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Agricultural Supply chain in India: A case study of Bihar

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ABSTRACT

Agriculture and its associated industries provide the most employment opportunities in India. 70% of its rural households continue to rely on agriculture as their primary source of income, while 82% of its farmers are small and marginal. In 2017-18, the expected total food grain output was 275 million tonnes (MT). Despite the fact that the Indian state of Bihar is covered in fertile land and supplied by an abundance of rivers and streams, it has remained one of the poorest states in India. A substantial portion of Bihar's population is engaged in agriculture and related sectors. In this regard, the article attempts to evaluate the supply chain in the agri-industry in Bihar, as it is important for the socioeconomic transformation of the state.

Keywords: *Agriculture, Supply-chain, India, Bihar*

1. INTRODUCTION

In India, agriculture began with the Indus civilization. Regarding agricultural productivity, India ranks second in the world. 54.6% of a population of 130 billion people are employed by agriculture and allied industries. In addition, India is the second largest country behind the United States in terms of agricultural land area. If we are discussing the export of agricultural products, India occupies the eighth position in this list (Food and Agricultural Organisation of United Nations, 2022).

In addition, it ranks first and second in the world for the production of various food and cash crops. Agriculture, which employs almost half of India's population, contributed just 20% to India's GDP in 1947, down from 43% in 1947, due to the absence of a sustainable long-term system for agriculture and allied jobs (Pathak et al., 2022).

The continual efforts of science, technology, and technology to enhance the employment opportunities in agriculture resulted in a constant fall, resulting in an annual household income cap of ₹ 70,000 for those affiliated with agriculture. In this perspective, the supply chain in agriculture can be understood as a network of farmers, sellers, warehouses, transportation companies, distribution centres, wholesalers, and retailers (agricoop.gov.in, 2017).

If we examine agriculture and its associated supply chain, we will discover that the entire process from farm to fork to food may be viewed as a supply chain including multiple agents.

If we are to discuss the supply chain and its organisation, then there are four key components to this process: overall planning; the successful implementation of planning; coordination; and controls. All four of these factors play a vital role in the agricultural supply chain. Now, in order to comprehend this supply chain in agriculture, it is necessary to comprehend all the people involved in the chain and their respective roles, in which technology and all the people involved in the chain create a system for comprehending the production needs of agriculture and its associated areas. They must be preserved properly for extended periods of time so that they retain their original appearance by the time they reach the shop and the consumer.

In addition, the work can be edited more creatively and effectively by people from other chains, resulting in lower costs and more profits for all partners in the supply chain. Regarding the numerous individuals involved in the agricultural supply chain, the most significant limitation is the shelf life of raw materials. As a result, quality influences the progression of the supply chain. In addition, a substantial amount of effort must be devoted to recycling, as only the optimal utilisation of resources can prevent their waste. Due to the impediment of a limited shelf life, knowledge of correct storage and packaging is vital (Kuchibhotla, 2021).

In this context, a glance at India reveals that without proper maintenance after harvest, almost 10 percent of the whole yield, or 20 million metric tonnes, is lost. This is 20 million metric tonnes of Australia's total annual waste production, which is sufficient to feed one-third of India's population for one year.

Furthermore, in order to resolve the issues of agri supply chain, the farmer must have knowledge of the period required for different crops, the weather, their quality, supply, as well as processing, quality control, and correct storage to preserve it. In this order, if we are discussing the store, it is vital to determine the pricing, collect quality data, and manage time.

2. BIHAR'S POSITION IN THE AGRICULTURAL SUPPLY CHAIN

In this perspective, if we consider Bihar, where 70% of the rural population is engaged in agriculture, and despite having a significant number of natural resources, the state of Bihar has lagged behind in the growth of agriculture. Although there has been a little improvement in agricultural conditions since the division of Bihar state in 2000, the situation cannot be considered adequate.

Although there have been some changes in Bihar's economy over the past few decades, with the service sector surpassing the primary sector in terms of income share, agriculture still dominates in terms of employment and the economy, making the development of the agriculture sector crucial for Bihar's overall development.

When all the links in the agriculture supply chain are considered—seeds, fertilisers, irrigation, marketing, processing, storage, agriculture credit, and new technology development—the districts of West Champaran, Purnea, Bhagalpur, and Bhojpur come out on top, while those of Samastipur, Khagaria, Jamui, and Patna lag far behind. It's important to note that both Samastipur and Bhagalpur are home to prestigious Agriculture Universities.

Approximately 55% of Bihar's land is cultivated, although about 95% of holdings are 2 hectares or less, making drought and flood concerns typical in many areas. The issue of water for irrigation is only one of many first-order concerns, including those of soil and crop inputs like fertiliser and seed. The Government of Bihar attempted to streamline the agricultural supply chain via the Bihar Agriculture Produce Market (Repealing) legislation of 2006, however it was largely ineffective. Alongside this, the Bihar Rural Livelihood Promotion Society established self-help groups and community organisations to facilitate farmers' access to the Grain bank through the provision of loans and savings opportunities (Hoda et al. 2021).

Despite these efforts, a sustainable Agricultural supply chain that is lucrative for all the major stakeholders in the chain requires co-operative societies for loans, stability in Agri-pricing, concession at various levels, and investment in research and development in agricultural studies.

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