Sattva Knowledge Institute SKI primer

MAKING AGRICULTURAL MARKETS WORK FOR SMALLHOLDER FARMERS

August 2022

Acknowledgements

About the Authors

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EXECUTIVE SUMMARY

Role of markets in Indian agriculture

Agricultural markets have a significant role to play in facilitating the trade of goods, services and information in the Indian economy. They are key to buyer discovery, access to supporting infrastructure, price information and enhancing farmer incomes. Agriculture being a state subject in India, the regulations vary across the states. The supply of diverse products, buyer preferences and government policy has given rise to a variety of marketplaces and procurement models, which have evolved over the years.

Overview of market linkage models

The market linkage models that help in facilitating bulk produce can be categorised as Agricultural Produce Market Committees (APMC), rural haats, farmer consumer markets, electronic markets, co-operative markets and public procurement. In this primer, these markets are analysed based on parameters like regulations, access to infrastructure, number of buyers and sellers, access to markets, frequency, entry barriers and price discovery. Furthermore, it will explore value propositions and challenges for farmers and buyers to understand the inhibiting factors that create barriers for farmers to function within each market linkage model.

Key challenge areas

The key challenges faced by smallholder farmers result from limited bargaining power and high transaction overheads, leading to poor economies of scale, high losses and limited price realisation due to inadequate infrastructure and poor quality control at the production clusters. Inefficiencies and lack of transparency in pricing, buyer discovery and supply chain inhibit a farmer from realising better prices. Small farmers are often excluded from accessing premium markets due to systemic barriers. This primer analyses the efficiency, risks, value proposition and challenges of major markets and market linkage models from the perspective of smallholder farmers and buyers and recommends key intervention areas to improve market access for smallholder farmers.

Recommendations

Analysis and understanding of market linkages indicate that it will be an enabler for better price realisation, transparency, better discovery of buyers, and aggregation of farmers and their produce. While simultaneously addressing poor economies of scale which will facilitate access to a more premium market and better farmer price realisation. There is a need to upgrade and create a decentralised market infrastructure to facilitate storage, grading, quality control and basic value addition. Technology can be a driver for the transformative change in market linkages. Leveraging ICT tools and digital markets to address the information asymmetry can help farmers and buyers with better decision-making and the right market information. Policy, philanthropy and the private sector have a lot to offer in providing incentives, contract farming opportunities and contributions to developing innovative technologies.

THE ROLE AND EVOLUTION OF MARKETS IN INDIAN AGRICULTURE

Facilitating market access for small farmers requires access to capital and infrastructure and mitigating risks such as price fluctuations, quality loss and default.

Role of Markets

Driver for farmers to improve production and productivity and earn higher income

Platform for connecting buyers and sellers and facilitating trade

Access to supporting infrastructure and facilities

Price discovery based on quality, supply and demand

It is not always feasible for small and marginal farmers to directly access premium markets and buyers due to their limited surplus and high marketing overheads (Sattva 2022). Facilitating linkages involves the following functions:

Aggregation

Collection of surpluses from individual farmers.

Logistics

- Transportation of produce to aggregation centre.
- Bulk packaging.
- Storage.

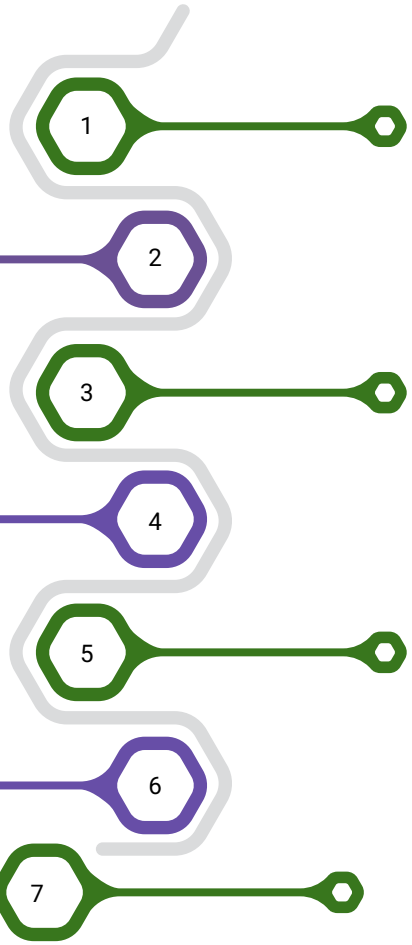
Value Addition

Primary value addition: cleaning, drying, sorting and grading.

Marketing and Retailing

- Buyer identification and business development.
- Price determination and negotiations.
- Transportation of produce to the buyer.
- Invoicing and sale of produce.

The last decade has seen significant changes and policy interventions around agricultural marketing.



2003
Model APMC Act, 2003 circulated to states.

2007
Model APMC Rules, 2007 published.

2013
Report of Committee of State Ministers, In-charge of Agriculture Marketing to Promote Reforms (Baskar & Shalendra 2022).

2015
eNAM (National Agricultural Market) launched.

2017
Doubling Farmers Income Committee Report, Model Agriculture Produce and Livestock Marketing (APLM) Act, 2017.

2018
Model Contract Farming Act, 2018, Operational Guidelines for Gramin Agricultural Markets (GrAMs).

2020-21
Controversial farm reforms introduced and repealed due to farmer protests.

Agricultural markets can be classified on the basis of the types of participants, geography, and form of produce.

Primary Markets

Primary markets are farmer-facing markets, typically in rural areas where farmers are directly involved in the sale of raw commodities.

Secondary Markets

Products from primary markets undergo some form of value addition and are traded in secondary markets, which tend to be located closer to urban or industrial centers.

Terminal Markets

Terminal markets are consumer-facing markets for both value-added and processed goods.

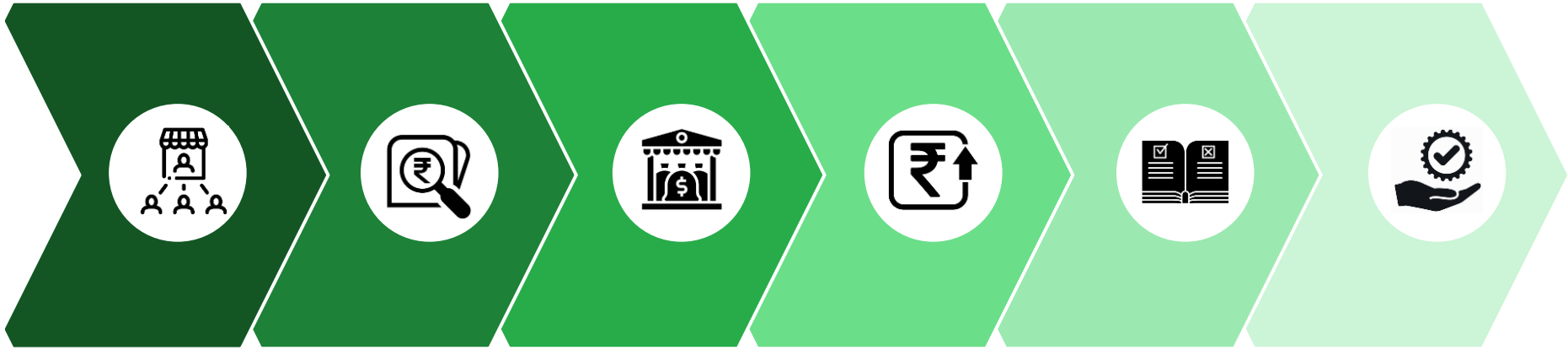
	Primary Market	Secondary Market	Terminal Market
Type of sellers	Farmers, Farmer Producer Organisations (FPOs)	Larger Farmers, FPOs, Middlemen, Traders	Traders, Wholesalers, Exporters, Processors
Type of buyers	Middlemen, Traders, Local Retailers	Wholesalers, Processors, Large Traders, Retailers, Exporters	Consumers, HoReCa (Hotels, Restaurants and Cafes/Catering), Processors
Proximity to farmers	High	Medium	Low
Type of geography	Rural	Semi-urban or district-level	Urban
Form of produce	Raw	Raw, basic value addition	Processed, basic value addition
Examples	Rural Haats, APMC Markets, Farmer consumer markets	APMC markets in urban areas, wholesale markets	Wholesale and APMC markets in urban areas, Retail markets, Rythu Bazaar, HOPCOMS

Characteristics of efficient agricultural markets.

Participation of a large number of buyers and sellers.

Access to key infrastructure and facilities, for weighing, grading, quality assaying, packaging and storage.

Rules and regulations to protect the interests of buyers and sellers.



Transparent price discovery mechanisms.

Low transaction costs and low barriers to entry.

Access to ecosystem services, such as finance, logistics, and labour.

OVERVIEW OF MARKET LINKAGE MODELS

A bulk of the agricultural trade in India happens through seven major market channels.

APMC Markets

Regulated primary wholesale markets with basic market infrastructure catering to wholesale buyers.

Rural Haats

Temporary markets catering to consumers in rural areas that operate once or twice in a week. India has more than 22,000 haats.

Farmer Consumer Markets

Public or private farmer markets catering to retail consumers in urban and semi-urban areas, aiming to reduce market intermediaries and realise higher prices. These include niche or specialized markets for Fruits and vegetables and organic products.

Electronic Markets

Digital wholesale markets that facilitate participation of distant buyers; leverages physical services and infrastructure; and provision for futures trading.

Contract Farming

Controlled production and buyback of produce in line with the terms of the agreement between the farmer and private sector buyer.

Co-operative Marketing

Collective marketing of agri inputs, consumer goods and produce through mandi-level co-operatives and federations, at district, state and national levels.

Public Procurement

Direct procurement of notified commodities at MSP for welfare schemes and price control through FPOs and empaneled agencies.

The key value propositions for farmers are proximity, price realisation, assured sales volumes, liquidity, immediate cash payments, fair pricing and reduced costs.

APMC

- Potential to realise higher prices due to regulations and participation of more buyers, especially organised and premium buyers.
- Provision of basic infrastructure for weighing, grading, storage and auctions.
- Transparent and fair price discovery through auctions.

Rural Haats

- Meeting short-term liquidity needs.
- Proximity.
- Immediate cash payments.
- Higher prices compared to bulk sales.

Farmer Consumer Markets

- High price realisation.
- Immediate cash payments.
- Higher prices compared to bulk sales.
- Premium target segment such as urban consumers, niche retailers and premium restaurants.

Electronic Markets

- Ability to attract buyers across the country.
- Transparency and real-time price information.
- Assured payments and reduced credit risk.
- Access to premium buyers.
- Reduced logistics cost for farmers.

Co-operative markets

- Potential to realise higher prices due to regulations and participation of more buyers, especially organised and premium buyers.
- Provision of basic infrastructure for weighing, grading, storage and auctions.
- Transparent and fair price discovery through auctions.

Contract farming

- Assured buyback of produce.
- Timely access to inputs and training on package of practices to improve yield and quality.
- Reduced transportation costs due to farmgate or village level procurement.
- Premium over local market price, in most cases.

Public Procurement

- Assured Minimum Support Price (MSP) for eligible commodities.
- Reduced transportation and storage costs due to farm-gate or village level procurement.
- Fair pricing.

The key value proposition for buyers are assured procurement volumes, quality, proximity, competitive prices and low transaction costs.

APMC

- Fixed markets with basic infrastructure and regular working hours make it more accessible and preferable for buyers.

Rural Haats

- Proximity to rural consumers.
- Lower prices compared to retail prices.

Farmer Consumer Markets

- High quality fresh produce and niche produce for consumers.
- Lower prices compared to retailers.

Electronic Markets

- Ability to procure from any location.
- Transparency and real-time price information.
- Potential for futures trading.

Co-operative markets

- Potential to realise higher prices due to regulations and participation of more buyers.
- Provision of basic infrastructure for weighing, grading, storage and auctions.
- Transparent and fair price discovery through auctions.

Contract farming

- Control on quality and price.
- Assured procurement.

Public Procurement

- Assured procurement volumes.
- Fulfilment of multiple objectives: farmer welfare, food security and price stabilisation.

KEY RISKS AND CHALLENGES

Challenges and risks of the markets include price collusion, skewed number of participants, spoilage loss, entry barriers, and misuse of funds. (1/2)

	1 APMC	2 Rural Haats	3 Farmer Consumer Markets
	Risks and Challenges	**Risks and Challenges**	**Risks and Challenges**
Farmers	• Price collusion between traders and commission agents. • Low bargaining power and high-cost overheads for small farmers with a limited marketable surplus. • Delays due to inadequate market infrastructure. • Poor governance and regulation. • Lack of infrastructure due to misuse of funds.	• Low sales volumes. • Low frequency (1-2 times a week) limits selling opportunities for farmers. • Lack of participation from organised buyers. • Lack of storage facilities can lead to spoilage and loss of unsold produce. • Price differences in nearby markets and lack of real-time price information.	• Low purchase volumes. • Low frequency limits selling opportunities for farmers. • Lack of participation from organised buyers. • Lack of storage facilities can lead to spoilage and loss of unsold produce. • Price differences in nearby markets and lack of real-time price information.
Buyers	• APMC level license requirements, corruption and high commissions and market fees for basic level of services are key entry barriers. • Delays and post-harvest losses due to inadequate market infrastructure and facilities. • The available infrastructure is not enough to cater to the supply potential.	• Lack of grading, weighing, quality assaying or storage infrastructure can lead to procurement of poor quality produce and post-harvest losses. • Low frequency (1-2 times a week) limits purchasing opportunities for local buyers.	• Low frequency limits purchasing opportunities for urban buyers. • Traceability of the produce.

Challenges and risks of the markets include price collusion, skewed number of participants, spoilage loss, entry barriers, and misuse of funds. (2/2)

	4 Electronic markets	5 Co-operative markets	6 Contract farming	7 Public Procurement
	Risks and Challenges	**Risks and Challenges**	**Risks and Challenges**	**Risks and Challenges**
Farmers	• Technology, network connectivity and literacy can be entry barriers for poor and illiterate farmers in remote areas. • Empaneled storage and quality-assaying service providers may be far away from the farmer. • High platform costs.	• Limited products procured; mostly engaged in supply activities instead of marketing farmer produce. • Limited financing options against farm produce.	• Limited land availability and marketable surplus of smallholders exclude them from contract farming agreements. • High legal cost of enforcing the contract in case of default by the buyer. • Exclusive sales arrangements limit sales choices for farmers.	• Corruption involved in procurement and payments. • Delayed payments. • Only select commodities are eligible for public procurement.
Buyers	• Reliability of third-party quality assayer. • Cost of platform, logistics, quality assaying and storage.	• Absence of forward and backward linkages in the structure. Inefficiencies in the supply chain due to redundant functions. between different tiers, leakages, delays and internal competition.	• Risk of default by farmer and backlash by farming community in case of any legal action against farmers.	• Lack of sorting and grading. • Mismanagement and leakages in the supply chain.

The risks and challenges across the market channels are due to poor economies of scale, low bargaining power, poor infrastructure and supply chain inefficiencies.

Market Linkage Models

- APMC Market
- Rural Haats
- Farmer consumer markets
- Electronic markets
- Contract farming
- Co-operative farming
- Public procurement

Common Challenges

Lack of participatory regulation	1
Inadequate and outdated infrastructure and services	2, 3
Buyers' discovery and poor bargaining power	1, 3
Poor access and high market entry barriers	1, 3
Fair and transparent price discovery	3

Key addressable areas

01 Limited bargaining power and poor economies of scale.

02 High losses and limited price realization due to inadequate infra and poor quality control.

03 Inefficiencies and lack of transparency in pricing, discovery and supply chain.

RECOMMENDATIONS

Addressing the key challenge areas involve strengthening aggregation, creating and upgrading decentralised infrastructure, and improving efficiency and transparency.

1. Limited bargaining power and poor economies of scale.
2. High losses and limited price realisation due to inadequate infrastructure and poor quality control.
3. Inefficiencies and lack of transparency in pricing, discovery and supply chain.

1	2	3
		
Aggregating farmers and produce can address poor economies of scale, and facilitate access to premium markets and better price realisation for farmers.	Upgrading and creating decentralised market infrastructure to facilitate storage, grading, quality control and basic value addition.	Leveraging ICT tools and digital markets to address information asymmetry can help farmers and buyers in better decision making.

Aggregation can improve bargaining power, economies of scale and facilitate access to premium markets and capital.

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1 FPO success stories in value addition, retail marketing and export of their members' produce drive the case for strengthening aggregation.

Grape farmers were facing a lot of problems in the region. Thirty per cent of the produce used to be kept on hold to be harvested. **Sahyadri Farms, in collaboration with 10,000 farmers** aggregated about 25,000 acres in the Nashik district of Maharashtra and produced 1,000 tonnes of fruits and vegetables daily. The collective has been able to enter export markets and retail marketing for the produce.

Key Highlights

1. The biggest exporter of grapes in India.

2. One of the biggest traders of tomatoes in the country.

Impact
(Sahyadri Farms 2019)

Number of Farmers
10,000

Total Production
23,000 MT

Turnover
Rs. 525 crores

1 Aggregation and capacity building of marginal producers shows results by improving bargaining power, raising capital, enhancing value and facilitating access to premium markets.

Tribal farmers in the Sittilingi valley in the Dharmapuri district of Tamil Nadu have been traditionally growing millets and vegetables without any chemical inputs since generations. However, the local market and traders did not differentiate between conventional produce and chemical-free, organic produce. **A local NGO, Tribal Health Initiative, mobilised the farmers into Sittilingi Organic Farmers Association (SOFA)** to aggregate produce, perform value addition and supply it to distant premium markets. The Producer Catalyst & Incubation Facility (ProCIF) and SELCO Foundation provided capacity building, access to finance and infrastructure to the FPO (Bhamra 2016).

Key Highlights

1. Supplies to 40 organic retailers in south India and has own retail outlet in Sittilingi.
2. This FPO operates an an organic millet processing unit, organic fertiliser and pesticide unit, a nursery and bio-compost unit.

Impact

Number of Farmers

500

Turnover

Rs 25 lakhs

1 Several drivers across policy, philanthropy and private sector can enable efficient aggregation of produce to improve market access for small farmers.

Policy

- Reduction or removal of excess for FPOs and single license to operate across APMC markets.
- Preference for FPOs in Public Sector Undertakings (PSU) procurement and vendor list and convergence with other government schemes.

Philanthropy and CSOs

- Capacity building and handholding on market linkages, value addition and business operations.

Private Sector

- Finance: Facilitating working capital for aggregation at FPO or cooperative level.
- Agritech: Adoption of relevant ICT solutions at farmer, FPO or cooperative level to facilitate efficient procurement and marketing.
- Logistics: Facilitating decentralised procurement and storage.
- Agribusiness corporates: strengthening backward linkages.

Modernising and increasing capacity of market infrastructure in rural areas will enable higher price realisation while minimising losses for small farmers.

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2 Decentralised storage and processing solutions can reduce post-harvest losses of perishable high value commodities by twenty to thirty per cent in remote and rural areas.

Oorja Development Solutions provides cold storage as a service in Bihar, allowing small farmers to store perishable produce on a per-crate-per-day basis thus avoiding high upfront costs (Gupta 2021).

Key Market Interventions

1. It has deployed 6 MT solar cold storages near haats and markets.
2. Government capital subsidies are generally available for large cold storages up to 35-50%, making them inaccessible to small farmers.
3. Other companies like Coolcrop, Ecozen, Tan90 have also innovated on portable decentralised renewable energy based cooling solutions.

Impact

Affordability, access and proximity to small farmers

Reduction in post harvest losses
20-30%

2 Value addition at source will avoid spoilage losses, enhance price realisation and provide local employment opportunities.

Tribal women in Pali, Rajasthan used to collect custard apple from the forest and sell it to traders in the market for as low as Rs. 3-4 per kg. More than 50% of the total fruits got wasted due to lack of market linkages, an extremely short span of the harvesting season, the high volume of the fruits, high perishability and less use of preservation and processing technology (Bhamra 2016).

Key Market Interventions

1. Srijan set up 10 Village Level Collection Centres (VLCCs) for grading, weighing, and sorting, and a central processing unit for ripening, pulping and cold storage.
2. Market linkages with caterers and ice cream manufacturers help realise high prices and the frozen pulp can be stored up to two years, thus minimising losses.
3. Srijan procures custard apple at Rs. 8 per kg and sells pulp at Rs 130 per kg (conversion ratio of raw fruit to pulp is 25%).

Impact

Increase in income value
4X

Premium over local market price
100%

Reduction in post harvest losses
50%

2 Modernising market infrastructure and increasing capacity requires support across policy, innovation, financing, awareness and adoption.

Policy

- Incentives and subsidies for private sector to set up required infrastructure.
- Public-private partnership models for creating and operating market infrastructure.
- Incentivising innovation in decentralised storage, quality assaying and processing.
- Scaling up programmes and schemes like GrAMs and Agriculture investment fund and making them inclusive for small farmers, FPOs.

Philanthropy and CSOs

- Awareness programmes for farmers and FPOs on usage and benefits of market infrastructure.
- Funding and incubating innovative for agriculture startups that facilitate access to decentralised agri-marketing infrastructure.

Private Sector

- Finance: attractive loans and bridge financing for setting up market infrastructure for farmers, FPOs, service providers.
- Agribusiness companies: setting up decentralised processing units.
- Logistics service providers: flexible payment options and rental models.

Leveraging ICT solutions and digital market platforms will improve discovery and transparency across buyer, price, services, and minimise risks and inefficiencies.

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Aggregating farmers and produce can address poor economies of scale and facilitate access to premium markets and better price realisation for farmers.	Upgrading and creating decentralised market infrastructure to facilitate storage, grading, quality control and basic value addition.	Leveraging ICT tools and digital markets to address information asymmetry can help farmers and buyers in better decision making.

3 Aggregation of maize from small farmers and sale through the National Commodity and Derivatives Exchange (NCDEX) futures market have safeguarded Aranyak Jeevika from the perils of price fluctuation.

JEEViKA and TechnoServe's support enabled the Farmer Producer Company (FPC) to procure more than 1,000 MT of maize, which was collected from the farmer members of pre-identified producer groups (PGs), at their doorsteps and traded online in spot and via futures markets (TechnoServe 2019).

Key Highlights

1. Shift in the quality consciousness among the farmers who are now aware of exchange standards and are keen to align their produce with it.

2. They have also been able to break out of the shackles of local moneylenders who would use their financial clout to squeeze extra interest on the money they lent to them.

Impact

Improved Price Realisation
15-20%

Produce sold through future markets 1,000 MT

3 Blockchain powered traceability solutions facilitate end-to-end transparency across the agricultural supply chain, ensuring quality and enabling premium prices.

An end-to-end traceability solution ensuring a quality product to the consumer helps ONganic to win customer loyalty for their organic produce. (TraceXtech 2022).

Key Highlights

1. ONganic uses Software as a Service (SaaS) based, blockchain powered traceability solution to achieve end-to-end transparency across their paddy supply chain.

2. This helps to bridge the gap between the farmers and the organic market and with traceability, they can deliver a healthy product to the consumer.

3 End-to-end traceability highlights the role of ICT tools in farmer onboarding, production monitoring, traceability, market information and high price realisation.

The end-to-end traceability with blockchain solutions of the potatoes with the right agronomy practices in place delivers high-quality produce. (TraceXtech 2022).

Key Highlights

1. 220 farmers and 4 Aggregators get onboarded using an easy-to-use multilingual offline mobile app.
2. The Harvest dashboards help the farmers to monitor harvest progress and gain insights into market requirements.
3. Digitisation of farming and crop inputs serves as authentic records to prove the authenticity and credibility of the product.

3 Incentivising and scaling up the adoption of agritech solutions at farmer and FPO levels would need support from government programmes, NGOs and the private sector.

Policy

- Provision for the adoption of agritech solutions in government programmes.
- Farmer and FPO-level subsidies for annual subscriptions and platform fees.
- Integrated interface for interoperability across digital markets to ensure fair prices, a good mix of buyers and sellers and address arbitrage.

Philanthropy and CSOs

- Funding adoption and capacity building of innovative ICT tools for facilitating market linkages.
- Incentivising innovation through agricultural startup incubators.
- Adoption in NGO agriculture programmes.

Private Sector

- Strengthening backward linkages through the adoption of ICT tools in agribusiness supply chains.
- Funding adoption of ICT tools at the farmer level.
- Ensuring interoperability between different market platforms for seamless trading.
- Using regional languages for improved farmer adoption.

ANNEXURE

Key participants and commodities traded in key market channels (1/2)

Market channel	Type of Sellers	Type of Buyers	Ecosystem Services	Type of Products
APMC	Farmers, FPOs, village aggregators	Processors, traders, wholesalers, retailers, exporters	Financial institutions, input dealers, transporters, warehousing, labour	Cereals, pulses, oilseeds, millets, livestock, fruits, vegetables, NTFP, spices, agri inputs
Rural Haat	Small farmers, village-level aggregators	Rural consumers, traders, local retailers	Input dealers, transporters, labour	Cereals, pulses, oilseeds, millets, livestock, fruits, vegetables, NTFP, spices, agri inputs, value added products
Farmer Consumer Markets and Niche Markets	Farmers, organic farmers, FPOs	Consumers, niche retailers	Specialized logistics services, certification agencies, transporters, labour, storage and warehousing	Organic produce, vegan produce
Electronic markets	FPOs, large farmers, traders	Processors, commodity traders, wholesalers, retailers	Financial institutions, quality assayers, transporters, storage and warehousing	Dry commodities

Key participants and commodities traded in key market channels (2/2)

Market channel	Type of Sellers	Type of Buyers	Ecosystem Services	Type of Products
Contract farming	Farmers, FPOs	Processors, Agri business corporates, large traders, organised retailers, exporters	Financial institutions, input providers, logistics providers	Cereals, pulses, oilseeds, millets, fruits, vegetables, spices, seeds
Cooperative marketing	Farmers	Farmers, large traders, processors, wholesalers, retailers, exporters	Financial institutions, transporters, storage and warehousing, labour	Agri inputs, outputs, consumer goods, poultry, dairy, NTFP
Public procurement	Farmers, FPO	Govt empaneled agencies, PACS	Storage and warehousing, transporters, labour	Cereals, pulses, oilseeds, millets

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