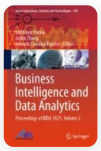
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Toward Sustainable Food Security in India: The Strategic Role of Optimized Cold Chain Infrastructure

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Abstract

Optimizing India's cold chain infrastructure (CCI) is crucial for reducing post-harvest losses, enhancing food security, and minimizing the environmental impact of inefficient supply chains. Strengthening CCI can significantly reduce food waste, improve farmer livelihoods, and ensure the efficient distribution of perishable goods. A well-developed cold chain system preserves the quality and extends the shelf life of agricultural produce, directly supporting food security efforts. By investing in advanced storage and transportation solutions, India can mitigate supply chain inefficiencies, bolster the agricultural sector, and promote economic sustainability. The research examines crucial patterns in cold chain technologies alongside challenges and possibilities by recommending an operational strategy for minimizing fresh produce waste. The executive summary examines the value chain for dairy, meat, fish, fruits, and vegetables by evaluating existing cold chain solutions from financial and operational standpoints. The research also examines business models, regulatory policies, and market potential to accelerate the large-scale adoption of advanced refrigeration technologies. By prioritizing cold chain optimization, stakeholders can create a resilient agricultural ecosystem that meets current demands while preparing for future challenges related to food security and sustainability.

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