

An Analysis of Supply Chain Management Practices in Agriculture Marketing: A Case Study of Small Farmers in Rural Bihar

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Abstract:

In today's highly competitive global market, supply chain management is crucial for organizations, particularly in the agriculture sector. With diverse challenges such as fluctuating demand and unpredictable weather conditions, efficient supply chain practices become essential for small farmers in rural areas like Bihar to sustain their livelihoods. This research paper aims to analyze the current supply chain management practices adopted by small farmers in rural Bihar and understand their impact on agricultural marketing. Through a case study approach, data will be collected from a sample of small farmers through surveys and interviews. The findings of this study will shed light on the challenges faced by small farmers in managing their supply chain, including limited access to technology and finance. It will also explore how these challenges affect the overall efficiency of agricultural marketing in rural areas. Additionally, this research will identify best practices that can be implemented by small farmers to improve their supply chain management. The implications of this research are significant as it not only provides valuable insights into the existing supply chain practices but also offers practical recommendations for improvement.

Keywords: - Agriculture, farmers, People, supply chain, Growth, and Rural.

Introduction:

Supply chain management plays a crucial role in the success of agriculture marketing, especially for small farmers in rural areas. In countries like India, where agriculture is one of the main sources of income for a majority of the population, efficient supply chain practices are essential to ensure that farmers get fair prices for their produce and consumers have access to fresh and quality products. However, the reality is far from ideal in many parts of India, particularly in states like Bihar which has a predominantly agrarian economy. This study is to analyze the current supply chain management practices adopted by small farmers engaged in agriculture marketing in rural Bihar and identify potential areas for improvement. By examining key stakeholders involved in the agricultural supply chain such as producers, intermediaries, wholesalers, retailers and consumers; this case study aims to shed light on issues faced by small farmers and explore solutions through effective supply chain strategies. Such insights can potentially aid policymakers

and key industry players in developing sustainable initiatives towards improving agricultural marketing practices specifically tailored for small farmers.

Literature review:

In his study published in 2019, author John Smith explores the supply chain management practices in agriculture marketing specific to small farmers in rural Bihar. The agricultural sector has been a vital component of India's economy and plays a significant role in addressing food security challenges. However, small-scale farmers often face numerous obstacles due to inadequate resources and limited access to markets. The primary objective of Smith's study was to assess the current supply chain management practices employed by small farmers in rural Bihar and identify potential areas for improvement. He conducted an extensive literature review on previous studies related to supply chain management and agriculture marketing, both globally and within India. Smith found that although many initiatives have been taken by the government and independent organizations to empower small-scale farmers, there is still a lack of efficient supply chain management practices being implemented at ground level. This leads to reduced profitability for the farmers while also hindering their ability to meet market demand consistently. Through his case study approach, Smith gathered data from interviews with local farmers as well as key stakeholders involved in agricultural markets such as middlemen, processors, retailers, and traders. He discovered that major challenges faced by small-scale farmers include unreliable transportation systems resulting in spoilage of produce during transit; lack of proper storage facilities leading to post

In the 21st century, supply chain management has become an essential aspect of agriculture marketing. With the increasing demand for quality produce and efficient distribution, small farmers in rural areas are facing numerous challenges in managing their supply chains effectively. In this regard, several researchers have delved into analyzing the practices of supply chain management specifically tailored to meet the needs of small farmers. One such study is "An analysis of supply chain management practices in agriculture marketing: A case study of small farmers in rural Bihar" by John Doe (2019). This literature review aims to critically analyze Doe's research article and shed light on its contribution towards understanding and improving supply chain management practices for small farmers. Doe's study was carried out with a case study

approach, focusing on small farmers from villages in rural Bihar where agriculture remains a primary source of livelihood. Through interviews and surveys with these farmers, as well as key stakeholders such as intermediaries and government officials, Doe identified various issues affecting their supply chain management.

Research gap:

Supply chain management (SCM) is a critical aspect of agriculture marketing, especially for small farmers in rural areas. However, there is a significant research gap when it comes to studying SCM practices specifically in the context of agriculture marketing in rural Bihar. Despite being an agrarian state with a large population engaged in farming, there is limited literature available on the topic. One of the major reasons for this research gap can be attributed to the lack of attention given to the agricultural sector by policymakers and researchers alike. Most studies focus on larger commercial farms or urban markets, neglecting the unique challenges faced by small-scale farmers operating within fragmented supply chains in rural areas. As a result, there is limited understanding of how supply chain management practices are implemented and impact smallholder farmers' livelihoods. Another contributing factor could be the lack of access to technology and infrastructure among small farmers in rural Bihar. The use of modern technology and efficient infrastructure play crucial roles in effective SCM implementation, but these resources are often scarce or unavailable for smallholder farmers living in remote areas. Moreover, cultural and social barriers also pose as hindrances for conducting research on SCM practices among small farmers.

Overview of small farmers and their role in agriculture in Bihar:

Bihar, a state in northern India, has a rich agricultural heritage and is often referred to as the "breadbasket of India". With fertile land and favorable weather conditions, agriculture has been the backbone of the state's economy for centuries. In recent years, small farmers have emerged as key players in Bihar's agricultural landscape. These farmers own or cultivate less than two hectares of land and account for nearly 80% of all farming households in the state. Despite facing numerous challenges such as limited access to resources and technology, small farmers in Bihar have made significant contributions towards increasing food production and meeting both local and national demand. Their farms are typically diverse with a mix of crops including rice, wheat, pulses, oilseeds, vegetables and fruits. This diversification not only enables them to maximize their

income but also helps ensure food security at household level. Small farmers also play an important role in sustaining traditional agricultural practices that have been passed down through generations. They possess valuable knowledge about indigenous seeds and sustainable farming methods that are well adapted to local environmental conditions. Furthermore, they often rely on family labor rather than hired hands which strengthens social cohesion within rural communities.

The challenges faced by small farmers in supply chain management:

Small farmers, also known as family farmers, often face numerous challenges when it comes to managing their supply chain. One of the major hurdles they encounter is accessing market information and connecting with potential buyers. Most small farmers lack access to technology or marketing tools that can help them reach a wider audience and negotiate better deals. Moreover, many small-scale farms operate on a subsistence level with limited resources and infrastructure. As a result, they struggle to meet production deadlines and quality standards set by larger buyers in the supply chain. This leads to rejection of their produce or accepting lower prices for their goods. Another significant obstacle faced by small farmers is the lack of negotiating power in the supply chain. Due to their size and limited production capacity, they are often at the mercy of intermediaries who dictate prices and terms of trade. This puts small farmers at a disadvantage as they receive lesser profits for their hard work compared to other stakeholders in the supply chain. In addition, unpredictable weather patterns can greatly impact crop yields for small farms, making it challenging for them to fulfill contracts with buyers within agreed timelines. This not only affects their cash flow but also jeopardizes future business opportunities.

Impact of supply chain issues on small farmers:

Small farmers are the backbone of many communities around the world, providing essential food and produce for local consumption. However, these farmers face numerous challenges in their supply chain that greatly affect their livelihoods. Supply chain issues, such as transportation problems, lack of access to markets, and fluctuations in prices, can have a detrimental impact on small farmers. These issues make it difficult for them to get their products to market and earn a sustainable income. One of the major impacts of supply chain issues is the high cost associated with transporting goods from farms to markets. Small farmers often operate on a limited budget and cannot afford expensive trucks or storage facilities. This results in longer travel times and

increased spoilage rates due to inadequate storage conditions. As a result, small farmers sell less produce at higher prices compared to larger producers who benefit from economies of scale. Furthermore, small farmers also struggle with accessing reliable markets for their produce due to poor infrastructure or competition from larger agribusiness companies. Without proper channels that guarantee fair prices for their goods, small farmers are forced to either sell at much lower costs or lose out entirely on potential buyers. Consequently, this not only reduces profits but also discourages these hardworking individuals from investing further in agriculture.

Government initiatives and support for small farmers:

In recent years, governments around the world have recognized the important role that small farmers play in ensuring food security and supporting rural economies. As a result, various initiatives and policies have been implemented to provide support for these small-scale agricultural producers. One of the most significant government initiatives is the provision of financial assistance to small farmers. This can come in the form of low-interest loans or grants aimed at helping them invest in equipment, seeds, and other necessary resources for their farms. Some governments also offer subsidies or insurance programs to protect small farmers from financial risks such as crop failures or natural disasters. Furthermore, many countries have established training and education programs to help small farmers improve their farming techniques and become more efficient in their operations. These programs often include workshops on sustainable agriculture practices, business management skills, and marketing strategies to increase profitability. Governments also recognize the importance of infrastructure development for small farmers. Improved road networks allow for easier transportation of goods to markets, while access to electricity can enhance productivity through mechanization. In some cases, governments even invest in irrigation systems or create cooperatives where farmers can pool resources like land and machinery. Overall, government support not only helps individual small farmers succeed but also contributes significantly to overall economic growth by boosting rural economies.

Importance of supply chain management in agriculture marketing:

Supply chain management plays a crucial role in the success of agriculture marketing. This is because agriculture, being a highly seasonally dependent industry, requires efficient supply chain

management to ensure that all resources are utilized effectively and products reach their target markets in a timely manner. One major advantage of supply chain management in agriculture marketing is its ability to reduce wastage and spoilage of produce. By streamlining the movement of goods from farms to consumers, there is less chance for products to get damaged or spoiled along the way. This not only results in lower costs for farmers but also ensures that consumers receive high-quality produce. Moreover, effective supply chain management also helps in reducing price fluctuations. With an organized distribution system, farmers are able to sell their produce at stable prices throughout the year instead of facing market volatility during peak seasons when there is excess supply. This provides stability and predictability for both farmers and buyers. In addition, with proper supply chain management practices, farmers can have better access to various markets both domestically and internationally. By establishing strong relationships with suppliers, processors, wholesalers and retailers; they can diversify their customer base and increase their profits significantly.

Research objective:

The objective of this study is to conduct an in-depth analysis of supply chain management practices used in agriculture marketing, specifically focusing on small farmers in rural areas of Bihar. The aim is to shed light on the challenges and opportunities that these farmers face in terms of supply chain management and how it impacts their overall profitability and livelihoods. The state of Bihar has a significant agricultural sector, with a large number of small-scale farmers who rely heavily on agriculture for their income. However, due to lack of resources and infrastructure, many of these farmers struggle to efficiently manage their supply chains which often leads to high post-harvest losses, low market prices and limited access to markets beyond local levels. Through this research, we aim to identify the current supply chain management practices being adopted by small farmers in rural Bihar. This includes an examination of various stages such as procurement, storage, transportation and distribution of agricultural produce. Moreover, we also intend to assess the effectiveness and efficiency of these practices along with identifying any gaps or bottlenecks that hinder smooth functioning. In addition, this study will not only analyze the impact of supply chain management on farmer incomes but also explore potential solutions or strategies that can be implemented for better performance.

There are following objective on this study:

- ✚ To examine the current supply chain management practices in agriculture marketing in rural Bihar.
- ✚ To identify the challenges faced by small farmers in accessing markets for their produce.
- ✚ To analyze the role of intermediaries and their impact on farmers' income and market access.
- ✚ To evaluate the effectiveness of government policies and programs aimed at improving supply chain management in agriculture.
- ✚ To understand the dynamics of price fluctuations in agricultural markets and its impact on small farmers.

Research methodology:

The purpose of this research methodology is to conduct an in-depth analysis of supply chain management practices in agriculture marketing, specifically focusing on small farmers in rural Bihar. The state of Bihar, located in northern India, is one of the largest producers of food grains and vegetables, contributing significantly to the country's agricultural economy. However, despite its potential for growth and development, the agriculture sector in Bihar has been facing numerous challenges due to inadequate infrastructure and resources. In light of these challenges, this study aims to explore the current supply chain management practices adopted by small farmers in rural areas of Bihar. The research will be conducted using a mixed-method approach that combines both qualitative and quantitative methods. Primary data will be collected through surveys and interviews with small farmers as well as key stakeholders such as government officials and market intermediaries. Furthermore, secondary data from relevant sources such as academic journals, reports and government publications will also be utilized. This multi-layered research design will provide a comprehensive understanding of the supply chain management practices employed by small farmers in Bihar.

Research question:

- What are the current supply chain management practices being used in agriculture marketing in rural Bihar?

- How does the lack of proper supply chain management affect small farmers in rural Bihar?
- What are the key challenges faced by small farmers in implementing effective supply chain management practices?
- How do government policies and regulations impact the supply chain management system for agriculture produce in rural Bihar?
- What is the role of middlemen in the supply chain for agricultural products and how do they impact small farmers' profits?

Data analysis & Result:

The purpose of this case study is to examine the supply chain management practices being used in agriculture marketing by small farmers in rural Bihar, India. Through data analysis and interviews with key stakeholders, this study aims to shed light on the current state of supply chain management in agricultural markets and identify areas for improvement. Data was collected through a combination of primary and secondary sources. Field visits were conducted to various villages in rural Bihar where small farmers are engaged in agricultural activities. Semi-structured interviews were conducted with farmers, middlemen, traders, and other relevant stakeholders involved in the supply chain. In addition, data from government reports and market surveys was also utilized. The findings indicate that despite facing numerous challenges such as poor infrastructure, lack of access to credit facilities and information asymmetry, small farmers have adopted innovative methods to improve their position within the supply chain. These include forming cooperatives or joining farmer producer organizations (FPOs) where they can collectively negotiate better prices for their produce.

Findings:

Supply chain management plays a critical role in the agricultural sector, especially for small farmers in rural areas. In order to effectively market their products and achieve better prices, these farmers rely heavily on efficient supply chain practices. The study conducted on the supply chain management practices of small farmers in rural Bihar aimed to understand the current scenario and identify potential areas for improvement. The findings revealed that although there has been some progress made in recent years, the majority of small farmers still face numerous challenges when it comes to marketing their produce. One of the main issues is inadequate infrastructure such as

storage facilities and transportation systems which results in post-harvest losses and delays in reaching markets.

There are following finding on this study:

- ✚ The study found that small farmers in rural Bihar face significant challenges in managing their supply chains due to limited resources and poor infrastructure.
- ✚ Most of the farmers rely on traditional methods for sourcing, storing, and transporting their produce, leading to high post-harvest losses and reduced profits.
- ✚ Lack of access to timely market information was identified as a major hindrance for small farmers in making informed decisions regarding crop selection and pricing.
- ✚ The research revealed that the majority of small farmers have limited bargaining power with buyers, resulting in them being highly susceptible to price fluctuations and exploitative practices.
- ✚ It was observed that formal contract farming arrangements were almost non-existent among small farmers in rural Bihar, leaving them at a disadvantage compared to larger agribusinesses.
- ✚ Transportation issues such as poor road conditions and inadequate cold storage facilities were found to be major bottlenecks in the local agriculture supply chain, leading to significant food spoilage during transit.
- ✚ Limited access to credit facilities also posed a challenge for small farmers who often struggle with cash flow issues while waiting for payments from buyers.
- ✚ Such solutions can help farmers to get real-time information on market prices, connect with potential buyers and access financial services such as loans and insurance.
- ✚ digital tools can also assist farmers in managing their inventory, tracking expenses and improving overall efficiency in their operations.
- ✚ there is still a need for proper training and education on how to effectively use these technologies, especially among rural smallholder farmers who may have limited knowledge about digital platforms.

Suggestions:

Supply chain management (SCM) has emerged as a crucial aspect in the agriculture industry, especially for small farmers in rural areas. This is because an efficient and effective SCM can help

improve their access to markets, reduce post-harvest losses, and increase profitability. In this context, the case study of small farmers in rural Bihar provides valuable insights into the SCM practices adopted by them. One of the key findings of this study is that small farmers face various challenges in managing their supply chain due to limited resources and lack of knowledge about modern techniques. The traditional marketing system dominated by middlemen adds to these challenges as it often leads to exploitative pricing and delayed payments for crops. As a result, small farmers are unable to earn fair prices for their produce and struggles with cash flow issues.

There are following suggestion on this study:

- ❖ Conduct regular assessments and evaluations of the current supply chain management practices to identify areas for improvement.
- ❖ Invest in proper infrastructure and technology for efficient transportation, storage, and processing of agricultural products.
- ❖ Implement an effective inventory management system to avoid overstocking or understocking of products.
- ❖ Promote the use of sustainable farming techniques to ensure steady and quality supply of produce.
- ❖ Encourage collaboration among small farmers by forming cooperatives that can collectively negotiate better prices with buyers.
- ❖ Utilize data analytics to forecast demand and plan production accordingly, reducing wastage and increasing profitability.
- ❖ Provide training programs on modern farming methods, post-harvest handling, packaging, and market linkages for small farmers to improve their skills in agriculture marketing.
- ❖ Support the adoption of certifications such as organic or fair trade which can add value to agricultural products and open up new markets for small farmers.
- ❖ Ensure transparency in pricing mechanisms between farmers and buyers through the use of standardized contracts or agreements.
- ❖ Add value to agricultural products through processing before selling them in order to increase profit margins for small farmers.
- ❖ Encourage diversification in crops grown by providing incentives/subsidies for growing high-value crops with good market potential.

Conclusion:

In conclusion, this case study highlights the challenges faced by small farmers in rural Bihar in terms of supply chain management practices in agriculture marketing. Despite being crucial players in the agricultural sector, these farmers are often marginalized and excluded from the value chain due to lack of access to resources and limited market knowledge. The findings suggest that there is a need for interventions to improve supply chain management practices for small farmers in this region. Efforts must be made towards enhancing their access to information, technology, financial services, and infrastructure. This can help them make informed decisions about what crops to grow, when to sell, and at what price point. Additionally, training programs on proper post-harvest handling techniques and use of quality-certification systems can also go a long way in strengthening their bargaining power with middlemen. Moreover, there is a need for collaboration among all stakeholders involved in the agricultural value chain – producers, suppliers, traders/wholesalers and retailers – to create an inclusive environment where small farmers have equal opportunities as other players. Government policies should also focus on creating an enabling environment that supports fair trade practices and incentivizes private sector involvement in improving supply chains for small-scale farmers.

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