

Supply Chain Management for Agro Products in Bangladesh; Logistics Support for Capturing Market by Ensuring Balanced Distribution

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Abstract

Agro business, supply chain management (SCM) means reach agro products to the market in time. The future economic prosperity of Bangladesh depends largely on the prosperity of agriculture. And the success of agriculture depends on ensuring proper supply of agricultural products to the appropriate market. The study found that about 75% of the population of Bangladesh is engaged in agriculture as their source of income. The primary purpose of this study is to analyze the overall logistics support for agro products in context of supply chain management in Bangladesh. This research are used secondary method for analyzing data and information. The author critically reviewed the supply chain management system of PRAN Agro Business Limited which is the largest agro products producer in Bangladesh. The result reveals from the study that the agro products marketing in Bangladesh scrappy supply chain system, lack of transportation facilities, higher transaction cost, multiple market intermediaries, lack of awareness and several other socio-economic problems facing agro products supply chain management in Bangladesh. Effective supply chain management helps to secure better position in the competitive environment and improve the efficiency of the agribusiness organization. Therefore, current research suggests that marketing facilities should be improved for agricultural products, especially in rural areas.

Keywords: Logistics, Agriculture, Supply chain Management, Marketing, Agro products.

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Introduction

Bangladesh economy is agriculture base economy. Most of the people of Bangladesh live in rural are (84%) are occupy with agriculture based activities like cultivation, production and business (SNDP, 2020). About 40.6 % of the total employment are involve with agriculture (ER,2019). Agriculture contributes about 20.29% (Bangladesh Economic Review -2019) to the country's GDP (23%) About 43.6% of the labour force is employed in agriculture with about 57% being employed in the crop sector (Bangladesh Economic Review -2019). GDP From Agriculture in Bangladesh increased to 10739.10 BDT Million in 2019 from 10468.80 BDT Million in 2018(Trading Economics,2020). The role of agriculture is to generate employment opportunities for the huge population through productivity and growth. Agriculture sector (crops, fish, livestock and forests) contributes heavily to the GDP of the country, provides employment for about half of the labour force and affords raw materials to the agricultural industry (ER2019). Over time, the portion of agriculture in GDP has significantly worsened in Bangladesh but the contribution of agriculture to non-agricultural growth has sustained an upward trend. Thus, the agricultural sector remains an unshakable driving force for economic growth in the country. (Rahman, 2017). Moreover, it contributes to the primary source of employment, livelihood and food security for the majority of rural people and the supply of raw materials and exports to the country's industries. Although modern economics is largely dependent on industrialization, agriculture remains a lifeline for many agricultural economies like Bangladesh (Ghose et al, 2014). It is proved that there is a positive relation between agriculture and economic growth (Xuezhen et al, 2010). Bangladesh's resources are limited for the development of agro-based industries. It has rich alluvial soil, year-round frost-free environment, enthusiastically available water and lots of cheap labour. The growth of vegetables, spices and tropical fruits in Bangladesh can provide raw materials in local agriculture for both domestic and export markets. Progressive agricultural practices have improved marketing strategies (Parmar and Shah, 2016). Modern processing facilities have increased the value of agricultural land and ominously lengthened the level of production. Main concern of agricultural products are poultry products, vegetables, canned juices, fruits, and dairy (bartleby research, 2020). Gradually expansion the agro products' market internationally and domestically. Integrated supply chain management is prerequisite to occupy the majority of the market with proper logistics support. The challenge ascends from the inherent problems of the agricultural sector through the supply chain of various agricultural products in Bangladesh. Internal marginal farmer dominance, fragmented supply chain, lack of scale economy, low level processing, standardization, lack of marketing infrastructure, etc., determine the vulnerable supply chain of agricultural sector in Bangladesh. The actual achievement of the supply chain is how it integrates operations across the supply chain. Every link to the supply chain is to increase profit and customer satisfaction and ensure product quality. As because need to study regarding Supply Chain Management for Capturing Market and Consumer Satisfaction for Agro products in Bangladesh.

Logistics Support and Supply Chain- Conceptual View

Logistics Support

Business logistics is a newfangled field of relativity of integrated management research equated to conventional fields of finance, marketing and manufacturing. It is chunk of the supply chain procedure that plans, implements and controls the efficient, effective flow and storage of products, services and related information to meet customer needs (Croom et al, 2000). Companies worked to increase demand for "better, faster, cheaper logistical services" in the 1980s and early 1990s. As a result, many manufacturers outsource logistics operations and shift their focus to core competencies (Daugherty, 2011). Logistic is the spine of production and marketing organization (Movahedi et al, 2009). Logistics can be defined as the movement of goods from the manufacturer or supplier to their final customer. Logistic provides the most important link between the manufacturer and the customer. The quality of marketing largely depends on how the products were best delivered to the final customer. According to Shapiro and Heskett (nd) "The process of strategically dealing the movement of supplies, between enterprise facilities, and to customers.

Donald (1978) stressed the significance of logistics in both customer service and company efficiency in marketing management. The perseverance of delivery is to deliver finished products in the right way, to provide the minimum cost in the right way. Through logistics, product distribution channels are completed through a wide network and ultimately through the final consumers. Venkateswaran (1993) worked with logistics in marketing management. The term logistics is used in military operations that indicate the movement of soldiers, their weapons and ammunition from their base stations to strategic points. Logistics support is as important as war. Logistics is value creation - the value of the firm's customers and suppliers and the price for the firm's stakeholders. Value in logistics is principally expressed in terms of time and place. Products and services are not worth it unless they are in possession of customers (time) and where (place) they want to consume them. To many firms throughout the world, logistics has become an increasingly important value-adding process because of the following cost proponents:

| Cost inputs/ Item of Costs | Percent of Sales |
|------------------------------|------------------|
| Transportation | 3.34% |
| Warehousing | 2.02% |
| Customer service/Order entry | 0.43% |
| Administration | 0.41% |
| Inventory carrying cost@18% | 1.72 |
| Total Distribution Cost | 7.65% |

Koh Lenny et al (2007) introduce by describing four unique perspectives on the relationship between logistics and Supply Chain Management. The outcomes of an international survey of logistics-Supply Chain Management experts have been reported. 200 questions have been sent to leading logistics educators. Based on expert opinion, cluster analysis is conducted and ensures that logistics vs. SCM relabeling, traditionalists, unionists and intersectionist exist (Stank et al, 1999).

Porter (1994) show that Institutional dimension of logistic fundamentally at the global scale. Sustainable growth in the movement of goods and the freight dissemination networks that support them are widely represented in the geographical study of regional science.

Good logistics management shows that every activity in the supply channel contributes to the process of adding value. If a little value can be added, it is doubtful whether the activity should exist. However, it is added when customers are willing to pay more than the cost of holding a product or service in their hands.

Supply Chain

Over the last few years Supply chain Management has presumed a noteworthy role in firm's performance and has attracted thoughtful research attention (Jain et al, 2010). Supply Chain Management (SCM) in simple words can be termed as a network of facilities and distribution choices (Bhavani et al, 2005). The supply chain comprehends all of those activities concomitant with stirring goods from the raw-materials phase through to the end user (Bertodo, 2002). Mathur et al, (2018) specified that "If you can start measuring customer satisfaction associated with what a supply chain can do and also link customer satisfaction in terms of profit or revenue growth, then you can attach customer values to profit and loss, and also to the balance sheet."

Supply chains are ultimately the collection of information and materials related to the flow of goods and information amongst the member organizations of the supply chain, the conversion of substances into products and the distribution of those products to end customers (Batt, 2004). Today's information-driven, integrated supply chain enables companies to reduce inventory and costs, add value to products, increase resources, be timely in the market, and retain customers (NIAEM, 2020). The term "supply chain management" was first devised in the late 1980s and was widely used in the 1990s.

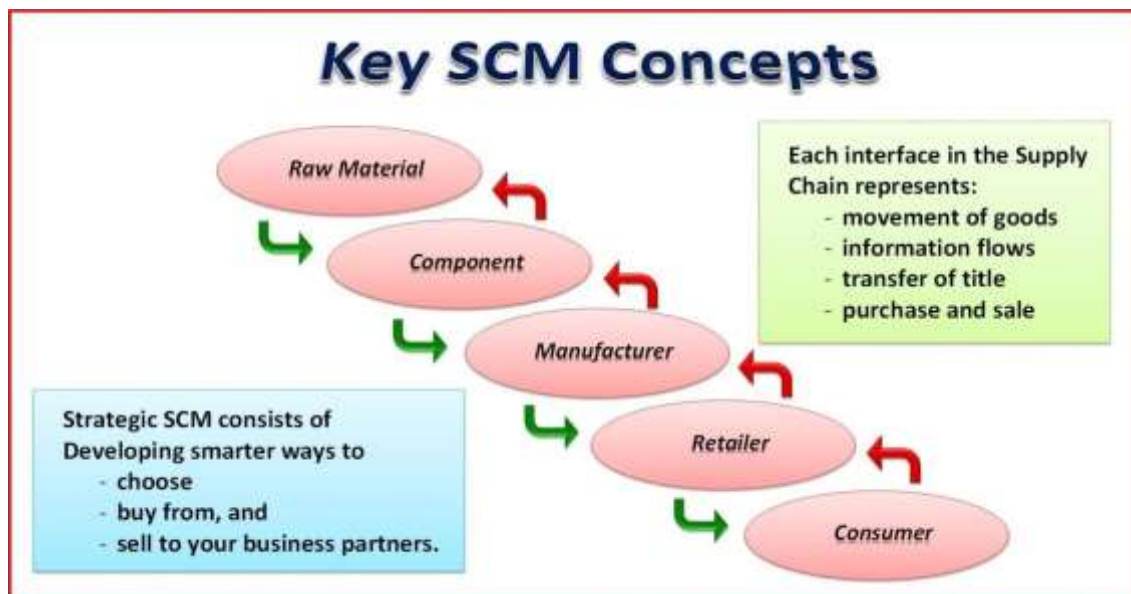


Figure 1. Key SCM concepts
Source: Gupta (2014)

According to Ballou (2007) SCM is not new; it is an progression of procurement and distribution functions. Integration of foremost business processes across supply chains to create value for supply chain management customers and stakeholders (Lambert, 2008). The terms used earlier were "Logistics" and "Operation Management". The definition of SCM by some experts is as below:

According to Lambert et al (1998) "A supply chain is the positioning of companies that bring products or services to market".

Handfield and Nichols (1999) defined "A supply chain encompasses all activities associated with the flow and transformation of products from raw material phase, end user, and related information".

Tan et al. (1998) has argued that "Supply chain management involves the delivery of rudimentary raw materials (and potentially reusable) materials to the final products. Supply chain management emphasizes on how companies use their supplier processes, technologies and capabilities to advance competitive advantage. It is a management philosophy that expands traditional themed inter-entrepreneurial activities by bringing together trading partners with the common goal of trading specialization and efficiency".

Chopra and Meindl (2001) defined "A supply chain directly or indirectly involved entails of all stages to fulfill a customer request".

Lee and Ng (1997) defined "A network of entities that starts with the suppliers' supplier and end with the customers' customers for the production and delivery of goods and services that is SCM".

"A supply chain is a set of three or more entities that directly relate to the flow of products, services, money and information to the customer (Movahedi et al., 2009; Mentzer et al, 2001).

Daugherty (2011) "SCM is a system that combines production, inventory, location and transportation among participants, which achieves the best responsiveness and best mix for the market."

Moazzem and Fujita (2004) scrutinized the SCM of Bangladeshi potatoes and gives special emphasis on marketing. They found that time and financial restrictions, low productivity of potato cultivation, poor skill levels and the rate of return from the potato refrigerated warehousing business were banned from commercial activities by agronomists and warehouse owners. Despite all these problems, (Hobbs, 1998) the investment in warehousing potatoes is increasing due to generous loans from traders engaged in refrigerated warehousing.

Shukla and Jharkharia (2013) started an evaluation of 20 years (1989-2009) literature on fresh-produce of supply chain management. They classified the available literature based on problem milieu, methodology, product and other structural attributes. Their study exposed that fresh-produce-Supply Chain Management papers have concerted on maximizing revenue, customer satisfaction and minimization of post-harvest wastage.

Islam (2012) investigated Bangladeshi potato SCM through desk research and interviews and exhumed that Information Communication Technology (ICT) is the permanent solution to enable agriculturists in identifying various sources of qualitative inputs and enforcement of regulatory mechanism to check sale of substandard inputs in the market.

Objectives of the Study

The following objectives have been included in this research:

1. To identify the main supply chain system for distributing Bangladeshi agro products in relation to logistic support for capturing market;
2. To examine the faintness and strengthens of agro products supply chain management systems in Bangladesh.
3. Finally, to recommend for enhancing logistic support and supply chain management systems in a wide range of customer satisfaction.

Methodology of the Study

This is a review based manuscript. The researcher meticulously reviewed previous research papers and literatures that are published in different management and marketing journals, books, magazines etc. This paper enormously reviewed the Bangladesh Economic Review Report, Annual Report of Agricultural Department of Bangladesh and NGOs reports. This study also reviewed the logistic support system and supply chain management practices of few renowned agro products producer and supplier of Bangladesh like Pran-RFL Ltd., Akij Food and Beverage Ltd., Square Consumers Goods Limited and others. This study incorporated data and information from secondary source.

Present Scenarios of Agriculture Sector in Bangladesh

Food Grains Production

Table 1 shows the food grains production status during the period from FY2014-15 to FY2018-19.

Table 1: Food Grains Production (in Lakh MT)

| Food Grains | Fiscal Year | | | | |
|-------------|-------------|---------|---------|---------|---------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Aus | 23.28 | 22.89 | 21.34 | 27.09 | 27.02 |
| Aman | 131.90 | 134.83 | 136.56 | 139.94 | 141.34 |
| Boro | 191.92 | 189.38 | 180.16 | 195.76 | 196.23 |
| Total Rice | 347.10 | 347.10 | 338.06 | 362.79 | 364.59 |
| Wheat | 13.48 | 13.48 | 13.12 | 11.53 | 12.87 |
| Maize | 23.61 | 27.59 | 35.78 | 38.93 | 38.28 |
| Total | 384.19 | 388.17 | 386.93 | 413.25 | 415.74 |

Source: Bangladesh Bureau of Statistics (BBS), Ministry of Agriculture

Bangladesh Bureau of Statistics stated that, in FY2017-18 the volume of food grains production stood at 413.25 lakh metric tons in which Aman accounted for 139.94 lakh metric tons, Boro 195.76 lakh MT and wheat 11.53 lakh MT. In FY2018-19. The food grains production was (Aus 27.02 and Maize 38.28) lakh MT, which was (Aus 27.09 and Maize 38.93) lakh MT. in FY2017-18.

Seed Production and Distribution

Currently, under the 111 agreements grower's zones in the country, the number of farmers is 3,98,327 and the land is 7,41,640.42 acres. The target for seed distribution to the farmers as set by BDC in FY 2018-19 was 140,000 metric tons, given the demand for quality seed in Bangladesh. Production and distribution records of Seed by BADC in the FY 2016-17 to 2017-18 are shown in the table 2.

Table 2: Seed Production and Distribution (in MT)

| Name of the Seed | Achievement in FY2016-17 | | Achievement in FY2017-18 | | Achievement in FY2018-19* | |
|------------------|--------------------------|--------------|--------------------------|--------------|---------------------------|--------------|
| | Production | Distribution | Production | Distribution | Production | Distribution |
| Rice | 86368 | 82038 | 85548 | 87668 | 89498 | 87022 |
| Wheat | 18161 | 16575 | 17527 | 18177 | 15028 | 18077 |
| Maize | 13 | 5 | 20 | 5 | 111 | 10 |
| Potato | 32627 | 25352 | 33043 | 31321 | 35510 | 31246 |
| Pulses | 2315 | 1699 | 2435 | 1888 | 2476 | 1888 |
| Oil | 775 | 1567 | 1195 | 1023 | 1245 | 1023 |
| Jute | 834 | 722 | 723 | 223 | 437 | 236 |
| Vegetables | 87 | 80 | 45 | 73 | 102 | 73 |
| Spices | 117 | 105 | 106 | 105 | 205 | 106 |
| Total | 141297 | 128143 | 140642 | 140483 | 144875 | 140561 |

Source: Ministry of Agriculture. * Up to February 2019

Irrigation

The irrigated land area during the period from FY2012-13 to FY2018-19 is shown in Table 3.

Table 3: Area under Irrigation (Area in lakh hectare)

| Irrigation method | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|-----------------------------------------------|---------|---------|---------|---------|---------|
| LLP& others | 12.51 | 13.42 | 13.88 | 12.20 | 12.25 |
| Deep tube well | 9.62 | 11.94 | 10.63 | 10.72 | 11.10 |
| Shallow tube well (surface/deep/very deep) | 32.35 | 29.54 | 30.79 | 29.81 | 29.90 |
| Others | - | - | 1.97 | 2.81 | 2.95 |
| Total | 54.48 | 54.90 | 55.27 | 55.56 | 56.20 |

Source: BBS, DAE, Ministry of Agriculture

In FY2018-19, 16 irrigation projects and 12 irrigation programs are being implemented. By those irrigation projects and programs BADC re-excavated 450 km. khal, constructed 400 irrigation infrastructures, 3 rubber dams, 2 hydraulic elevator dams, 557 km. underground water irrigation channel, 8 km. surface irrigation channel, installed 10 deep tube-wells, 250 power pumps, install 10 smart card based prepaid meter and 110 solar operated irrigation pumps which will be completed by June 2019.

Fish Production

Fisheries sector contributes 3.61 percent to national GDP (Gross Domestic Product) and around one-fourth (25.30%) to the agricultural GDP. Fish and fisheries products contribute 1.39 percent to total export earnings. Bangladesh reached self-sufficiency in fish production with a per capita fish consumption of 62.58g/day against set target of 60g/day according to FAO report. World Fisheries and Aquaculture 2018, Bangladesh has ranked 3rd in the domestic open water capture production and 5th place in global aquaculture production. Bangladesh is currently fourth in the world's Tilapia production and third in Asia. If fish production continues to increase, the country will have 45.52 lakh metric tons of fish production by FY 2020-21.

Table 4: Fish Production Trends in Different Resources (In Lakh MT)

| Sector | Area (Lakh Ha) | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|------------|----------------|---------|---------|---------|---------|---------|
| Open Water | 39.08 | 10.24 | 10.5 | 11.64 | 12.17 | 12.29 |
| Culture | 8.745 | 20.60 | 22.04 | 23.33 | 24.05 | 24.88 |
| Marin | | 6.00 | 6.26 | 6.37 | 6.55 | 6.64 |
| Total | | 36.84 | 38.78 | 41.34 | 42.77 | 43.81 |

Source: Department of Fisheries, Ministry of Fisheries and Livestock

Livestock

The contribution of the livestock sector to GDP was 1.33 % and the contribution to agriculture in the 2017-18 fiscal year was 13.46 %. The number of livestock and poultry increased by 554.02 lakhs in 2018-19 and 3,440.22 lakhs in February 2019-19. The table shows the number of livestock and poultry production in the country last 5 years.

Table 5: Number of Livestock and Poultry Population in Bangladesh (in Lakh)

| Livestock/ Poultry | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19* |
|--------------------|---------|---------|---------|---------|----------|
| Cattle | 236.36 | 237.85 | 239.35 | 240.86 | 241.87 |
| Buffalo | 14.64 | 14.71 | 14.78 | 14.85 | 14.90 |
| Goat | 256.02 | 257.66 | 259.31 | 261.00 | 262.11 |
| Sheep | 32.70 | 33.35 | 34.01 | 34.68 | 35.14 |
| Total livestock | 539.72 | 543.57 | 647.45 | 551.39 | 554.02 |
| Chicken | 2617.70 | 2683.93 | 2751.83 | 2821.45 | 2869.03 |
| Duck | 505.22 | 522.40 | 540.16 | 558.53 | 571.19 |
| Total Poultry | 3122.93 | 3206.33 | 3292.00 | 3379.98 | 3440.22 |

Source: Bangladesh Economic Review (2019)

Production of Milk, Meat and Eggs

Over the past several years, the production of proteins such as milk, meat (beef, mutton, chicken) and eggs has been increasing. Milk, Meat and Egg Production Statistics for FY 2014-15 to FY 2018-19 are summarized in Table 6.

Table 6: Production of Milk, Meat and Eggs

| Product | Unit | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------|-----------|---------|---------|---------|---------|---------|
| Milk | Lakh tons | 69.69 | 72.75 | 92.83 | 94.06 | 70.16 |
| Meat | Lakh tons | 58.62 | 61.52 | 71.54 | 72.60 | 62.78 |
| Eggs | Lakh | 109952 | 119124 | 149331 | 155200 | 118520 |

Source: Bangladesh Economic Review (2019)

Main Agro Products and Producers in Bangladesh

Agriculture sector in Bangladesh includes crops, forestry, livestock and fisheries (Rahman et al, 2011) Govt. sources and Bangladesh Economic Review-2019 articulate that there are about 0.80 million cottage, small and medium enterprises in Bangladesh of which about 30 percent are agro food industries.

List of Agro-based Industries

The following industries are enlisted as agro-based industries in Bangladesh (BB, 2020);

1. Fruit based processed food manufacturing industries (Jam, Jelly, Juice, Pickles, Syrup, Sauce, etc.)
2. Fruit (Tomato, Mango, Guava, Sugarcane, Jackfruit, Litchi, Pineapple, Coconut, etc.), vegetables, and lentils processing industries.
3. Bread, biscuit, vermicelli, chanachur, noodles, etc. production industries.
4. Production of flour, maida, and semolina.
5. Processing of mushrooms and spirulina.
6. Starch, glucose, dextrose, and other starch products manufacturing industries.
7. Milk processing industries (milk pasteurization, powdered milk, ice cream, condensed milk, sweets, cheese, ghee, butter, chocolate, curd, etc.)
8. Potato-based food manufacturing industries (potato chips, potato flakes, starch etc.)
9. Spices manufacturing industries.
10. Edible oil refining and hydrogenation industries.
11. Salt processing industries.
12. Processing and freezing of prawns and other fishes.
13. Herbal and vestige medicine producing industries.
14. Unani, Ayurvedic and Homeopathic medicine producing industries.
15. Manufacturing industries of feed for duck, chickens, livestock and fish.
16. Seed processing and preservation.
17. Jute goods (thread, fabric, bag, carpet, sandal shoes etc.) producing industries.

18. Silk fabrics and clothing manufacturing industries.
19. Agro-based product processing machinery manufacturing industries.
20. Rice, puffed rice, beaten rice, popped rice etc. processing industries.
21. Aromatic rice processing industries.
22. Tea processing industries.
23. Coconut oil producing industries (if copra collected from local coconuts is used).
24. Rubber tape and lakkha processing industries.
25. Cold storage (processing and preservation of edible and seed potatoes, fruits, vegetables etc. produced by farmers).
26. Preparation of furniture made of wood, bamboo and cane (except cottage industries).
27. Flower preservation and exporting enterprises.
28. Meat processing industries.
29. Production of organic and mixed fertilizer and guti urea etc.
30. Production of bio-pesticide and neem pesticide.
31. Bee-keeping and honey collecting enterprises.
32. Rubber-based goods producing industries.
33. Manufacturing of particle board.
34. Mustard oil manufacturing industries (if local mustard is used)
35. Production of bio-gas and electricity (produced from paddy shell, poultry and cattle wastes).
36. Edible oil (rice bran) manufacturing industries. 37. Poultry and dairy farming industries.

Table 7. List of Major Agro Products Producers in Bangladesh

| Name of the of Producer | Name of the Products |
|---------------------------------------------------|-------------------------------------------------------------------------------|
| PRAN Agro Business Limited | Spices, Beverages. Consumer goods |
| Golden Fisheries & Agro Industries | Fresh Vegetable, Fresh Fish. |
| Intercon Agro Limited | Agro Based products, Organic Fertilizer & Organic Pesticide, Fresh Vegetable. |
| Chowdhury Agro Industries | Food, Fertilizer. |
| Surovi Agro Industries Ltd | Hybrid Seed, Gypsum Powder. |
| Northern Agro Services Ltd (NASL) | Organic Fertilizer, Food |
| BEXIMCO Bangladesh | Fresh Garments, garments stock lot, Finish Leather & goods. |
| PARTEX Group(Food group) | Spices, Beverages. |
| BD Foods Ltd. | Spices, Food. |
| Shajib Corporation | Spices, Beverages. |
| ACI Group | Food, Beverage. |
| Ship N Shore Shipping & Trading | Handy Craft, Garments, Agro Product... |
| BRAC | Food, Milk products. |
| Mondal Agro Industries Limited | Yellow Potato Used Pet Bottle, Molasses |
| Akij Food and Beverage | Spices, Beverages. |
| Square Food & Beverage Limited Corporate Office | Spices, Beverages. |

| Name of the of Producer | Name of the Products |
|-----------------------------------------------|--------------------------------------|
| BAFP- Brothers agro Food Products Private Ltd | Food manufacturer |
| Provita Chicks Limited | Livestock |
| Shajalal Ago Food Products | Food manufacturer |
| Rashid Agro Food Products Ltd | Food manufacturer, feed, livestock |
| Mashud Agro Processing Food Products Limited | Consumer goods, Food manufacturer |
| Prome Agro Foods Ltd. | Consumer goods, Food manufacturer |
| Mallik Agro Food Limited | Consumer goods, Food manufacturer |
| Al-Momen Agro Industries Ltd. | Feed Manufacturer, Food processing |
| Fresh Agro Food Products Ltd. | Spices, Beverages, food manufacturer |
| FarmView Dairy & Agro Industries Ltd. | Dairy products |
| ACI Godrej Agrovet Private Limited | Feed Manufacturer |
| Paragon Group | Dairy products, |
| Shuvo Progati Agro Food Products Ltd. | Rice Producer |
| Akij Agro Processing Factory | Food processing |
| AG Agro Foods Limited (Processing Plant) | Food processing |
| Aftab Hatchery Limited | livestock |
| Surma Agro Food Company | Food processing |
| Kishwan Snacks Ltd | Food Manufacturer |
| Haque Food Industries Limited | Food Manufacturer |
| Golden Harvest | Frozen foods |
| Kazi Farms Limited | Frozen foods, dairy goods, livestock |
| Aftab Feed Products Ltd. | Feed Manufacturer |
| Varosha group of industries Ltd. | Sugar factory |
| BD FOODS LIMITED | Food Manufacturer |
| Bengal Group of Industries | Food Manufacturer |
| BISWAS POULTRY & FISH FEED LTD. | Feed Manufacturer, livestock |
| Ispahani Foods Limited | Food Manufacturer, Tea |

Logistic Support and Integrated Supply Chain System of Argo Products in Bangladesh

In agribusiness, logistics support confirms that the right products or services are available at the right time and in the right place at the right time, while making the greatest contribution to the firm.

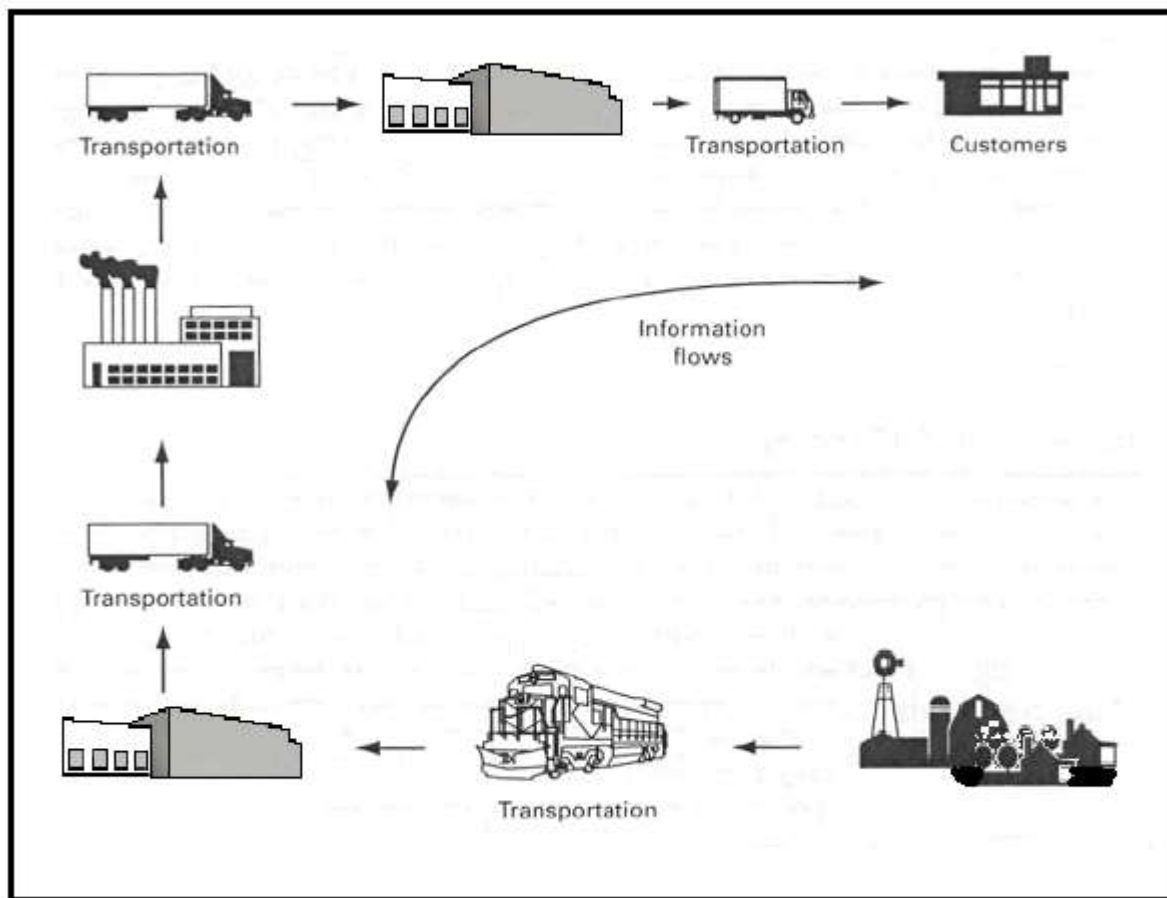


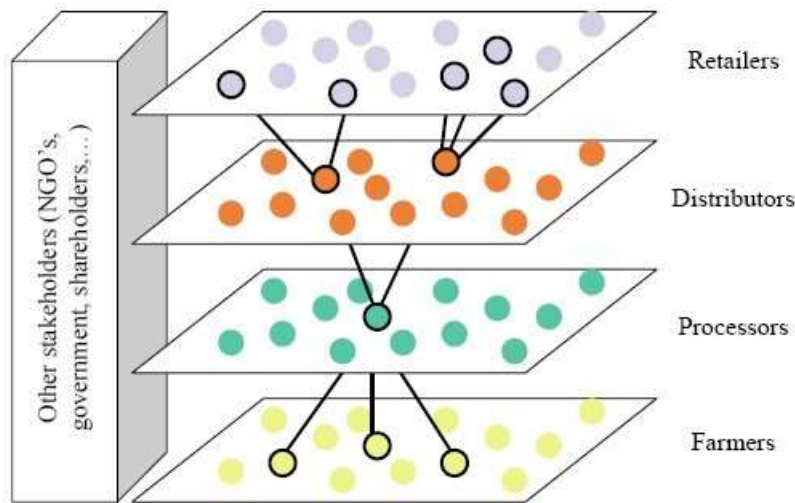
Figure 2: Graphic view of Post-harvest handling and Cold-Storage logistics

A single company that trades agricultural products in Bangladesh cannot control its entire product flow channel from raw material sources to the final consumption point, although this is an emerging opportunity. For practical purposes, business logistics is a narrow opportunity for individual firms.

In Bangladesh, Supply Chain Management (SCM) in agriculture refers to the management of the relationship between the business responsible for efficient delivery from the farm level to reliably meet the needs of customers in terms of quantity and supply of goods and prices. In practice, it often involves relationships and processes between horizontal and vertical alliances and entities. Agricultural supply chains are economic organisms that distribute benefits and share risks among participants.

Thus, supply chains apply internal processes and develop chain-wide incentives to ensure timely performance of production and delivery commitments.

Bangladesh agro-supply chain is a very complex work as part of the network. Figure 3 in terms of the organization of the entire supply-chain network represents the generic supply chain.



Schematic diagram of a supply chain from the perspective of the processor (bold flows) within the total FSCN (based on Lazzarini et al. 2001)

Figure 3: Schematic Diagram of Supply Chain

The vital supply chains for agro products in Bangladesh embeds the above proponents in their activity continuum. The following figure (Figure-4) exhibits a model of supply chain management in Bangladesh. It is essential to remember that the supply chain management activities and product flow coordination across the company achieve competitive advantages and profits for individual companies by supply chain and supply chain members.

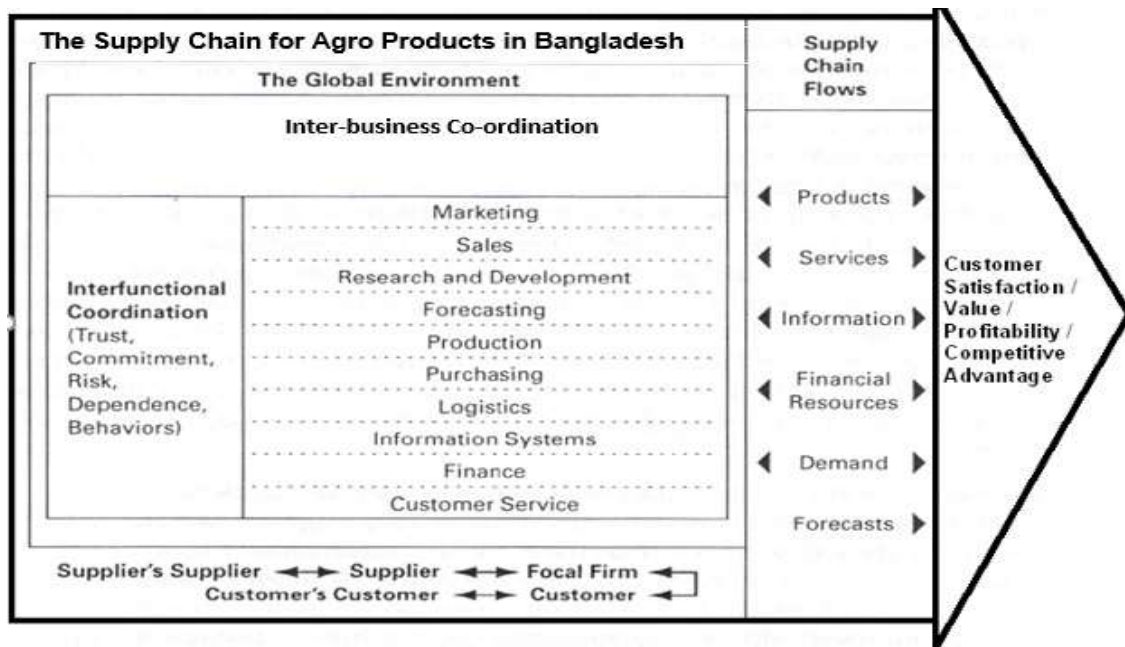


Figure 4: A Model of Supply Chain Management

Supply chains of agro products separate key and support activities because certain activities generally take place in every logistics channel, whereas others take place, depending on the circumstances within a particular firm. The basic activities are on the “critical” loop within a firm’s speedy physical distribution channel. Logistic costs increase in proportion to the level of customer service provided, just as setting a standard for a service also affects the logistics costs to support that level of service. Transportation and inventory maintenance initial cost-consuming logistic activities. Transport adds space value to goods and services, while transportation adds space value to goods and services, on the other hand inventories add value during maintenance. Marketing channels for agro products in Bangladesh differ substantially by goods and district, but they are usually very long and patchy. Figure 3 presents typical marketing channels.

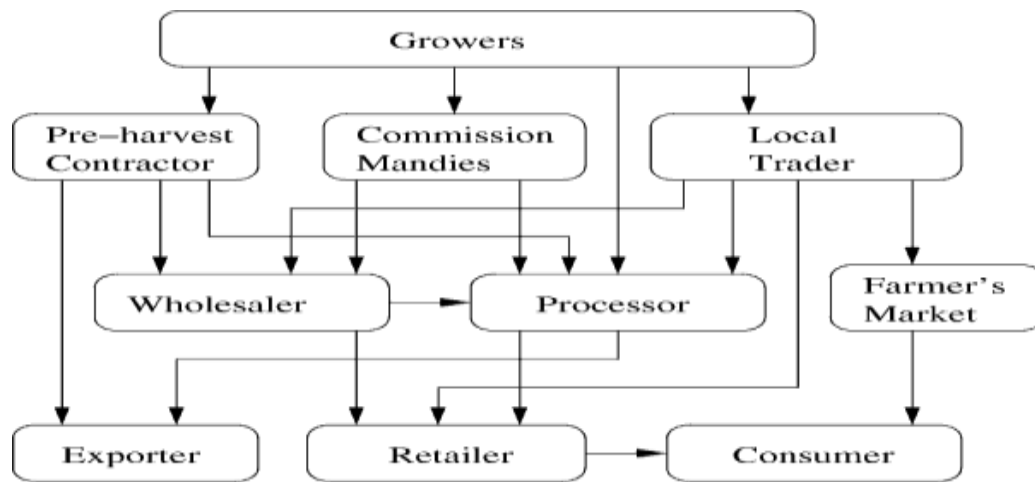


Figure 5: Marketing Channels
 Source: Ramasamy et al (2003)

Table 8. Broken Links in Agro Supply Chain in Bangladesh (Adopted from NIAEM)

| Production | Supply Chain | Processing | Marketing |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Poor extension • Quality inputs • Low productivity • Deficient and inefficient production management • Non demand linked production • Improper post-harvest management resulting in poor quality | <ul style="list-style-type: none"> • Lack of storage • Poor transportation • High wastages • Multiple intermediaries • Fresh produce transported to locality in open baskets or gunny bags stacked one on top of the other • Cold chain absent or broken, produce deteriorates | <ul style="list-style-type: none"> • Low processing • Lack of quality • Poor returns • Low capacity utilization | <ul style="list-style-type: none"> • Poor infrastructure • Lack of grading • No linkages • Non-transparency in prices • Long delays from producer to retailer |

| | | | |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|--|
| | rapidly • Food safety is major concern: Hygiene and pesticide MRL not monitored | | |
| Each segment working in an isolated manner resulting in multiple losses across the value chain | | | |

Supermarket purchasing systems for agro products strongly affect the supply chain. Bangladeshi farmers are now playing an important role in organizing production bases and integrating retailers into the supply chain of fresh agro products, thus responding to the demand of the customers' quickly.

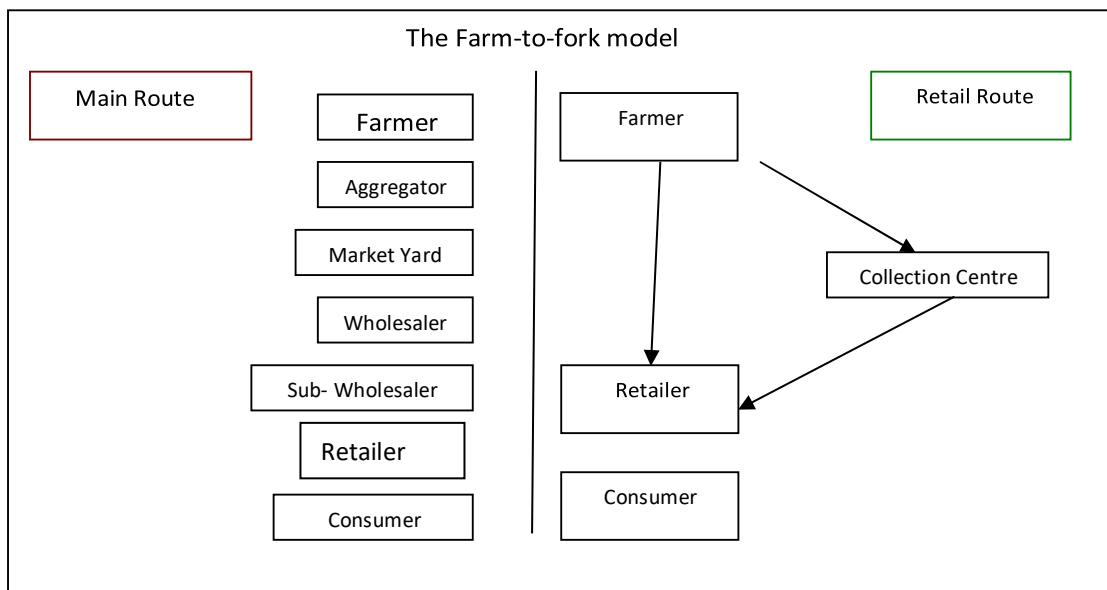


Figure 6: Changing Supply Chain with Entry of Organized Retailing

Bangladesh already touched the mile stone in production of milk in the world. Dairy products is very much popular in Bangladesh and also in the world. Bangladesh now capable to produce huge amount of milk and dairy product. Supply chain for dairy product is very sophisticated and need to maintain immediate network for distributing dairy products.

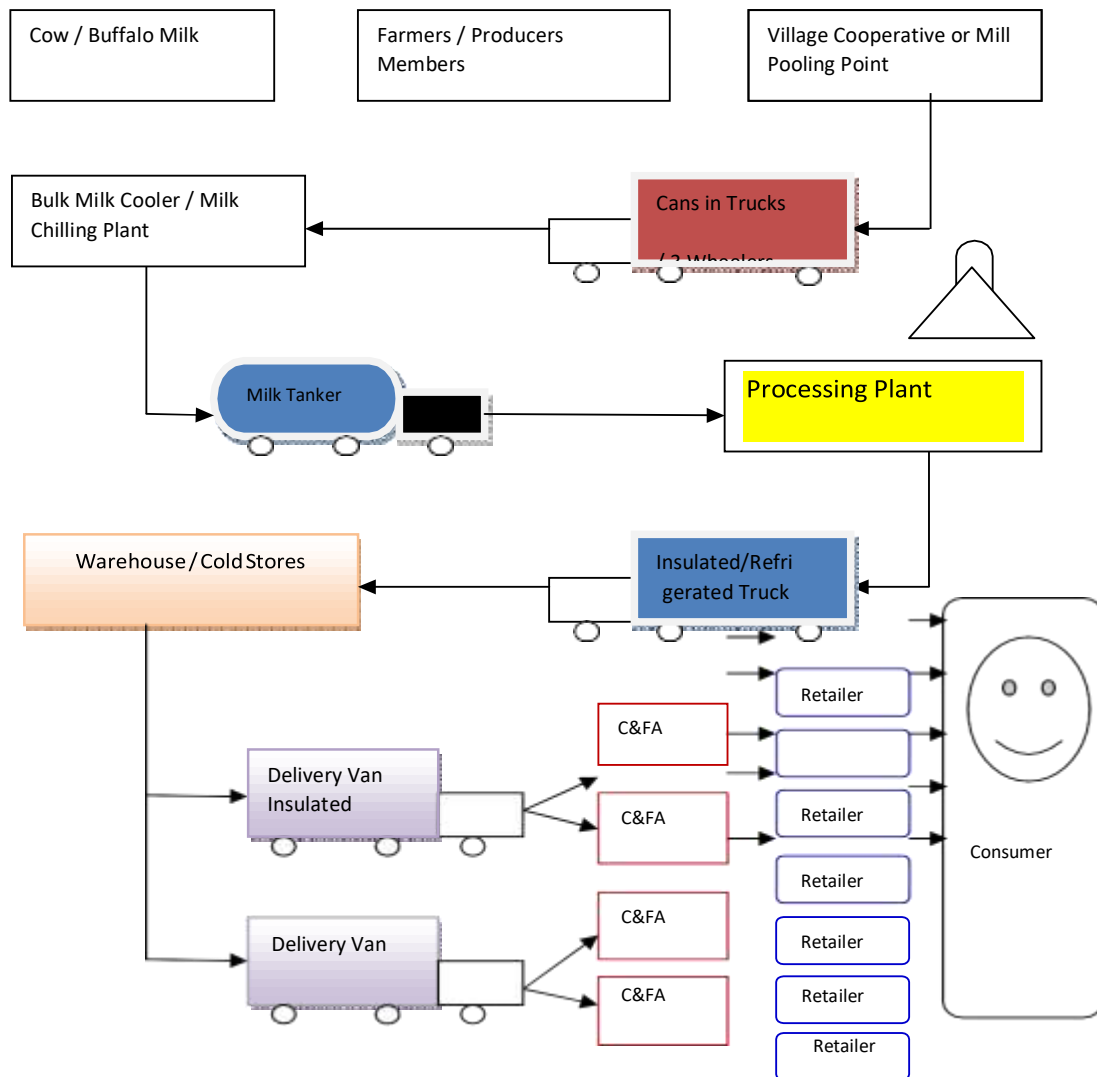


Figure 7: Supply Chain Management of Dairy Products
 Source: National Institute of Agricultural Extension Management, India

Pran Group Bangladesh (Shortened for Program from Rural Advancement Nationally) was established in 1980, a largest food and nutrition company in Bangladesh. It has achieved the impressive ISO 9001:2000 certificate and is the largest exporter of processed agricultural products in more than 70 countries in Bangladesh, including Halal and HCCP. Also a popular company for juice in Bangladesh. Pran Group carries the cost of moving the product to the customer on time.

This creates customer “value”. Pran embeds the proponents in their activity spectrum. The following figure exhibits its supply and distribution system. It is noteworthy to note that Pran co-ordinate product flows across functions to achieve competitive advantage.

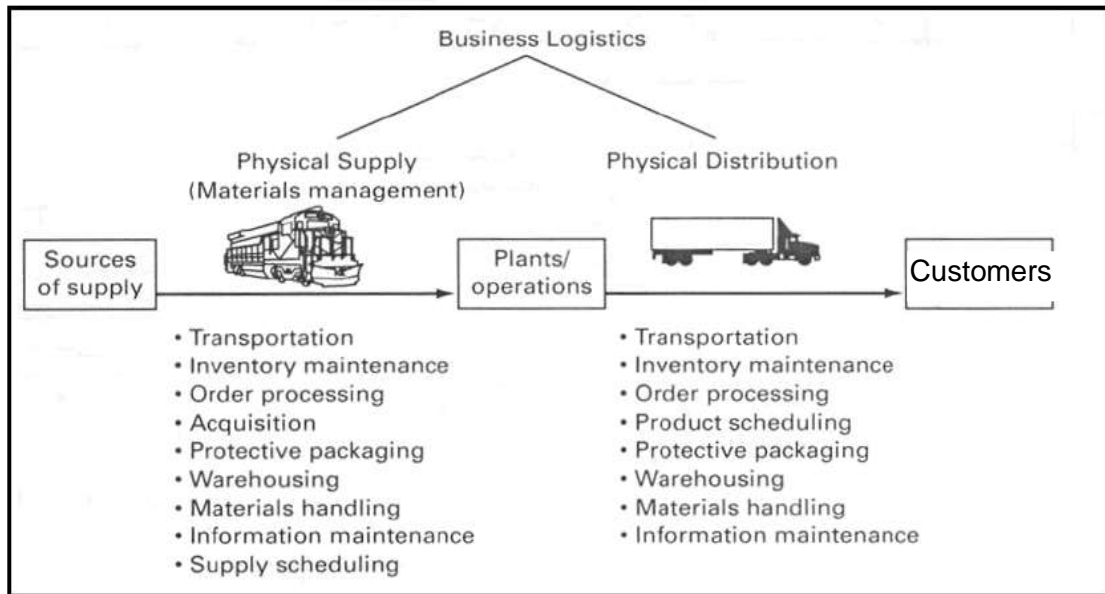


Figure 8: Logistics activities of Pran Group Supply Chain for Agro Products

For its products shielding packaging are designed for handling, storage and protection from loss and damage. Pran Group specifies aggregate quantities, sequence and time of production, schedule supplies for production/operations. Pran Group is managed by a multidiscipline team. It prefers to own brands rather than physical assets. For attracting customers, all products are available on the Internet. Consumers can access pictures of products and click to order and pay. Business-to-business purchasing is growing fast on the Internet.

Concluding Remarks

Agriculture business, Supply Chain Management (SCM) means a relationship between the business responsible for supplying products from the farm level to meet the demand of consumers in terms of quantity, quality and price.

Durable supply chain management helps Bangladesh's agricultural products reach the doorsteps of consumers. As a result, market expansion ensures a balanced distribution while playing a role in achieving consumer satisfaction. The core goal of any production company is to increase the efficiency in a way that meets the needs of the customers at the right time (Parmar and Shah, 2016). Supply chain management limitations need to be identified and analyzed to achieve these goals. Before the agricultural products reached the market, there was significant damage to crop production at these levels, as shown by various research essays, including crop harvesting, threshing, winnowing, bagging, transportation, storage, processing and exchange, and as a whole inadequate supply chain management facilities. Bangladesh as an agri-based economics should take immediate action to ensure logistic support and to develop supply chain management system for supply in proper market place in due time. After analyzing of all aspects of this research the researcher recommended the following suggestions;

- Marketing facilities for agricultural commodities should be improved; market for agricultural commodities needs to be improved;
- Formulating and executing effective and relentless agricultural policies to establish favorable strategies for supply chain management.
- Sophisticated warehousing with effectual refrigeration facilities should be established to minimize wastage of perishable agricultural products for later marketing;
- Transportation needs to be developed vastly, particularly in rural areas;
- Banks and financial institutions should be encouraged to provide financial support to farmers by way of incentives to them for making investments in rural infrastructure and agriculture
- Advanced techniques need to be device to address these problems which warrant rapidly changing methodologies, technologies and management practices in the supply chain mechanism
- Strengthening and developing a better model of agriculture supply chain management which helps in solving supply chain related problems.
- The government should realize the prominence of farmers and agriculture. And to reach the ultimate consumers through the efficient control of agro products wastage, to ensure storing facilities of agro products, and to establish channels and market, ensuring the benefits of supply chain strategies.

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