottlenecks that drive up the cost of business and goods. Power shortages are also a major drawback, the country's power stations are unable to meet the rising demand for electricity from increasing industrialization, and its natural gas reserves are expected to dwindle over the next decade.

There is almost non-availability of contract farming arrangement and farmers very often face barriers in selling their produce directly to agro-enterprises. Again, there is absence of crop insurance for farmers. Therefore, right time production, cost reduction and quality maintenance is hard for the farmers and agro-industries have no control of the entire value chain and have failure in the long-term competitiveness.

Regarding Quality Control System of agro-processed food products, it is stated that though these products are consumed by human, but these products are contaminated with toxic and harmful substance like residue of chemical fertilizer, arsenic, pesticides, bacteria which are harmful for the environment and human health. Government Quality Control System like Quarantine Wing, of Department of Agriculture Extension is not properly equipped.

It is also acknowledged that weaknesses in the macroeconomic Stability like high lending interest rate, low rate of Gross Domestic Savings and Gross Domestic Investment, high inflation are not favorable condition for agro-venture. Political turbulence**,** corruption, extortions adds to the cost of business, reducing investment and introduces significant uncertainty in the decision making process.

It is noted that taking opportunity of the open market economy, some businessmen are importing substandard or low quality imported product (e.g. infested with mites) affects the local market with lower prices and put barrier to grow the local agro-based industry. As a developing country, Bangladesh has been facing various challenges in the field of exports like uncertain economic climate in the European countries, USA and developed countries are still posing anxieties in new forms. Export Promotion Bureau and Commercial wings of Bangladesh Mission in abroad, are not equipped to act rightly on WTO regulations, searching new markets and provide necessary information to agro-business leaders.

It is investigated that though environmental sustainability is an imperative, some agro-industrial ventures are responsible for degrading biodiversity and alter ecosystem (e.g. frozen food industry in the southern part of Bangladesh).

Needed initiative for sustainability of agro-industrial venture

To attain food security and sustainable development in the agro-industrial sector, the producer or farmers should be protected through ensuring fair pricing policy, crop insurance. Farmers' cooperative may strengthen to monitor the market information about crops cultivation, product availability in the market and price.

Strengthening of National Agricultural Research System (NARS) is needed to modernize R&D, innovation framework and to create & disseminate knowledge. Establishment of Triple Helix Collaboration (win-win cooperation) among industry, academia and government can be an excellent paradigm of agricultural innovation modeling for Sustainable Agro-industrial Development of Bangladesh where three selected environments:(1) wealth generation (industry); (2) novelty production (academia); and (3) public/ normative control (government) will present with collaborative modality. Through this collaborative mechanism skilled manpower will be created to run agribusiness efficiently. Implementation of intellectual property rights is crucial for saving the interest of R&D stakeholders. To set up required physical infrastructure through shared responsibility Model, Public Private Partnership (PPP) investment can be followed as a good option.

Agro-ecological mapping, zoning of agro-enterprises, should be prepared to optimum use of scares land resources and maintain agro-biodiversity. Supply chain of agro-products can be managed by contract farming by which farmers will be benefitted to get the assurance for selling their product in reasonable price. Quality Control (QC) mechanism of agro-foods should be maintained strictly by creating awareness, strengthening QC institutions, enforcing laws. Macro economic framework should be pro-poor investment climate friendly by lending loans at 4-5% interest rate to agro-based small and medium enterprises. Sanitary and phyto-sanitary measures should be implemented at importing agro-products to control substandard product and protect local entrepreneurs. Bilateral, multilateral negotiations should be emphasized to get the export facilities in foreign market. Accelerating digitalization process, empowering democratic institutions, practicing the rule of law in all spheres should be ensured to create justified welfare society.

Conclusion

Agro-industry is completely local raw material based labor intensive industry in Bangladesh. By utilizing its potentiality and retreating its drawbacks & challenges, sustainability of this sector will achieve and Bangladesh economy will grow holistically.

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