

# Significance of Supply Chain Management in Public Distribution System

Pradosh Singhal\*, Rajat Agrawal\*\*, Vinay Sharma\*\*\*

\**Research Scholar, Department of Management Studies, IIT Roorkee, Roorkee, Uttarakhand, India.*

\*\**Associate Professor, Department of Management Studies, IIT Roorkee, Roorkee, Uttarakhand, India.  
Email: dr.rajat07@gmail.com*

\*\*\**Associate Professor, Department of Management Studies, IIT Roorkee, Roorkee, Uttarakhand, India.*

## ABSTRACT

Development of a proper supply chain management system to manage the food distribution network to achieve food security is one of the major challenges confronting the world today. India and China, two major economy of the world face the challenge and pressure to feed over half of the total world population. Although, our country India has achieved self-sufficiency in food grain production and surplus food stocks are available in the FCI godowns across the country, but due to inefficiencies of operation and entrepreneurial abilities, majority of beneficiaries of the resources invested by them are not targeted to the correct population. The availability of such food to people who have challenges on social and economic front should get benefit of physical access is the key of any distribution system. Therefore a strong supply chain policy for the distribution of such food in various parts of country, a proper plan for optimal distribution of the procured food grains among such population is required. Any failure in any of the channel of this system procurement -transportation - warehousing - transportation - distribution system can lead to large scale famine in the effected region of country. Therefore, it is very important to maintain entire supply chain from farmers to the beneficiary is managed in an integrated manner.

**Keywords:** Supply Chain Management, Public Distribution System, Agricultural Supply Chain, Food Security

## INTRODUCTION

In the present scenario of modern business having rapid changes, competitive environment has contributed to development of strong supply chain networks. Supply Chain Management (SCM) is the management of the flow of goods and services. It includes the movement and storage of raw material, work-in-process inventory, and finished products from point of origin to point of consumption in any system. Supply chain management is a multidisciplinary system designed to help conceive innovative strategies and deploy differentiated solutions that can help any organisation to serve customers in an optimal fashion. SCM is strategic and systematic effort of various business activities within and outside organisation to improve long run performance of organisation. So, for the effectiveness of any system as well as policy role of SCM has become very important and properly designed structure of supply chain must be understood for gaining the benefits of any system. For any and service enterprises, supply chain management has now become a new tool to achieve the productivity and competitiveness of organisation.

In supply chain management, different areas of an organisation like material, money, men, and information,

are managed by strategic and systematic efforts of different business activities within and outside organisation to improve long run performances of business for achieving maximum benefits and to maximise customer satisfaction to make competitive effectiveness. According to Berry "SCM aims at building trust, exchanging information on market needs, developing new product and reducing supplier base to particular OEM (original equipment manufacturer) so as to release management resources for developing long term relationships". According to Council of Supply Chain Management Professionals (CSCMP), "SCM encompasses the planning and management of all activities involved in sourcing procurement, conversion and logistics management. It integrates supply and demand management with in and across companies".

## SIGNIFICANT AREA OF SCM IN PUBLIC SECTOR UNDERTAKING IN INDIA

Role of proper and efficient SCM strategy is very important to build up and increase sustainable competitive advantages by cost reduction but maximum customer satisfaction for any organisation. There are various PSUs in our country India where by proper use of SCM paradigm effectiveness can be increased many fold.

## Petroleum Products

However some of the country petroleum products requirements are indigenously procured but at the same time significant proportion of petroleum crude oil and finished petroleum products are being imported to fulfill the nation demand, which requires a well-designed & feasible global supply chain system to provide a feasible transportation and distribution network to fulfill national and regional demands.

## Public Health Services

Hospitals, medical centers, dispensaries, and other medical welfare schemes run by government of India are the backbone of nation health services. As many PSUs are major players as pharmaceuticals industry so a full-fledged integrated supply chain network involving these PSUs with network of hospitals and other medical centers can be applied for the procurement and distribution of life saving drugs with other medical requirements.

## Banking and Financial Services

By liberalisation of government of India policies and due to globalisation of the world economy, it becomes needs for the banking sector to provide better facilities to the customers as per changing requirements. To meet the end objective of providing effective services whole system needs to be reengineered as per the design of SCM.

## Import and Export

Import and export are the two basic important dimensions of any organization & nation. Government sectors also play an important role as time to time essential materials such as crude oil, steel, food grains, life saving drugs, defense items, coal, and others are imported by government as per requirement and surplus items like mica, iron ore etc. are exported. A proper negotiation with optimal delivery and distribution system with taxation planning through strong SCM paradise is required to achieve goals.

## Postal Services

In new era of business development, role of postal services becomes very important; it becomes need for this sector to provide best speedy and economical facilities as

per changing requirement of customers to stand in market and to face competitors. For providing effective services, system must be designed with proper SCM strategies to compete with other local and global players.

## Food Grains Procurement and Distribution

The uniqueness characteristics of food industries is very vast and diversified and also categorised by different sectors such as fresh food industry, organic food industry, processed food industry, livestock food industry, food grains industry and each segment of such industry needs different supply chain strategies such as procurement and sourcing, inventory management, warehouse management, packaging and labeling system, and distribution management. As agriculture is a basic industry for any nation where different types of products (crops) depend on the geo-physical characteristics of the region; the crop that is produced in one part of country may be needed to be transported to another part of the country to meet the food requirements in other region of country. Therefore role of a strong supply chain policy becomes more important to maximise customer satisfaction to make competitive effectiveness of any policy. In our country India, Public Distribution System (PDS) is one of largest distribution network of its own type to fulfill the food requirement of huge population of country to achieve food security in nation. There are public sector enterprises (Food Corporation of India) involved in the procurement of food grains and their storages in different parts of the country. A strong supply chain policy for the locations of warehouses in various parts of country, a proper plan for optimal distribution of the procured food grains among these warehouses and to the retail shops under public distribution system is required. Any failure in any of the channel of this system procurement – transportation, warehousing, transportation, or distribution through public distribution system can lead to large scale famine in the effected region of country.

## Public Distribution System in India

Public Distribution System (PDS) is the most important step taken by Government of India (GOI) to ensure food security through public distribution. PDS is a rationing instrument that enables households to have specified quantities of selected commodities at an affordable subsidized price. Historically, the objectives of the PDS have been (Bapna, 1990):

- ◆ Maintain price stability.
- ◆ Increasing the welfare facilities for the poor.
- ◆ Rationing during situation of scarcity.
- ◆ Keeping a check on private trade.

The British Government in India first introduced it in Bombay during 2<sup>nd</sup> World war and later extended it to six other cities and a few other regions (George, 1996). PDS in its present form- a price support-cum-consumer subsidy programme-has evolved in the wake of critical, national-level food shortages of the 1960s (Radhakrishna, Subbarao, Indrakant, & Ravi, 1997). From 1960 to 1991, there have been four phases in the history of the PDS in India (MSSRF 2001) during which PDS was converted into a universal programme for the provision of cost effective food and made a component of the strategy to alleviate poverty. This policy of PDS system has undergone several changes with every lap of five year planning system in the country. The seventh plan has specified that the PDS will be a permanent feature of the strategy to control price, reduce price fluctuation and achieve an equitable distribution of essential goods (Venugopal, 1992). PDS was widely criticised for its failure to serve the population below the poverty line, its urban bias, negligible coverage the states with the highest concentration of rural poor and lack of transport and accountable arrangement for deliveries. Realising this Government of India has introduced the Targeted Public Distribution (TPDS) Scheme w.e.f. 1.6.2007. Under the scheme, below poverty line (BPL) population would be identified in every state and each BPL family would be entitled to a certain quantity of food grains at a specially subsidized price (Singh & Kumar, 2011). The scheme of TPDS is effective all over the India.

## FOOD SECURITY

Security either in terms of food or human is one of the major challenges faces the world today. Food security is inherently interlinked with other current global challenges of economy and climate change. The issue of food security has been around for a long time and the rights to adequate food and to be free from hunger have been repeatedly affirmed in a number of documents adopted by the United Nations. Nevertheless, by the early 1990s, there were still more than 800 million people, mostly in the developing countries, who did not have enough food to meet basic nutritional needs. This led the Food and Agriculture Organization (FAO) to assemble a World Food Summit in 1996, in which 194 countries took part and during which the Rome Declaration on World Food

Security was drawn up. As per the definition of the food security given by the Rome Declaration on world food security at the World Food Summit held in Rome in 1996, food security is said to exist when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2009). The food security has three major dimensions as availability, accessibility and affordability. Thus food security is ensured in a country only if (a) enough food is available for all the persons (b) all persons have the capacity to buy food of acceptable quality and (c) there is no barrier on access to food (Ray, 2011).

Food security is closely associated with physical, social, and economic access to sufficient, safe and nutritious food (FAO, 2009). The availability of such food to people who have challenges on social and economic front should get benefit of physical access is the key of any distribution system. Throughout the world, governments have adopted different mechanisms to ensure availability of food grains to its population particularly to poor people. The development of a systematic frame work to manage global food security has become a priority for the global community. We in our country (India) face the challenges and pressure to feed over one billion populations. Targeted Public Distribution System (TPDS) in India, launched in 1997, seeks transparent and accountable distribution of food for the poor. If TPDS meets the challenges of efficient and accountable implementation, it can ensure people of India to have regular physical and economic access to sufficient food to meet nutritional needs (Kattumuri, 2011).

India and China, two major economies of the world face the challenge and pressure to feed over half of the total world population. Although, our country India has achieved self-sufficiency in food grain production and surplus food stocks are available in the FCI godowns across the country, but due to inefficiencies of operation and entrepreneurial abilities, majority of beneficiaries of the resources invested by them are not targeted to the correct population.

## PDS – Key to Food Security

With a network of more than 4.99 lakh fair price shops (FPS), distributing annually products worth more than Rs. 33, 00,000 lakh, the Public Distribution System (PDS) in India is perhaps the largest distribution network of its kind in the world. Public Distribution System (PDS) in India is considered to be most important food security system

established by the Government of India under Ministry of Consumer Affairs, Food and Public Distribution and managed jointly with state governments in India, which promises basic food to cover 3,300 lakh poor people living in India. It also ensures the availability of food to the general public at affordable price. It helps in eradicating poverty and intends to serve as a safety net for the poor Indian people, who are nutritionally at risk.

India is a nation with over 300 million poor people, a number that has barely declined over the last three decades of development. It is therefore essential that the Eleventh Five Year Plan addresses the task of reducing the numbers of the poor frontally. It is clear that rapid growth will be essential to reduce the number of the poor and for sustainable poverty reduction; the eradication of poverty is the main slogan of the 11th Five Year Plan. Public distribution system is one of the strategies to eradicate the poverty in India. In India even after half a century of independence still 42% of total population is living below poverty line (BPL group). Therefore in the strategies formulation for the growth of country the thrust was focused to eliminate poverty. In the direction of poverty alleviation the PDS is one of the instruments in country development processes. India continues to be a land of extremes. Extreme poverty persists besides new-found opulence and riches. Starvation deaths are still reported, but not because of lack of food grain availability. Rather, due to paucity of purchasing power. For the last 50 years, India's food grain production had remained stagnant. But the poorer have been getting richer and the nutrient intake of large number of people has improved. And the public distribution system has been one of the harbingers of this change.

As per 2010 FAO world agriculture statistics, India is second largest producer of wheat and rice, the world major food staples. In fiscal year ending June 2011, with a normal monsoon season, India agriculture accomplished an all time record production of 85.9 million tons of wheat, a 6.3% increase from a year earlier. Rice output in India also hit a new record at 95.3 million tons, a 7% increase from the year earlier. Indian farmers produced about 71 kilograms of wheat and 80 kilograms of rice for every member of Indian population in 2011. But due to poor infrastructure and distribution issues, India experiences some of the highest food losses in the world. If we care about true food security, an efficient and effective mechanism to reach food to all people at all times at affordable prices is an essential prerequisite. This is also crucial to alleviate poverty.

In the context of national food security and poverty alleviation, it is essential to take a look at the "efficiency and efficacy" of the public distribution system (PDS), which has been operating as the food access mechanism for several decades. Proponents of the rationing system and its successor, the PDS, claim that these two measures have played an important role in ensuring higher levels of household food security and completely eliminating the threat of famines. On almost all physical counts, the performance of the PDS has remained good. It has made remarkable growth in the quantum of food grains distributed under its aegis. The volume of grains distributed as a percentage of total production has also been on a sustained upward curve. However, food distribution under PDS as a percentage of production and procurement has been fluctuating and continues to be a problem area. This has led to huge pile up in food grains leading to wastage and rotting grains at FCI warehouses and even outside in the open. Reasons aside, the accessibility to food grains at affordable prices by the Indian poor has been growing. Not just the statistical availability. This seems to have resulted in major changes in the food intake in the country's population. Although much more remains to be done, large segments of India's poor seems be relatively better off and country's poor still have a lot to hope for poverty reduction.

### **SIGNIFICANCE OF SCM IN PUBLIC DISTRIBUTION SYSTEM**

For the success of any distribution network role of supply chain management and strategies have always been a vital part. Our nation is world's leading producer of fresh fruits and vegetables, pulses, rice, wheat, and other food grains. Besides these malnutrition is a common phenomenon in India. Almost 21% of nation total population is malnourished and 60% of children in India are underweight and malnourished. According to World Bank, almost equal 3% of GDP productivity losses in India due to stunted growth, iodine deficiencies and iron deficiencies.

There is a remarkable growth in agricultural productivity of various commodities in the past 40 years which contributes significantly towards bringing the nation from deficit to surplus in food grains production and to provide food for everyone. Besides all these the availability of food remains a problem for many households in India. The main reason behind this cause is lack of proper strategies of agricultural sector due to poor logistics network, inefficient chain of traders, lack of proper warehousing and cold storage facilities, poor and

insufficient food packaging. The agricultural production is mainly categorised in some sub-systems as input supply, production, processing, sales and distribution to needful as to provide quality food in time as per requirement. Coordination between these subsystems is very poor throughout the supply chain of agriculture sector in our nation and most of these components act independently and not properly coordinated and due to this agriculture sector operates inefficiently at every stage of supply chain.

## MAJOR CHALLENGES OF INDIAN AGRICULTURAL SUPPLY CHAIN

From 1950s, Indian agriculture sector is growing day by day having average growth of food grain production was about 3.2% (from 1950 to 2011). Besides this our country has millions of hunger families having no sufficient foods to survive. This is a major challenge to face by the Indian agriculture supply chain management. Some of the major factors are as follows:

### Poor Infrastructure and Logistics

India has the second longest road network in the world out of which only about 2% of the entire road length is covered by national highways on which 40% of the cargo runs. Normal distance travelled by an Indian truck is 250-300 km/day as against the international norm of 600-800 km/day. High dependence on manual labour and low technological presence impacts the supply chain lead time. In our country only about 6% of logistics is in organised sector while rest of the sector is in the hand of unorganised players. Due to lack of organised logistics network there is a delay in transportation of food produces from the farm to the end consumer and due to majority of unorganised sector lot of middlemen involved at every stage and the time taken for the produce to reach the end consumer results in food wastage and higher price.

### Insufficient Warehouses

For the proper storages of agriculture production two types of warehousing are require. One is a sheltered warehouse to store food grains like rice, wheat and cereals and the other one is cold storage facility to store fruits and vegetables. In our country capacity to store food in houses have inadequate capacity as against the crop production which has gone up significantly over the years, but the storages facility have not increased or planned accordingly. Due to this many crops are stored in the open space and

during rains unexpectedly huge quantity of food grains are damaged. Also due to the improper arrangements of pest control mechanisms and poor management in warehouses about 20% of the food grains are eaten by rodents every year. Also due to absence of proper and effective supply chain between farmers to storage points by FCI or other government authorities dominance of middle men or other traders increases and farmers get only one-third of the final price of their production as compared to 66% in Western countries. For the storages of fruits, vegetables and milk, cold storage facility is important for storing such perishable productions. Due to shortage of such facilities about one third of the food produce goes waste each year.

## CONCLUSION

Government of India spends thousands of corers rupees every year as subsidy to provide food for every citizen through various welfare schemes, besides these about 26% of our population lives below poverty line having no sufficient food to eat. PDS is backbone of food security in India. But poor SCM of PDS programme puts excessive burden on exchequers and objectives of PDS are not achieved. The PDS in not properly equipped with modern and proper facilities of transportation and storages which are the two basic needs for the working of SCM of any working organisation. Proper SCM of PDS will make India a food secured country. The whole concept of supply of policy should be restructured to improve the whole system effectively to make a proper supply chain from producer to consumers. The aim of such system is to maintain a balance between supply and need of customer as food is an item which required as per need to minimise the cases of malnutrition.

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