



Supply Chain Management In Agriculture In India: In A Perspective Manner

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Abstract:

India is the biggest consumer nation in the world, in the present era the globalization of business, infrastructure bottlenecks, increasing uncertainty of supply chain networks, shortening of product life cycles and rapid increase in the production variety have force to influence the firms to look beyond the walls. Increase the food production continuously in agricultural sector, which have to create big issues for storage and regulated market in the country. Big population country like India around 121crore census 2011 census, which is necessary for supply chain management for big trust among the system and the customer. In this paper, we give the picture of only agri-business supply chain management in India. Industry and academic estimates the put the logistics and the supply chain management spend more at 13 % of the GDP, but actually this expenditure is going towards in such a manner or not ? The marketing scenario of India both agricultural production and marketing is inter twist with each other, through cost effective of supply chain, effective marketing system, supply of commodities, government interventions from time to time, there are imperfections of marketing system and the regulated market in the country. Some of the such reforms are kept to mind by both government as well as private organization in the right corner.

Key words: -agricultural marketing scenario, supply chain of horticulture, supply chain of dairy, poultry farm management.

Introduction:

The supply chain management performance in India has the international positions to improve in the performance in the world, In such a manner that the country achieve the target in a short span of time with improving its GDP and a market competitiveness mode. In the world Banks report measured that the supply chain efficiency called logistics performance index, India's ranking has jumped from 54 in 2014 to 35 in 2016 report, while Germany is highest ranking and comparatively advanced economies like Portugal and New Zealand. For instance the 69% of shipments from India meet the quantity criteria, compared to 72% for china and 77% for Kenya. India has five form of required for import or export compared to 4.5 for China and 2 for Germany. Firstly to stress the defining of supply chain management in the concept of corporate analyst is so much different in the other way it is the broad range of activities of planning, controlling, executing, of the product flow from the manufacturing to ultimate consumer or raw material to production, distribution to the final customer and the main part of and cost and return in a possible manner in a effective way. SCM is a complex undertaking relies on each partner from suppliers to manufactures or is a communication between two entities. It also covers sustainability like environmental, social, and legal issues or it closely related to CSR, which is monitoring the environment and social wellbeing and concern with the today's companies.

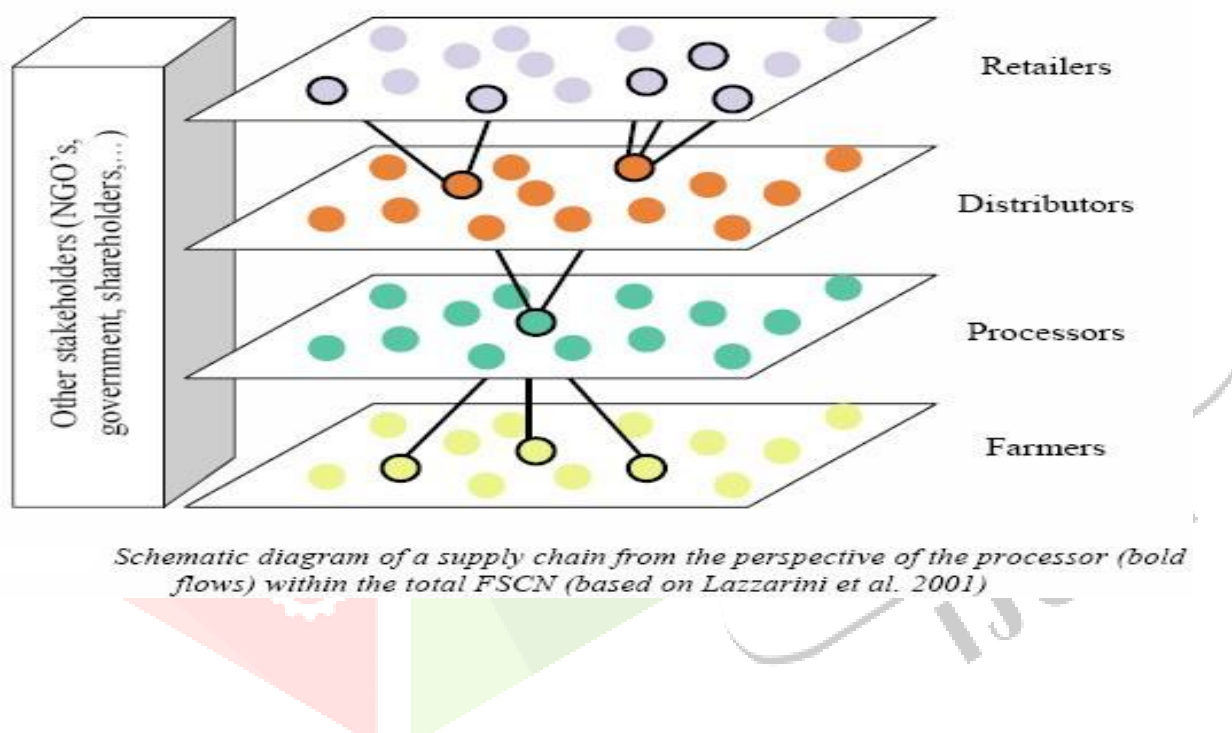
Supply chain management is integrated planning and information and financial capital in the areas that broadly include demand planning, sourcing, production, inventory management and storage, transportation or logistics and return for excess or defective products. It is use in such a strategy and specialized software for mitigate the competitive of the business. Some of the common problems in agri-supply chains in India are presented in **Table-1**

Production	Supply Chain	Processing	Marketing
<ul style="list-style-type: none"> • Poor extension • Quality inputs • Low productivity • Deficient and in efficient production management • Non demand linked production Improper postharvest management resulting in poor quality 	<ul style="list-style-type: none"> • Lack of storage • Poor transportation • High wastages • Multiple intermediaries • Fresh produce transported to mandis in open baskets. • Cold chain absent or broken, produce deteriorates 	<ul style="list-style-type: none"> • Low processing • Lack of quality • Poor returns • Low capacity utilization • Lack of technology and raw materials. • Units levels are lacking. • Storage capacity is less. • Ware housing is not available. • Perishable items 	<ul style="list-style-type: none"> • Poor infrastructure • Lack of grading • No linkages • Non-transparency in prices • Long delays from producer to retailer. • Population increase distribution is not possible. • Advertising slow.

	rapidly • Food safety is major concern: Hygiene and pesticide MRL not monitored	are not processing well.	• Restriction in for product segment.
Each segment working in an isolated manner resulting in multiple losses across the value chain			

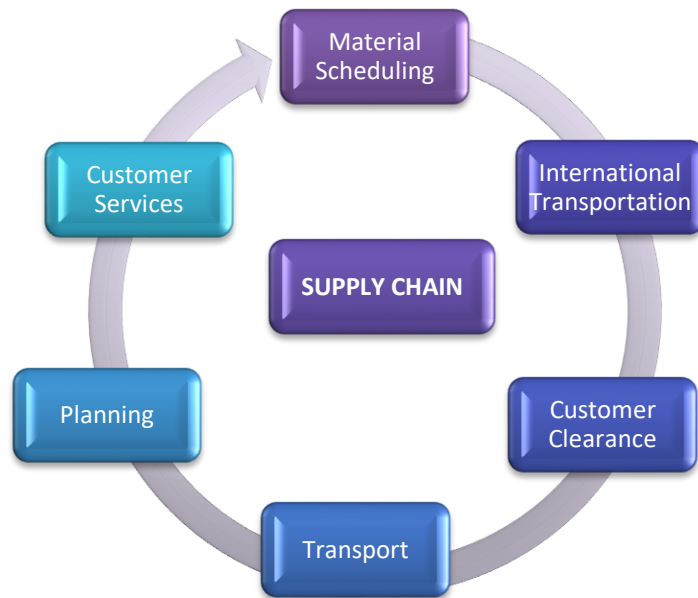
Food supply chain Networks in the world:

Table: 2



Components of an Agriculture supply chain:

Extensive pre-planning and co-ordination are required for up and down the entire chain to affect key control processes such as forecasting, purchase scheduling, production and processing programming, sales promotion, and new market and product launches etc. Following are the components of an organized agri-supply chain.



Rationale of the study:

It has a greater impact on the agri-cultural activities and their total production and output level or the ultimate consumer level will increase at appoint of time, which has a greater influence the supply chain management site and distribution part of the agri-culture.

Objectives of the Study:

1. To find out the agri cultural marketing scenario of India in present context.
2. To define the SWOT analysis of marketing scenario of horticulture in India.
3. Steps for the improvement in the supply chain management in India.

Research Methodology

Secondary data is collect through journals, daily newspapers, books, media and with the aid of different search engines through internet, economics at glance report, NHB report etc.

Review of literature

Hosmani.G.A (2014) states that Supply Chain Management and Logistics involves optimizing the delivery of goods, services and information from supplier to customer. An effective supply chain makes companies competitive and profitable. Information is essential to making optimal supply chain decisions because it provides the global scope needed to make optimal decisions. Information technology (IT) provides the tools together this information and analyses it to make the best supply chain decisions.

Manage.org (2011) defines that there is a positive relationship between supplier and producer and intermeditor is the SCM, who provide the source of the organization of development in the production to lastly consume point of view. He has study the Andhra Pradesh district A Chittor who organize the both the primary and secondary data for implementation of the study. He has study poultry farm and horticulture as the major of the agriculture sector.

Sanjay Jharkharia et.al (2004) this paper clarifies that IT-enablement of supply chains, and buyer supplier relationships are at the core of supply chain research. Indian manufacturing companies, these hypotheses have been tested. It is observed from this research that information sharing and top management commitment have important roles towards the effectiveness of a supply chain. The findings also establish relationships among many important issues of supply chain management. The paper ends with the discussion and implications of this research.

A. Gurumurthy et.al(2013)this Paper focusing on SCM scenario in India were collected from multiple sources by following the established methodologies available in the literature for carrying out such reviews. Furthermore, a new taxonomy was proposed on the basis of content and research methodology utilized. Based on this taxonomy, significant trends were observed and some unique inferences were drawn, apart from identifying the directions for future research.

Don J. Palathinkalet .al (2008) successful supply chain strategies adopted by multinationals catering to a large number of consumers in India. Based on the review, the thesis recommends insights for developing supply chains in emerging markets. This thesis recommends that such partnerships may hold the key to entering new markets in order to merge together different professional cultures without the risk of losing substantial investments in infrastructure. In addition, it also recommends the advantages of vertical integration for emerging markets like India. In addition, the findings on fragmentation within the echelons of supply chains propose opportunities for understanding developmental barriers.

Souresh Bhattacharya.et.al(2014) It examines trends such as visibility and innovation, collaboration and supply networks and evolving leadership roles impacting supply chain effectiveness. Strategies for overcoming challenges are presented as also a framework for further study and analysis.

Agricultural supply chain management scenario in India

Agri-supply chain management is not complete without covering the agricultural marketing scenario of the country. Marketing and production of agricultural produce are inextricably are co-integrated with each other. In the post WTO regime, an effective agricultural marketing system through cost effective supply chain management, is the key driver of the agricultural economy of a country. Effective marketing system aims at ensuring remunerative prices to the producers at cost effective marketing costs and smooth supply of commodities to consumers at reasonable prices. In order to protect the interests of the various stakeholders in the supply chains of agricultural commodities within the agricultural marketing system of the country, a number of governmental interventions have been introduced from time to time. Characteristics of Traditional Agricultural Marketing System

The problems of agricultural marketing have received the attention of the government for a long time. As early as in 1928, the Royal Commission on Agriculture had pointed out that the then existing system did not meet the requirements of an ideal marketing mechanism. Some of the important characteristics of the traditional marketing system for agricultural commodities have been discussed below: Many of these still exist, though efforts are under way to improve them.

Village Sales of Agricultural Commodities

A majority of farmers in India sell large part of their produce in villages resulting in low returns for their produce. There is a difference in the price prevailing at different levels of marketing, i.e., the village, the primary wholesale market, the secondary wholesale, and retail levels. The extent of village's sales varies from area to area, commodity to commodity, and also with the status of the farmer. The village sale is 20 to 60 percent in food-grains, 35 to 80 percent in cash crops and 80 to 90 percent in perishable commodities. This practice is very common even now. The factors responsible for village sales are

- Farmers are indebted to village money lenders, traders or land lords. They are often forced either to enter into advanced sale contract or sell the produce to them at low prices.
- Many villages are still not connected by roads. Adequate transport means are not available even in villages connected by roads. It is difficult to carry the produce in bullock or camel cart stock markets, which are often situated at long distances.
- There is only a small quantity of marketable surplus with a majority of the farmers because of the small size of holdings.
- Farmers are hard-pressed for money to meet their social and other obligations, and are often forced to sell their produce right in the villages.
- Most of the perishable products need to be marketed in the villages because of their low "keeping" quality and the non-availability of quick transport means.
- Many farmers disliked city markets mainly because of their lack of knowledge about prevailing market practices, the possibility of theft or robbery in transit and problems faced by them for selling their produce in city markets.
- The information on the prices prevailing in the nearby primary and secondary wholesale markets is not readily available to the farmers.

State Marketing Departments

Marketing Departments were set up in the States as counterparts of the Central Marketing Department. The structure of the State Departments varies from State to State, and their status ranges from that of a full-fledged department to a cell under the Agriculture Department. However, all the States now have a marketing department/cell to look after the marketing problem so farmers. The market regulation scheme received momentum after the establishment of State Agricultural Marketing Boards in the State. In some states Agricultural Marketing Departments were merged with boards. However, National Commission on Agriculture in 1976 again recommended establishment of separate Directorate of Agricultural Marketing in every state.

Definition of Regulated Market:

A regulated market aims at ensuring correct weightment of produce, prompt payment to the farmers and avoidance of exploitation of farmers by middlemen. Regulated market is one that aim sat the elimination of the unhealthy and unscrupulous practices, reducing marketing costs, and providing facilities to the producer-seller in the market.

Progress of Regulated Markets in India

Year ending	Number of Regulated Markets	Regulated Markets as percent of Wholesale Assembling Markets
March 1951	236	3.23
March 1956	470	6.44
March 1961	715	9.80
March 1966	1012	13.87
March 1976	3528	48.37
March 1976	4446	60.96
March 1986	5766	79.06
March 1996	6968	95.54
March 2001	7161	98.19
March 2011	7190	--
March 2012	7210	--
March 2013	NA	--
March 2014	NA	--
March 2015	NA	--

March 2016	7320	--
March 2017	7545	--

Dept. of agricultural co-operation and management

Reforms

The main Act for market regulation, “Agricultural Produce Market Regulation Act” is implemented by the State Governments. A network of more than 7100 regulated markets & about 28000 Rural Primary Markets services the marketing system of the country; and about 15% of which are also regulated. The objectives of market regulation initially were to ensure correct weighing, prompt payment to the farmers for their produce and to avoid their exploitation at the hands of middlemen. However, the markets originally meant for protecting the farmers from the clutches of the exploitation by middlemen end biting the free play of market forces, pushing the interests of the farmers to the backburner.

Under the APMC Regulation, no exporter or processor could buy directly from the farmers, thereby discouraging processing and export of agri-products. Only State Govt. could set up markets, thereby preventing the private sector from setting up markets and investing in marketing infrastructure. The Inter Ministerial Task Force, set up by the Govt. of India in 2002, made an assessment of investment gap of Rs.12,400 crore by the year 2012 in agricultural marketing infrastructure. The increasing focus on liberalization, privatization and globalization is both a challenge and an opportunity for our farmers. However, in order to enable our farmers to reap the external opportunities, effective internal reforms in the agricultural marketing system of the country are inescapable.

Regulatory Reforms undertaken

- Aware house Development and Regulation Authority has been setup. This is entrusted with the task of negotiable warehouse receipt in the agriculture sector. This will go a long way towards saving the farmers from distress sale of their produce
- A Food Safety Regulatory Authority has been set up to look after the food safety and quality issues.
- Strengthening of the Forward Markets Commission through amendment of the FCR Act is in the pipeline.
- Launching of the infrastructure scheme (AIGS Scheme) and the Rural Godown Scheme has gone a long way towards attracting private investment to agricultural marketing sector.
- Market Research Information Scheme of Government of India has been successful in disseminating price and arrival related information from almost all the wholesale markets of the country.

- The terminal market scheme of the government has the potential to promote setting up of a chain of Hub-and-Spoke model of market through the country in PPP mode.

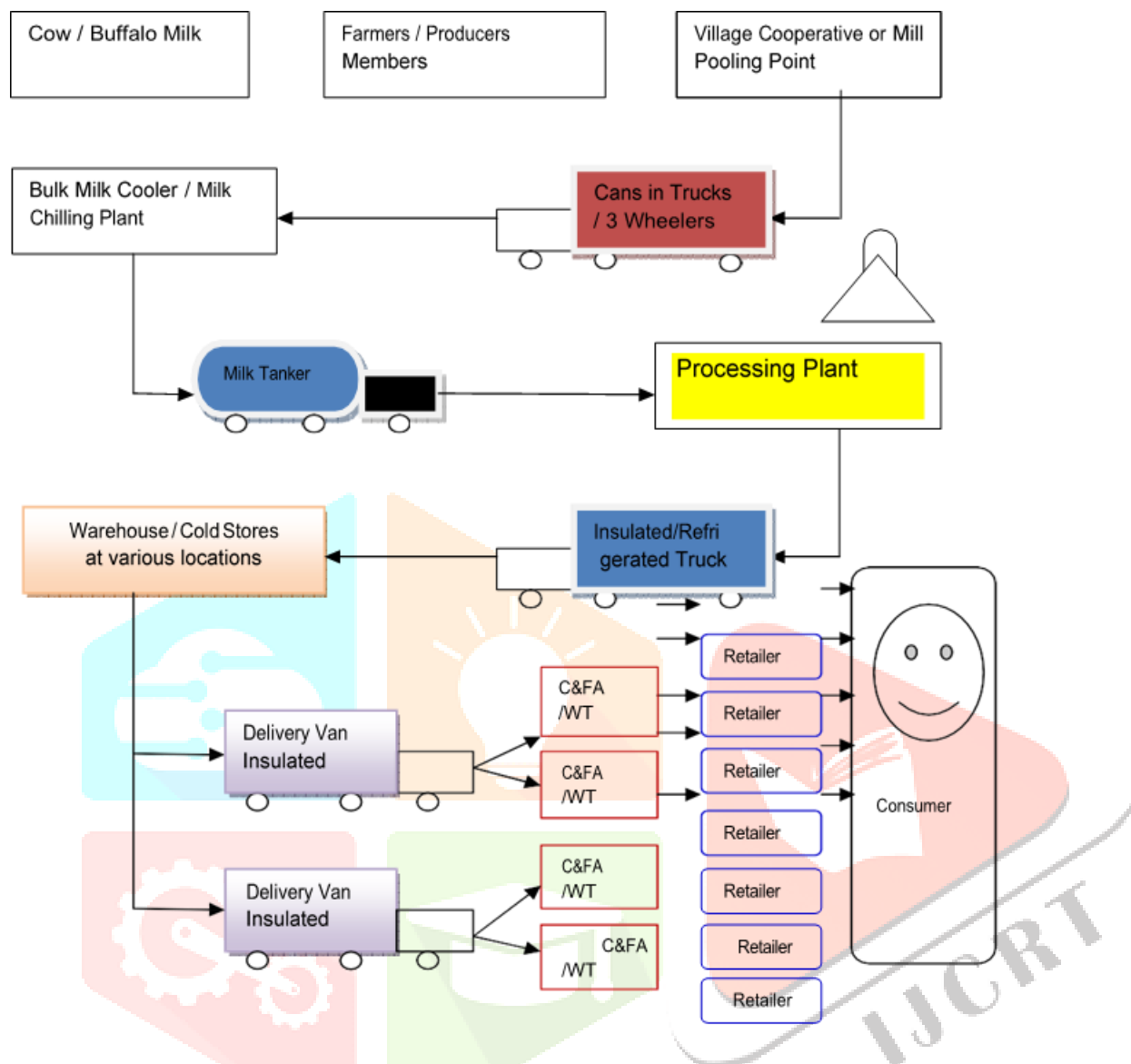
Supply Chain Management in Horticulture

India is the fruit and vegetable basket of the world. It grows a variety of fruits and vegetables and has huge production of both fruits and vegetables. India is the second largest producer of both fruits and vegetables in the world after China. In fruits, India is the largest producer of banana, mango and papaya, sixth largest producer of pineapple and seventh largest producer of apple in the world. In vegetables, it is the largest producer of okra, second largest of producer of brinjal, cabbage, cauliflower, onion and potato and third largest producer of tomato in the world. The production and productivity of fruits and vegetables in India for the last three years is given the big instrument in the channel of management of the products. The vast production base of horticultural produce offers India tremendous opportunities for export. During 2012-13, India exported fruits and vegetables worth Rs.5730.85 crores which comprised fruits worth Rs.2467.40 crore and vegetables worth Rs.3263.45crore. Mangoes, Walnuts, Grapes, Bananas, Pomegranates account for larger portion of fruits exported from the country while Onions, Okra, Bitter Gourd, Green Chillies, Mushrooms and Potatoes contribute largely to the vegetable export basket. The major destinations for Indian fruits and vegetables are UAE, Bangladesh, Malaysia, UK, Netherland, Pakistan, Saudi Arabia, Sri Lanka and Nepal. Though India's share in the global market is still nearly 1% only, there is increasing acceptance of horticulture produce from the country. This has occurred due to concurrent developments in the areas of state-of-the-art cold chain infrastructure and quality assurance measures. Apart from large investment pumped in by the private sector, public sector has also taken initiatives and with APEDA's assistance several Centres for Perishable Cargoes and integrated post-harvest handling facilities have been setup in the country. Capacity building initiatives at the farmers, processors and exporters' levels has also contributed towards this effort. India is most consuming countries in the world , so there is some views regarding strength, weakness, opportunity and threats in the country which the horticulture sector is face right now .

<p>Strengths</p> <ul style="list-style-type: none"> ▪ Established Processing location with over active Mango and tomato processing units are there. ▪ Availability of processable and export quality raw material for Mango, Papaya, Lime and pomegranate ▪ Proximity to cities like Chennai, Ahmadabad, Haryana, Delhi, Kolkata, and Bangalore etc. ▪ Availability of other processable raw material for almost 8-9months. ▪ Promptly accessing of goods anywhere in the country. 	<p>Weaknesses</p> <ul style="list-style-type: none"> ▪ Shortage of water for processing and irrigation in the country. ▪ Competing fresh market. The cluster supplies fresh product throughout the country. ▪ Shortage of power forces the units to use diesel generators increasing the production cost ▪ Unavailability of labour, lower wage rate. ▪ Retail market is fail to sell the sell of perishable goods. ▪ Transportation cost is high, climate condition is un conditional. ▪ Rules and regulation are very strict in the country
<p>Opportunities</p> <ul style="list-style-type: none"> ▪ Huge opportunity for export to fresh Mangoes, Papaya, Banana and other fruits. ▪ Opportunity for setting up of common value added product units such as tetra pack, etc and creating a brand for the cluster wise. 	<p>Threats</p> <ul style="list-style-type: none"> ▪ Quality assurance of the raw materials due to heavy use of pesticide ▪ Un scientific handling of the produce at the farm level leads to higher wastages and losses ▪ Increasing incidence of bacterial and viral diseases in many crop sand difficulty in control ▪ Reducing acreages of some crops because of shift to other crops of eucalyptus and Casuarinas

Supply Chain Management in Dairy

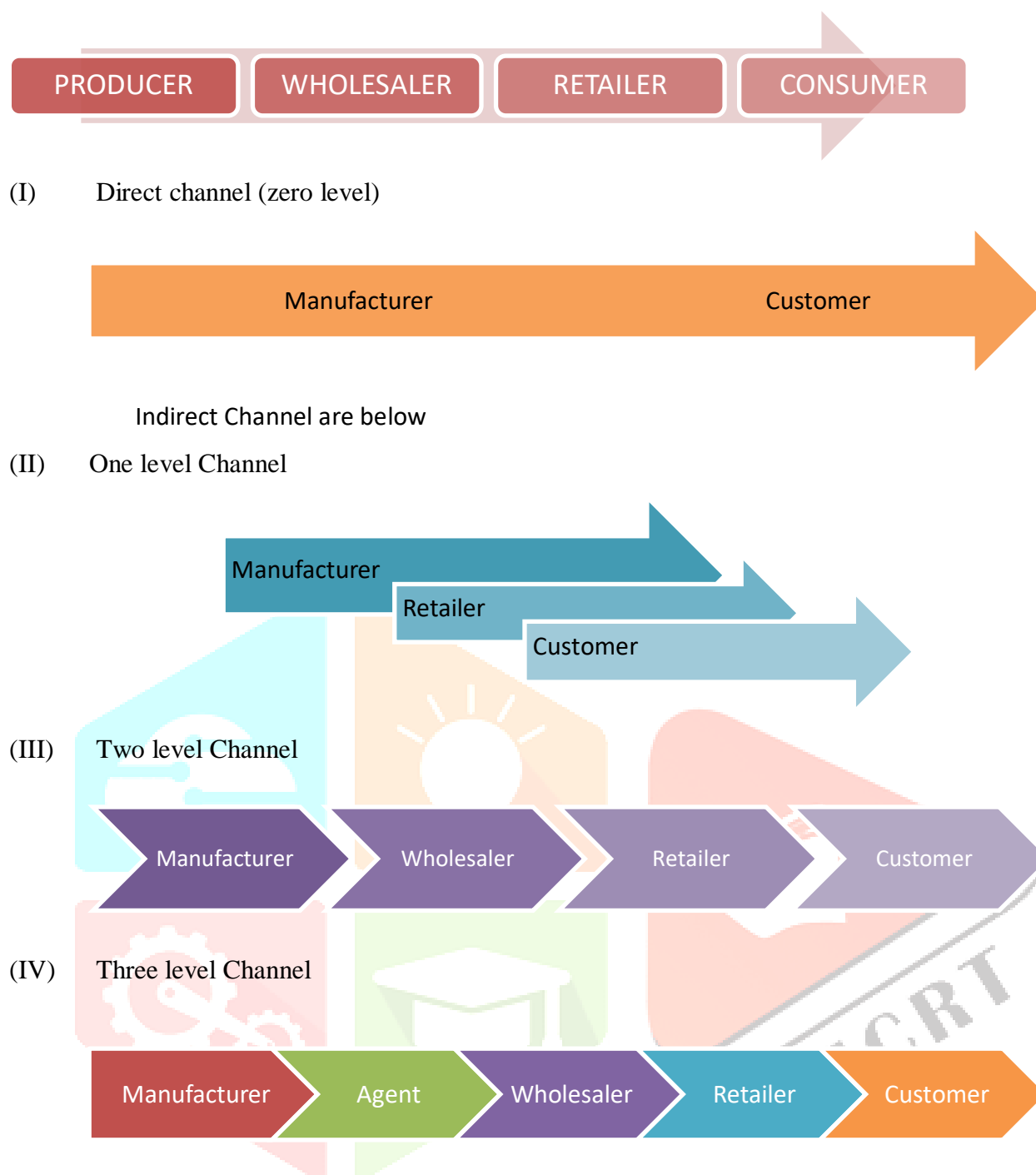
Milk production in India is the highest in world with annual production close to 130 million MT. and growing over 5% per annum, contributing 5% of the GDP. The system of supply chain in India



Marketing channels and distribution:

Management is depend up on the sells of the products and their marketing channel through proper way or in the category wise.

Channel of distribution, nature of logistic and marketing activities greatly depends on the category of product. Marketing channel management are ste of independent organizations involved in the process of making a product or service available for use. Such matters are below



Category of milk products (1). Chilled products (0-10c) or fresh dairy products (2). Ambient products (3) Frozen product. These products are distributed on the basis of above channel where there are getting benefitted in to market.

Supply Chain Management in Poultry:

India is the third largest egg producer and fifth largest poultry meat producer in the world. The Indian poultry industry employs about 2 million people, and contributes 1.1% to the national income. Among all the meat categories, poultry meat is witnessing the highest growth rate, at over 15% per annum, compared to the overall meat industry growth rate of 5% per annum (Ali et al., 2004). Currently, poultry meat constitutes approximately 25% of the total meat production in the country. The poultry industry has made a rapid progress in the last three decades. Several breakthroughs in poultry science and technology have led to the development of genetically superior birds capable of high

production, even under an adverse hot climate. Manufacture of high-tech poultry equipment, quality poultry feed, pharmaceuticals and health care products including vaccines are some of the important factors contributing to higher productivity. The industry is dominated by the private sector and majority of the poultry producers still belong to the unorganized sector with backyard rearing of birds numbering anywhere between 25 and 250. Furthermore, the contribution of processed meat to the total value of meat production is negligible.

Chicken supply chain:

Bengal hatchery limited has a vertically-integrated chicken supply chain from hatching of eggs, breeding of day-old chicks, production of broilers, processing of feed for chicks and broilers to selling of live birds, processed meat and ready-to-eat chicken items through distributors and own or franchisee outlets. The supply chain broadly consists of the following 6 units:

1. Breeding farm for hatching of eggs and production of day-old chicks.
2. Commercial farm for production of broilers.
3. Feed processing unit.
4. Dressing unit for production of processed meat.
5. Kitchen for preparing ready-to-eat chicken items.
6. Own or franchisee outlets for selling processed and ready-to-eat chicken items.

This hatchery is key big seller of Egg, Breeding, and meat producer in the country. so it is right example of all the firm to exercise this plan to achieve their target. Because it has big outlets for this product, strategic location, management process, processing units, bird live, everything is running very smooth. Market Research Information Scheme of Government of India has been successful in disseminating price and arrival related information from almost all the wholesale markets of the country. The terminal market scheme of the government has the potential to promote setting up of a chain of Hub and Spoke model of markets through the country in PPP mode.

Threats and Opportunities:

Though India is one of the largest producers of poultry products in the world, per capita consumption of eggs and poultry meat is among the lowest. The annual per capita consumption of eggs and poultry meat in the country are around 40 and 1 kg, respectively, well below 180 and 10.8 kg, respectively, recommended by the Nutritional Advisory Committee. Poor consumption of poultry products is attributed to socio-cultural and religious factors (About 40% of the Indian population is vegetarian), high prices and low per capita income (~ USD 500). High feed costs, low meat yield, inefficiencies, and diseconomies of scale and lack of modern processing facilities cause high prices. Feed costs, which form 70-75% of the total cost, are almost four times as high as those of other countries, e.g., Brazil. A principal cause of these high costs is low yields of feed ingredients such as maize. Another reason why feed costs have remained high is the reservation of this sector for small-scale units. These units suffer from poor economies of scale and typically lack the resources to invest in modern technologies. Indian

breeds have lower Feed Conversion Ratios (FCR) compared to the breeds used in developed countries, resulting in lower meat yield. The FCR in India is typically 1:2, meaning thereby to put on a weight of 1 kg by a broiler; 2 kg of feed have to be administered. In most of the developed countries, the FCR is 1:1. Obviously, low FCRs result in high overall costs. The processed meat industry in India is growing at a very slow pace. In developed countries, almost 100% of broilers produced are processed and sold as value-added products in the form of portions, boneless and further processed products. Even in countries like Thailand, Indonesia and Malaysia, most chicken sold is processed and branded. In India, however, poultry meat is a commodity product, and only about 2-3% of the total poultry meat produced is sold in the processed and branded form. Two main reasons for this are consumers' preference for live chicken and skepticism about processed chicken and inadequate infrastructure like lack of cold chains etc. To Indian consumers, chicken is fresh if it is live and cut before their eyes, even in a very unhygienic manner. Since live birds are available in plenty in the markets, consumers prefer live birds to processed chicken, which they perceive to be "not as fresh". Also, as processed chicken is costlier than live chicken, buying of processed chicken has so far been confined to the upper income group.

The change in consumer mindset in favour of processed chicken would gradually evolve with promotion and awareness. The absence of cold chains from the processors and upto the retailers and the lack of adequate refrigeration facilities at the retail outlets result in deterioration of the quality of processed meat, ultimately affecting consumer health. Most of the poultry meat produced in India is consumed domestically. Only a very small amount of this is exported. High costs of production of Indian poultry products make them uncompetitive in the international market. Indian poultry meat is over 50% costlier than the average world price. Exports have also suffered due to the lack of adequate infrastructure (cold storage etc.) at the seaports and airports.

Steps for the improvement in the supply chain management in India.

As regards other reforms, the Government of India has taken up the following measures:

- ❖ A warehouse Development and Regulation Authority has been setup. This is entrusted with the task of negotiable warehouse receipt in the agriculture sector. This will go a long way towards saving the farmers from distress sale of their produce
- ❖ A Food Safety Regulatory Authority has been set up to look after the food safety and quality issues.
- ❖ Strengthening of the Forward Markets Commission through amendment of the FCR Act is in the pipeline.
- ❖ Launching of the infrastructure scheme (AIGS Scheme) and the Rural Go down Scheme has gone a long way towards attracting private investment to agricultural market in sector.
- ❖ Market Research Information Scheme of Government of India has been successful in disseminating price and arrival related information from almost all the wholesale markets of the

country.

- ❖ The terminal market scheme of the government has the potential to promote setting up of a chain of Hub and Spoke model of markets through the country in PPP mode.
- ❖ Promoting common units for further value addition such as common Tetra Pack units and creating a brand for the cluster.
- ❖ The cluster produces significant amounts of solid waste, which is presently rejected. A Common Biomass Power plant may be promoted in the cluster, which would utilize the solid waste to generate power for both captive use of the cluster as well as supply to the grid.
- ❖ Promoting water conservation methods in the cluster with focus on rain water harvesting, etc.
- ❖ Promoting unit level small scale Effluent Treatment Plant (ETP) that would ensure environmental health of the region.

Conclusion:

The main importance of the present era is to focus on the group of not only the market side but also the management side is to be fulfilled by both individually and government effort where the production is more and more, in the same way the process of marketing is also increasing at a point of time. The creation of strategically effort in the form of regulated market, information technology with management information system, and broad based consumerism focus like advertisement, Publicity, and media is to be active participate in the front of supply chain management system. Industry and academic estimates the put the logistics and the supply chain management spend more at 13 % of the GDP, but actually this expenditure is going towards in such a manner or not it is more studiable question? The marketing scenario of India both agricultural production and marketing is inter twist with each other, through cost effective of supply chain, effective marketing system, supply of commodities, government interventions from time to time, there are imperfections of marketing system and the regulated market in the country. Some of the such reforms are kept to mind by both government as well as private organization in the right corner.

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