1. Critically evaluate the performance of existing storage mechanism for agricultural produce in India. What innovations are needed to create a more robust and efficient storage infrastructure? Suggest.

Introduction

The Food Corporation of India, Central Warehousing Corporation (CWC), and State Warehousing Corporations are responsible for large-scale storage and warehousing capacities in the country. The Directorate of marketing and Inspection of the Department of Agriculture provides consultancy and technical services to prospective entrepreneurs for the construction, maintenance and operation of cold storages.

Body

Present mechanism of Food storage Management in India:

- Food Corporation of India (FCI) is the nodal agency under Ministry of Consumer Affairs, Food and Public Distribution responsible for the procurement, storage and movement of food grains, public distribution and maintenance of buffer stocks.
- FCI procures food grains at minimum support price (MSP) from farmers on an open-ended basis (i.e., accepting all the grains that are sold to it by farmers), provided the food grains meet Govt. of India's uniform quality specifications. The procurement is also done by State Government Agencies (SGAs) and private rice millers on behalf of the FCI.
- All the procured food grains form the Central Pool. The grains are moved from the surplus states to the consuming states for distribution and for creation of buffer stocks and stored in FCI godowns.
- The food grains are also disposed by FCI and State Governments through sale under Open Market Sales Scheme (OMSS) i.e., selling food grains at predetermined prices in the open market from time to time to enhance the supply of grains especially during the lean season and thereby to moderate the open market prices especially in the deficit regions.
- The economic cost to FCI includes acquisition cost of food grains at MSP, procurement incidentals (e.g. labour & transport charges, godown rentals) and distribution cost (freight, handling, storage & interest charges, losses during storage etc).

Critical evaluation of storage mechanism:

A report from ICAR, post-harvest losses of foodgrains in India is around 6% and 18% for fruits and vegetables due to lack of storage infrastructure.

- Excess of buffer stocks: Open ended grain procurement has increased food grain stockpiles beyond the needs of food security. E.g. By June 2019, FCI and

state agencies stockpiled 76.1 million tonnes of staples (wheat and rice) against the requirement of 61 million tonnes.

- Lack of storage: Due to inadequate number of godowns for storage, a part of procured grains is maintained as outdoor stacks ('Cover-and-Plinth' system), which face high risk of rain damage and pilferage. Further, no automatic liquidation rule strains the storage capacity. Ideally, FCI should sell all grains above buffer stocks in open markets. But there is no such rule and offtake happen only on the directive of the ministry.
- Food inflation: The present storage mechanism involves procuring 75% of the market surplus. Such stocking of food grains which otherwise could have been sold in open markets adds to food inflation.
- Countercyclical procurement policy: In drought years, when the production is low, Government increases MSP and stock uptake from farmers. This reduces the supply of grains in open market and pushes the prices high.
- Poor quality of food grains & high wastage: Due to insect infestation, microbiological contamination, physiological changes due to sprouting and ripening etc., the shelf life of food grains remain poor. Lack of irradiation facilities also impedes long term storage.
- High costs for government: Fiscal load of procuring, carrying & maintaining excess stock is over ₹1 trillion and adds to the food subsidy bill.
- Marginalization of private trade: Existing system of food storage management in India is dominated by the Government. This has resulted in limited technology upgradation in storage mechanism and low capital investment.
- Corruption: According to Shanta Kumar Committee, 40-60% PDS food grains are siphoned from FCI godowns to black markets. Many such scams, like Punjab Wheat Procurement Crisis 2016, have come into the light recently.

Innovations needed:

Agriculture storage plays a major role in remuneration of price to the farmer and needs innovation in its mechanism which includes procurement method, transportation etc., which have an impact on the storage capacity.

- Excess buffer stocks can be allocated to poor over and above their monthly quota of 5 kg under National Food Security Act (NFSA).
- Procurement as a means of price support can be replaced with price deficiency payment and direct income support to the farmers, as envisaged in PM-AASHA and PM-KISAN schemes.
- Decentralized Procurement Scheme (DCP), introduced to reduce transport cost and leakages, has been adopted by a very few states.
- Outsourcing grain-storage function and privatization:
    - Private Entrepreneur Guarantee (PEG) Scheme to construct godowns in PPP mode.
    - Grameen Bhandaran Yojana to provide capital investment subsidy scheme to build and renovate rural godowns

- Replace "cover and plinth" godowns with "Silos" with mechanized / robotic assemblies.
- Transport Reforms:
    - Transport grains in containers rather than gunny bags to reduce losses and faster-turn-around time at railways and waterways.
    - Construct silos at mandis, and provide rail connectivity to them.
    - Perishable commodities should be transported in Reefer Vehicles for refrigerated transport
    - End to End computerization and online tracking from procurement to retail distribution.
- FCI Reforms:
    - Outsourcing its procurement functions to private players and state government wherever it is not necessary like Punjab, Haryana etc., and focus on states with small and marginal farmers like Bihar, UP etc.,
    - Pro Active Liquidation Policy for Excess Buffer Stocks: Whenever FCI's inventories have grains above buffer norms, it should automatically sell excess stock in open market (domestic or exports).
    - Popularize Negotiable Warehouse Receipts (NWRs) system which will make the storage of foodgrains attractive.
    - No need of physical procurement if market prices are less than the MSP. Farmers should be given the difference the two, through DBT directly into their bank accounts.

Conclusion

Doubling farmer income by 2022 involves reforms in storage mechanism. The recommendations of Shanta Kumar committee as well as Ashok Dalwai committee on storage mechanisms needs to be improved for reducing losses, avoid distress sale and make available decentralized storage units reducing transportation costs. Measures taken by the government including GST which helped establishment of warehouses are laudable and more reforms boosting the mechanism is needed.

2. Examine the transport bottlenecks faced by the small and marginal farmers in India. How can transport of agricultural produce be made viable and more efficient? Discuss.

Introduction

Transport is regarded as a crucial factor in improving agricultural productivity. It enhances quality of life of the people, creates market for agricultural produce, facilitates interaction among geographical and economic regions and opened up new areas to economic focus.

Body

Indian farmers incur Rs 92,651 crore per year in post-harvest losses, the primary causes of which are poor storage and transportation facilities. Ironically, according to the high-level Dalwai committee report, an investment of Rs 89,375 crore—a figure marginally lower than the annual post-harvest losses—is all it takes to improve the state of storage and transportation facilities for food crops.

The transport bottlenecks faced by the small and marginal farmers in India

- Since a market is the primary medium for farmers to exchange their produce for money, lack of logistics connectivity to ensure that their harvest reaches markets in time results in lowering of the farmers' ability to monetise their produce. This becomes even more critical in case of perishable fruits and vegetables.
- For the distribution of agriculture items, road transport has crucial role to play as it is the chief means of transporting the agricultural goods from the farms to local markets and also to several urban locations.
- Most roads in the rural areas are Kutcha (bullock- cart roads) and become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market and are forced to sell it in the local market at low price.
- If transport services are not common, cheap quality or costly then agriculturalists will be at an inconvenience when they try to sell their crops. An expensive service will naturally lead to low farm gate prices (the net price the farmer receives from selling his produce).
- The seasonally blocked routes or sluggish and irregular transport services, together with unsatisfactory storage, can actually lead to high losses as specific items such as milk, fresh vegetables, tea, get worse quickly after a while.
- In case the agricultural products are moved through bumpy road network, then several other crops such as mangoes & bananas might also suffer losses from staining. This also
  shows up in reduced rates to the agriculturalist.

Ways to make transport of agricultural produce be made viable and more efficient
Transport is a burning component of **post-harvest crop management.**

After all, every harvested crop needs to be transported, either directly from the field to the market, or to the packing house and storage.

- When choosing the optimal mode of transport, farmers should consider a few important aspects:
  - The distance and the accessibility of the destination.
  - Type of goods that are transported; for instance, there are different requirements for transition of perishable crops and packing material.

- The size or the quantity of goods that need to be transported; determine the optimal mode of transport, as well as the price of delivery.
- International or national laws and regulations.
- Available infrastructure and farmer's financial possibilities.
- Functionality and additional properties of any transport mode, as well as any means of transport

- The Dalwai committee has brought to forefront the role of Indian railways in addressing the need to shift from road to rail. About 1.9 per cent of the perishable fruits and vegetables are transported through rail, while 97.4 per cent of the produce is transported through roads. This ratio needs to shift in favour of rail network.
- The post-harvest losses can be substantially reduced if they are shifted from roads to trains. Railways are capable of covering longer distances in shorter times and can empower farmers by allowing them to expand their market reach specially the perishable crops. While existing trade into local markets will continue, the amount that is surplus to the localised demand can be safely connected to consumers far away, thereby mitigating loss and increasing recovery from surplus.
- An investment in creating a robust post-harvest storage and transportation by investing Rs 89,375 crore will also create over 3 million jobs. And a majority of which will be at the village level, thus empowering the local, rural economy.
- Properly managed transport is efficient in delivering farm resources and harvested crops as fast as possible. When considered as the final practice of delivering the crops to the market, transport is responsible for the preservation of crop yield and quality. Besides that, when it's economically managed, transport will give plenty of space for reducing total production cost.

Certain Government Initiatives

- Transport and Marketing Assistance (TMA) scheme : Under the Transport and Marketing Assistance (TMA) scheme, the government would reimburse a certain portion of freight charges and provide assistance for marketing of agricultural produce. The scheme covers freight and marketing assistance for export by air as well as by sea (both normal and refrigerated cargo).
- In a major policy initiative aimed at benefitting farmers, the government has done away with the licensing permits for foreign vessels given under section 407 of the Merchant Shipping Act 1958 for coastal movement of agriculture, fishery and animal produce, besides allowing Indian citizens to charter ships for these.
- Pradhan Mantri Gram Sadak Yojana: is a nationwide plan in India to provide good all-weather road connectivity to unconnected villages.

- Government of India has been encouraging/ promoting organic farming under two dedicated Schemes, namely, Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) and Parampragat Krishi Vikas Yojana (PKVY) since 2015.

Conclusion

Major reform for food security and farmers livelihood is needed in adopting a holistic and integrated approach in ensuring convergence in the management of animal husbandry, fisheries, agro-forestry, minor forest produce and agro-minor forest-based micro and medium enterprise specially in the rain-fed areas. There is also a need to respond to the challenges and opportunities in global market. Transport is considered as a vital factor to augment agricultural productivity. It actually forms up a market for agricultural products, boosts interaction among the geographical and profitable regions together with opening up new areas to economic focus. There are intricate relationships that vary both spatially and over time between transport and development.

3. How does presence of middlemen in the agricultural marketing ecosystem jeopardize the interests of the farmers? Analyse.

Introduction

Agricultural marketing ecosystem refers to the system through which goods reach markets all over the country. The process of agricultural marketing involves assembling, storage, transportation, processing, grading and the distribution of the various agricultural products across the country.

Body:

Middlemen refers to the person, community, cooperation or society which procure food grains from farmers and sell them in market by keeping aside profit for themselves.

Middlemen in agricultural marketing ecosystem jeopardizing the interests of farmers

- Presence of middlemen makes the supply chain longer. The margin received by the farmers for their produced is quite less in comparison to the price paid by the end consumers. Due to the existence of APMC laws, the agricultural produce needs to go through the government regulated wholesale mandis, where unfair trade practices are quite common resulting in higher price of the produce for the consumer, but it does not translate into higher prices received by the farmers.
- Middle men stifle the direct contact between food industry and farmers. This jeopardizes the prospect of access to capital, inputs like seed, technology and extension services, price certainty enhanced market linkages among others.

- Land pooling and efficiency becomes difficult in presence of middlemen.
- Agriculture is becoming unsustainable enterprise. 76% of the farmers would like to quit farming if given a chance ('State of Indian Farmers' report). Only 23% of rural income comes from agriculture (NABARD survey). There happens 10 farmers suicide daily (2016, NCRB). Under such circumstances it's imperative that menace of middlemen in the agricultural marketing ecosystem is routed out.

Conclusion

In the last few years, central government has done the following reforms in the agriculture sector, which will help remove middlemen.

- Electronic – National Agricultural Market
- Model Agricultural Produce and Livestock Marketing Act 2017
- Model Agriculture Produce and Livestock Contract Farming and Services Act 2018
- 100% FDI in multi-brand retail in case of food products manufactured and/or produced in India
- Model contract farming act 2018

4. What is contract farming? Examine its pros and cons from the perspective of farmers' interests. Can it be a suitable means to curb the impediments posed by the existing marketing mechanism? Examine.

Introduction

Contract farming is the process of agricultural production carried out according to an agreement between unequal parties, companies, government bodies or individual entrepreneurs on one side and economically weaker farmers on the other which establishes conditions for the production and marketing of farm products.

Body

Contract Farming

Contract farming can be defined as agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products. Typically, the farmer agrees to provide agreed quantities of a specific agricultural product. These should meet the quality standards of the purchaser and be supplied at the time determined by the purchaser. In turn, the buyer commits to purchase the product and, in some cases, to support production through, for example, the supply of farm inputs, land preparation and the provision of technical advice.

Pros of contract farming from the perspective of farmers interests

- Makes small scale farming competitive - small farmers can access technology, credit, marketing channels and information while lowering transaction costs
- Assured market for their produce at their doorsteps, reducing marketing and transaction costs
- It reduces the risk of production, price and marketing costs.
- Contract farming can open up new markets which would otherwise be unavailable to small farmers.
- It also ensures higher production of better quality, financial support in cash and /or kind and technical guidance to the farmers.
- In case of agri-processing level, it ensures consistent supply of agricultural produce with quality, at right time and lesser cost.

Cons of contract farming from the perspective of farmers interests.

- Loss of flexibility to sell to alternative buyers when prices increase
- Possible delays in payments and late delivery of inputs
- Risk of indebtedness from loans provided by the buyer
- Environmental risks from growing only one type of crop
- Unequal bargaining power between farmers and buyers

Contract farming and different marketing Models

Through different marketing models Contract farming helps to curb the impediments posed by the existing marketing mechanism.

- **Informal model** is the most speculative one among all types of contract farming models; where firms engage in informal seasonal production contracts with smallholders with a risk of default profit or loss for both the promoter and the agriculturist. However, long-term relationships generally reduce the risk of opportunistic behaviour, and increase chances of meaningful yields.
- **Intermediary model** is where the buyer subcontracts an intermediary collector or farm aggregator to produce and purchase the crop, provide embedded services and incentives to farmers and ensure quality assurance of the yield output.
- **Multipartite model** can develop from previously existing centralised models, and involve various types of organisations such as statutory bodies, private companies, financial institutions, and third party service providers. It generally guarantees equity share schemes for producers, attracting investors to draw attention towards the food processing industry at large.
- **Nucleus estate model** is where the company manages and oversees a plantation or production facility to supplement the production of smallholders and provide minimum throughput through the year. This approach is mainly used for tree crops such as oilseeds and rubber.
- A typical marketing paradox is that buyers, such as supermarkets and processors, complain about inadequate supply while farmers complain about

lack of markets. Clearly the buyers have not been too active in seeking out new suppliers, while farmers have lacked the skills and resources to identify new markets. Contract farming solves this paradox.

- **organic product marketing:** Many developing countries are in a strong position to supply organic produce, due to existing production practices that involve low, or no, chemical use, but arrangements for certification can be very costly. The extent to which supply of organic products to world markets by groups of small farmers can be sustainable therefore merits further research.10 As demand for organics grows, there is evidence that it is becoming increasingly attractive for larger, commercial farms. The economies of scale of such farms, combined with their capacity in some cases to meet all of the needs of a particular buyer, may well offer small farmers major competition
- **Diversifying export markets:** Some markets report having more supplies offered, particularly of horticultural produce, than they can possibly absorb. There is, moreover, a tendency for supermarkets to consolidate suppliers in order to facilitate chain coordination and quality control measures.
- **Brand promotion:** Farmers are responding to low commodity prices by marketing clearly identifiable brands, frequently with the assistance of donors and NGOs. Some of these may be organic or fair trade brands, but others may simply offer quality or taste attributes that require no certification. Additionally, there is increasing interest in the geographic origin of produce and the development of brands that reflect origin. Good marketing skills can develop profitable markets but marketing can be expensive and may not be viable for small farmers unless subsidized by linking organizations.

Conclusion

The government's National Agricultural Policy envisages promotion of private participation via contract farming and land leasing arrangements. Fast-track implementation of contract farming in India could be the new ray of hope in the coming years for the agriculture industry. Once this is executed, accelerated technology transfer and capital inflow is expected to penetrate and an assured market for crop production will grow. It will safeguard the interest of small and marginal farmers, which in turn, could lead to a complete makeover of the agriculture industry in India.

5. Institutional and procedural reforms alone won't address the problems of agricultural marketing in India. Do you agree? Substantiate.

Introduction

Farmers in India are largely unrelieved of their incessant problems. The most pressing problems facing the Indian farmer are the persistently low market prices.

From onions to potatoes and pulses to oilseeds, prices of most crops are much below expectations and normal trends. Farmers are hardly empowered to decide price of their product.

Body

Problems of agricultural marketing in India:

- Low share of farmer: The Dalwai Committee on Doubling Farmers' Income has pointed out that the share of farmers in consumer's price is very low; it generally varies from 15 to 40 per cent.
- Lack of ware housing and storage: Cold storage units exist in less than one-tenth of the markets. Post-harvest losses of various commodities ranged from 6 to 18 per cent.
- Lack of transportation facilities: Almost 40 per cent of all fruits and vegetables are lost annually in India between the grower and the consumer mainly due to lack of storage facilities, a weak transportation system and bad roads.
- Lack of Uniformity in grading and standardisation: Open auction platforms exist only in two-thirds of the regulated markets. Grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets.
- Lack of Market information.
- Inadequate research on marketing.

Problems of APMC Act:

- Market Segmentation: The monopoly of APMCs in agriculture market reduces buyer competition in comparison to integrated markets, as it limits the geographical range of the mandis, number of buyers and sector specialization of buyers.
- High Degree of Intermediation and Cartelization: Missing credit markets so farmers borrow from intermediaries, conditional to sale of harvest. Cartelization by traders prevents price discovery mechanisms from functioning in mandis.
- High License fees and Taxes: High commission levied on both farmers and buyers create artificial inflation. Final price to consumer high but benefit does not reach the farmer.

Institutional and procedural reforms:

- Model APMC act: Despite of being the state subject central government has brought model APMC act to empower farmer to sell his product outside APMC.
- E-NAM: It is virtual market but it has a physical market (mandi) at the back end. E-NAM creates a unified market through online trading platform both, at State and National level and promotes uniformity.

- Minimum support price: Govt assured farmers MSP almost 150% of input cost and announced 5% to 7% increase in the MSP for winter season recently.
- Price stabilization fund: The scheme provides for maintaining a strategic buffer of commodities for subsequent calibrated release to moderate price volatility and discourages hoarding and unscrupulous speculation.

Along with Operation Green, Agriculture market infrastructure fund, Agriculture Marketing and farmer friendly index are major steps towards institutional and procedural reforms in agricultural market.

However considering the urgency of agricultural market reforms, there is need to apply innovative measures along with institutional and procedural reforms.

Need of new thinking:

- Agriculture marketing can moved to union list or concurrent list to push reforms as only handful of states like Bihar, Maharashtra broke the monopoly of APMC markets.
- Farmer-Consumer Market: There is need to squeeze intermediary share if not eliminate. Farmer- consumer markets specially reserved for farmers may prove solution for both inflation of food prices and remunerative price.
- Ware house based sale.
- Reduction input cost of farming could also solve the issue of agricultural pricing.
- Innovative ways to reduce dependence on fluctuations in agriculture pricing, there is a need for the farmers contributing in solar energy generation, participation in wind energy, installing solar panels in his farms, etc and also to become an Urjadaata from Annadata.

Conclusion

Climate change and weakening of WTO led system of Agriculture trade created new challenges for agriculture marketing in light of which agricultural marketing services have to be strengthened. There is need to bring information decimation and increased awareness among farmers for maximum benefits.