

From Soil to Strategy: Rethinking Agribusiness Management in an Era of Global Disruption

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“Food security is not only a question of production. It is also a question of access, waste, and the political will to manage our natural resources wisely.”

~Kofi Annan, Former Secretary-General, United Nations

Introduction

Agribusiness management today asks leaders to hold weather systems and warehouse logistics, geopolitical risk and groundwater depletion, farmer psychology and financial derivatives in view at once. Few sectors place such wide-ranging demands on decision makers, or carry such direct consequences for human welfare when management falls short.

India is an instructive case. Its agriculture sector is the world's largest producer of milk, pulses, and spices, the second largest producer of cereals, and posted a record foodgrain output of 357.73 million tonnes in 2024 to 2025. The agribusiness market, valued at USD 111.13 billion in 2024, is forecast to reach USD 142.86 billion by 2033 (IMARC Group, 2024), and agriculture contributes 16 to 18 percent of GDP while supporting nearly 46 percent of the population (Economic Survey of India, 2024 to 2025). Yet structural tensions complicate this picture: heavy post-harvest losses, inadequate cold chain infrastructure, smallholder fragmentation, and climate variability at every stage. Navigating these constraints is the central practical task for anyone managing, financing, or building agribusiness in India today.



Global Scenario: Agribusiness Under Compounding Stress

These pressures are not unique to India. Globally, 2024 was a difficult year for agriculture, with rising input costs, erratic weather, and geopolitical disruption straining the food chain together; a McKinsey and Company (2024) survey found rising fertiliser and crop protection costs the single greatest concern for 48 percent of farmers worldwide. Advanced economies have responded mainly through technology: 61 percent of US farmers use digital agronomy tools, 51 percent have adopted precision hardware, and 38 percent use remote sensing (McKinsey and Company, 2024), with the precision agriculture market growing near 12 percent annually. Precision agriculture, regenerative farming, renewable energy integration, and circular economy approaches are shown to cut resource use while lifting yields and equity across the chain (Frontiers in Sustainable Food Systems, 2025) — the same forces shaping Indian agribusiness, often more acutely.

The Indian Scenario: Scale, Complexity, and Structural Constraints

India's agricultural profile is a paradox: global leadership in scale alongside constraints that cap its potential. Growth reached 3.5 percent in Q2 FY25, averaging 5 percent between FY17 and FY23 (Economic Survey of India, 2024 to 2025), but the sector's structure raises challenges distinct from large-scale commercial farming. About 86 percent of Indian farmers are small or marginal, cultivating under two hectares; marginal farmers alone hold 65 percent of cultivators but only 24 percent of cultivable land (Economic Survey of India, 2024 to 2025). This fragmentation undermines uniform, large-volume supply and makes mechanisation uneconomical at farm level. Nearly 63 percent of cultivated area is rain-fed, tying input availability to monsoon performance; 50 percent of farmers lack basic equipment and a similar share lack formal finance access (McKinsey and Company, 2024). Agri-tech startups grew from 50 in 2013 to over 1,000 by 2020, though farm-level technology penetration stays uneven.

Key Challenges in Agribusiness Management

Post-Harvest Losses and Cold Chain Deficiencies

Failures in storage, transport, processing, and supply coordination cost India over Rs 1.5 lakh crore a year (Ministry of Food Processing Industries, 2025). NABARD Consultancy Services (2022) put total food losses at roughly USD 17.7 billion, about 22 percent of foodgrain output, or 74 million tonnes wasted annually. India processes only about 12 percent of its output against a global average of 30 to 40 percent; cold chain is the missing link, valued at Rs 2,28,700 crore in 2024, with the country still short roughly 3.5 million metric tonnes of storage capacity (NABARD Consultancy Services, 2022).

Fragmented Market Linkages and Price Volatility

Layers of intermediation compress farmer prices while inflating consumer prices, and seasonal surpluses, hoarding, and weak market intelligence combine to produce volatility that discourages investment and defeats income planning for farm households.

Infrastructure and Logistics Bottlenecks

Poor roads, insufficient storage, and limited institutional credit restrict timely, well-conditioned market access. Machinery and pesticides carry GST rates of 12 and 18 percent respectively, raising mechanisation and crop protection costs even as most other inputs stay lightly taxed (PRS Legislative Research, 2024).

Geopolitical Risk and Input Cost Volatility

The Russia-Ukraine conflict and Red Sea shipping disruptions showed how fast distant shocks reach Indian farm economics through fertiliser, freight, and energy costs. These are now recurring planning variables rather than exceptions.

Climate Change and Agronomic Uncertainty

Shifting monsoons, rising temperatures, and more frequent extreme weather are redefining planning parameters from seed selection to insurance underwriting. Only about 30 percent of Indian farmers are expected to have adopted sustainable practices by 2025, suggesting adaptation is lagging climatic change (Frontiers in Sustainable Food Systems, 2025).

Human Capital and Technology Adoption Gaps

Only about 3 percent of India's food processing workforce is formally trained, with direct consequences for quality, safety compliance, and technology adoption; management capacity remains a persistent constraint across the value chain.

Government of India: Policy Architecture for Agribusiness Support

The government has built a layered policy framework at substantial scale to address these constraints.

- PM-KISAN gives Rs 6,000 a year direct income support; over Rs 3.46 lakh crore has reached 11 crore-plus families across 18 instalments, the 19th released February 2025 (PIB, 2025).
- Agriculture Infrastructure Fund (Rs 1 lakh crore) has sanctioned Rs 51,364 crore for 84,159 post-harvest infrastructure projects since 2020 (PIB, 2025).

- e-NAM has integrated 1,361 mandis, supporting an expected Rs 3 lakh crore in trading volume for 1.8 crore farmers.
- The 10,000 FPO scheme has registered 9,180 organisations, each eligible for equity grants up to Rs 2,000 per member and credit guarantees up to Rs 2 crore.
- The Digital Agriculture Mission (Rs 2,817 crore, September 2024) builds Agri Stack and the Krishi Decision Support System.
- Namo Drone Didi equips 15,000 Women SHGs (Rs 1,261 crore) with drone rental services, while the National Mission on Natural Farming (Rs 2,481 crore) targets 10 million farmers (PIB, 2024).

The agriculture credit target has been raised to Rs 20 lakh crore, with the Agriculture Accelerator Fund continuing to back rural entrepreneurs and agri-startups.

Global Best Practices Worth Adapting for India

- Precision agriculture (US, Netherlands): US-scale digital and remote sensing tools cut input waste while lifting yields; the Netherlands, despite minimal land area, ranks as the world's second largest food exporter through controlled environment agriculture and cooperative aggregation.
- Integrated nutrient management (Brazil): blending biological, organic, and mineral inputs has let soybean farmers cut synthetic fertiliser use while holding yields, adaptable to India's soil diversity (Frontiers in Sustainable Food Systems, 2025).
- Women led cooperative processing: Rajasthan's Nilgiri FPO connects 750-plus women farmers; its custard apple processing centre generates Rs 6.6 million turnover and Rs 2 million profit, a low-capital model worth scaling.
- Blockchain and traceability (EU, Japan): Japan's traceability systems show transparency commands price premiums for producers while cutting waste through precise farm-to-consumer tracking (ICL Group, 2025).
- Equipment as a service: rental access to tractors, sprayers, and robotics suits India's smallholder-dominated landscape, where capital expenditure is the binding constraint on mechanisation.

Overcoming India's Agribusiness Challenges: A Strategic Framework

- Addressing fragmentation through aggregation: banks, states, and cooperatives can co-invest in FPO management capacity, digital infrastructure, and market linkages, building risk-pooling mechanisms individual smallholders cannot replicate.
- Cold chain as national infrastructure: the AIF can be scaled and simplified, with banks offering long-tenure project finance in identified commodity clusters as the market grows at a projected 10.86 percent annually to Rs 6,06,100 crore by 2033 (IMARC Group, 2024).
- Digital market integration: expanding e-NAM with digital literacy, price advisory, and derivative market links would let FPOs hedge risk and farmers access real-time intelligence.
- Climate adaptive agronomy: soil health cards, precision irrigation, and AI-driven advisory can scale from pilot to universal access via satellite data and mobile connectivity.

Banking and Financial Institutions: From Lenders to Ecosystem Architects

Agribusiness transformation is both a developmental obligation and a commercial opportunity; banks confined to conventional crop lending are missing the larger opening agricultural modernisation presents.

- Agri-infrastructure project finance: the AIF's Rs 51,364 crore across 84,159 projects is a fraction of the investable universe; banks can co-originate long-tenure loans for cold chain, processing, and warehousing, backed by interest subvention.
- FPO-centric lending: treating the FPO as the lending unit cuts transaction costs and pools risk, supporting products for working capital, equipment, and receivables financing.

- Supply chain finance: structured receivables financing for distributors, seed companies, and processors can unlock working capital while generating fee income for banks.
- Sustainability linked and green finance: NABARD's 8 to 8.5 percent green loans and Carbon Fund support innovations conventional banks overlook; commercial banks can build complementary products aligned with RBI priority sector guidelines.
- Digital lending via agri-fintech: partnerships integrating satellite, soil, and advisory data can sharpen underwriting and reach underserved segments through digital Kisan Credit Card disbursement and API-linked lending.

With the agriculture budget at Rs 1,22,528 crore in 2024 to 2025 and the credit target at Rs 20 lakh crore, banks sit at the centre of translating policy into farm-level outcomes; institutions building genuine competence here will find sustainable development and commercial performance are the same objective.

Way Forward: Innovative Ideas for Transformative Agribusiness Management

- Agri-data commons: an open, interoperable platform combining satellite, soil, weather, advisory, and price data, accessible via standard APIs, would improve underwriting, agronomic decisions, and supply planning together.
- Cluster-based agribusiness zones: commodity-specific clusters linking farmers, processors, cold chain operators, logistics, and export agents in shared geographies, co-financed by states, DFIs, and banks.
- Carbon credit markets for farmers: blockchain-integrated carbon markets and ecosystem service payments could let farmers monetise regenerative practices through verified credits, with NABARD and banks as aggregators.
- AI-driven agribusiness platforms: integrating AI across planting, input optimisation, logistics, and market timing can cut operational losses; over 60 percent of Indian food manufacturers are expected to adopt AI and automation by 2025 (DLL Group, 2025).
- Agribusiness management education: scaling management education at agricultural universities, business schools, and digital platforms is needed to build the talent pipeline modernisation demands — as much a human capital challenge as a financial one.

Conclusion

The challenges facing Indian agribusiness are daunting in scale but tractable in nature. Post-harvest losses, fragmented landholdings, infrastructure gaps, input cost volatility, and market access constraints are well diagnosed; the gap to resolution is one of institutional coordination, sustained investment, and management capability, not analysis. The Digital Agriculture Mission, the FPO ecosystem, the Agriculture Infrastructure Fund, e-NAM, and the growing agri-fintech landscape together form the building blocks of a modern, resilient agribusiness architecture. The open question is whether they will be assembled with the speed and financial depth needed to outpace geopolitical disruption, climate uncertainty, and compounding structural inefficiency.

Banks are the most consequential lever here. Acting as ecosystem architects rather than financing vehicles, they can aggregate risk, direct capital toward high-impact investment, build farmer financial literacy, and price agricultural risk more accurately through data integration — making the sector not just faster growing but structurally more resilient and equitable. India's farmers have shown, across decades of adaptation under difficult conditions, that they are the solution waiting to be properly resourced and supported, not the problem. Institutions that recognise this early will find agribusiness is not only a developmental obligation but one of the most consequential commercial opportunities of the coming decade. Feeding 1.44 billion people sustainably, profitably, and equitably is the defining management challenge of the current era, and the rewards extend far beyond the balance sheet.

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