

Chapter 11

Cold Chain Logistics in India: A Study

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ABSTRACT

Cold Chain refers to the transportation of temperature sensitive products like perishable goods from the point of origin to point of consumption in the food supply chain, which keeps it fresh and edible for a much longer period than in normal conditions. Cold Chain helps in transporting seasonal products and also making it available throughout the year. Two main parts of cold chain are transportation and storage systems. The key Indian industries where cold chain logistics play very important role are fruits and vegetables, milk and milk products (ice cream), Poultry and processed meat, marine products, pharmaceutical (mainly vaccines) and chemicals. An efficient cold chain industry ensures availability of food products as well as prevents spoilage of medicines. Country like India, where infrastructure is one of the major challenges, cold chain plays a critical role. Analysis for this study shows that cold supply chain network does not differ significantly from products to products at least in Indian scenario. Some of the challenges to the growth of sector in India are high energy cost, power deficit, rising real estate cost, lack of logistical support and uneven distribution of capacity. All these challenges bring down the operating margin of a company and makes it not so attractive business sector. But during last couple of years there is a positive environment being created for this sector in India. The growth in organized retail, growing interest in horticultural crops, demand for cold chain logistics from Pharmaceutical industry and various initiatives by government are some of the reasons why there is a renewed interest in this sector especially by private sector players. This study, which is focused on Indian cold chain logistics, analyzes the industry on PEST (Political, Economy, Social and Technology) model and presents top 3 factors on each of these 4 parameters.

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INTRODUCTION

The Cold Chain refers to the transportation of temperature sensitive products like perishable goods from the point of origin to point of consumption in the food supply chain. Cold chain process helps reducing spoilage, retains the quality of the harvested products and guarantees a cost efficient delivery to the consumer which can be transported over long distance and can be preserved beyond the life of the product. Different products require different temperature level maintenance to ensure their integrity throughout the travel process. For instance, the most common temperature standards are “banana” (13 °C), “chill” (2 °C), “frozen” (-18 °C) and “deep frozen” (-29 °C). Staying within this temperature is vital to the integrity of a shipment along the supply chain. Any deviations from the prescribed temperature limits will damage the goods in the transit. Figure 1 below shows a typical cold chain logistics infrastructure.

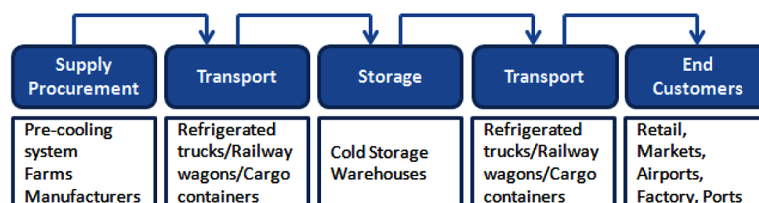
The complete Cold chain logistics system consists of:

- **Cold Storages:** This part of logistics consists of acquiring products from the point of origin and storing them in temperature controlled environment for the further transit to the point of consumption or point of sale.
- **Refrigerated Carriers:** Refrigerated Carriers form the primary distribution in a Cold Chain process. The main aim is continuous maintenance of in-transit required temperature. Failure in this part will be a major setback to the whole process.
- **Packaging:** It can be viewed as the Value added service in the Cold Chain process. It contains adhering to the various specifications and packaging the products.
- **Warehousing:** Warehousing forms the secondary distribution system of the Cold Chain process. After transportation of the products, they need to be stored in a cold storage unit from where they can deliver to the clients based on their requirements.
- **Management Information Systems (Traceability and Tracking etc.):** Throughout the transit of the goods, there should be continuous monitoring of the temperature and efficient supply chain management system should have tracking systems in place to trace the products and vehicles in transit to avoid any malfunctions. A company must maintain proper RFID (Radio - Frequency Identification) and Data loggers systems to excel in this area.

BACKGROUND

India ranks first in milk production in the world (close to 17% of total production), ranks 2 in fruits & vegetables production and has substantial production of marine, meat & poultry products. India needs

Figure 1. Cold chain logistics infrastructure



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