Chapter 24
Wastage and Cold Chain Infrastructure Relationship in Indian Food Supply Chain:
A Study From Farm to Retail

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ABSTRACT

India, the world's second-largest producer and one of the centers of origin of Fruits and Vegetables is also one of the biggest food wasters in the world. The challenge of feeding India's billion plus people is not really about agriculture and food production but getting the quality food to the concerned people in a right time. The biggest contributors to this waste are lack of temperature controlled transport and inadequate quality of cold storage facilities for both Farmers and Food sellers i.e. retailers. What India lacks, and needs, is a well-developed, world-class cold chain infrastructure. Without it, India's problems are vast and likely to grow. In this chapter, the authors tries to outlines the extent of Fruits and Vegetables waste in India (at various stages from farm to retail) and its ramifications on food production and safety. Authors also highlighted the challenges faced by cold chain sector in India and a roadmap for improvements. As Indian economy is based on agriculture, development of Cold Chain infrastructure from farm to retail points will play a crucial role.

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INTRODUCTION

Fruit and Vegetables is a very growing sector and constitute of around 90% of horticultural produce in India. Production of horticultural crops in India has increased as compared to the situation a couple of decades ago. Several factors like globalization, Increasing urbanization, Nuclear families, working women, disposable income, changing lifestyles, and rise of organized retails are gearing up the Indian fruits and vegetables supply chains for a better future. Supply chain plays a very vital role in this sector. This area becomes even more important because of perishability and very short shelf life. Supply Chain Management not only helps to cut costs, but also adds to maintain and improve the quality of produce delivered, which are perishable in nature.

India the second-largest producer of Fruits and Vegetables is also one of the biggest food wasters in the world-wasting INR 2 Lakh crore per annum worth of Fruits and Vegetables every year (ASSOCHAM, 2013).

The challenge of feeding India's billion plus people is not really about agriculture production but getting the proper food to the individuals. The biggest contributors to waste are the lack of cold chain facilities, required infrastructure and temperature controlled transportation system which is hindering the overall growth of this sector and making the supply chain inefficient.

What India lacks, and needs, is a well-established cold chain facilities and infrastructure. Without it, India's problems are vast and likely to grow. The most prone food category to a lack of cold chain infrastructure is Fruits and Vegetables where annual wastage is estimated to be around 35-40% of the total production. Various studies on Fruits and Vegetables supply chain found Poor Cold chain system as a major problem in the Supply chain of F&V which are resulting in various inefficiencies and leads to losses sand wastage across the chain.

From various studies on post-harvest losses in India, it is evident that the amount of food wasted in a year in India is equivalent to annual food consumption in some countries like UK (Rathore, Sharma, & Saxena, 2010) and the total production of the Great Britain (Khan, 2005). Controlling the level of waste is beyond the capabilities and scope of individual farmers. The problem is widespread and proper controlled temperature to maintain and sustain the quality to increase the shelf life of the produce and makes them easily available to the customer in a quality manner is a major concern. The weak and ill equipped cold chain infrastructure (Rathore, Sharma, & Saxena, 2010), improper marketing systems and facilities (Gauraha & Thakur, 2008; Singh, Kushwaha, & Verma, 2008) of the country has become the major impediments in the growth of the sector.

This chapter outlines the extent of Fruits and Vegetables waste in India and highlights where wastage occurs across the supply chain stages starting from farm to retail and its ramifications on food production and safety. The present study undertakes a thorough review of basic and contemporary literature available to explain the present status of post-harvest losses and cold chain infrastructure. It focuses on Fruits and Vegetables since India wastes more of this item than any other food product. In this chapter authors also highlighted the challenges faced by the cold chain sector in India and a roadmap for improvements, including greater use of proven technologies.