

Value chain development in Indian Agriculture:

Challenges and way forward

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An orderly agricultural marketing system is pivotal to the efficient allocation of scarce resources. The recent farms legislations are rolled out not only to create a value chain system for efficient agricultural marketing, improving trade related infrastructure and strengthening value/supply chains of the agricultural commodities but also to transform agriculture into more efficient, sustainable, competitive and resilient.

Keywords: Agriculture, Development, Reforms, Value chains

THE value chain is a set of linked activities which are required to bring a product or service from conception, through the different phases of production and value adding activities (involving both physical transformation and the input of various producer services), delivery to final consumers and final disposal after use. A value chain brings all the stakeholders engaged in the production system on a common platform to contribute their best, while ensuring fair deal and transparency. The value chain includes all the input suppliers, technology delivering agencies, scientists indirectly engaged in developing appropriate technologies and extension officers who are involved in capacity building and providing various services to farmers. The stakeholders involved in post-production activities are the agencies organising collection, grading, storage, transportation, processing and marketing of the produce. Agencies like financial institutions and market information centres are also part of the value chain. Efficient linkage of various

stakeholders improves production, price realisation and profitability. Value chain development interventions can focus on improving business operations at the level of producers, processors and other actors in the chain and the (contractual) relationships among them, flow of knowledge and information and innovation. Creation of value chain development ecosystem can also foster overall coordination in the chain; participation of selected beneficiaries in local, national or global value chains; reduction of entry barriers and a higher share of value addition for actors. Value chains perform well when actors in the value chain coordinate and cooperate to produce higher-quality products and generate higher income for all stakeholders along the chain. The supply chain and value chain in agriculture differs on two counts. First, the creation of value in operations/activities from production to delivery of agricultural commodities to consumers is the crux of value chains whereas in supply chain, value creation is not an essential condition. Second, the value

creation and its sharing among stakeholders in transparent manner is must in value chain whereas in supply chain, stakeholders are not aware of actions and reactions (disjointed) among stakeholders. The value creation process in agricultural value chains entails reduction in cost, increase in differentiation of product, upgradation of products, process, etc. The value chain in agriculture has to fulfil two essential conditions to call them most efficient. Firstly, these must be compact means there should not be any duplication and overlapping of actors and their activities in agricultural value chains. Second, these should be transparent, means the stakeholders must be aware who is doing what and how the actions and reactions of one player will affect the other players in value chains.

Prevailing practices of value chains

The existing marketing of agricultural commodities in India is unorganised and inefficient. Most of the commodities are sold loose at village level and are aggregated at village and wholesale market level. There are number of intermediaries

involved in marketing but there is little value addition, information flow and efforts to link production with consumption. Visual method is most commonly used for quality assessment and there is hardly any use of quality standards for grading. The only exception is milk where collection booths of organized dairy examine fat content and make payment accordingly. However, studies on price integration have shown that markets of major commodities are integrated, but share of producer in price paid by consumers is still low. The situation in perishable products is further worrisome as most of these products are sold outside primary markets and market infrastructure and information are inadequate.

The investment in food processing infrastructure for value addition is low and food safety issues in the value chains are not paid adequate attention. The issues in the present marketing system include fragmented supply chains, a large number of intermediaries (formal or informal channels), high transaction costs, inadequate price discovery and low competition in the markets, and poor market infrastructure. Large variations in the provisions, fee and charges across states led to fragmented markets. The regulated inter-state movement of agricultural produce reduces the competitiveness and impeded the emergence of a common national market. The introduction of electronic trading through the linking of *mandis* to e-NAM also could not achieve the desired success due to inter-state trade barriers and other issues.

The conditions of demand and supply of agricultural commodities in evolving business and economic environment have changed substantially. The food dietary pattern of consumers and food production portfolios at farmers' field are transitioning over the time period. There is need to align the changing pattern in demand and supply which is complemented and supplemented by appropriate mix of suitable policies, institutions and technology. To evolve and strengthen value chain with emerging business and

economic environment, a clarion call is to reform the agricultural marketing system in the country to bring more competition, efficient price discovery, reducing intermediation, reducing marketing cost and wastages, private participation for investment in infrastructure and services, and providing choices to the farmers.

Agricultural value chains development

The Indian agriculture is graduating or need to graduate from food security to income security of the farmers. Agriculture sector has to emphasize on generating two things: (i) income for the farming community and wealth for nation, and (ii) employment for a large section of society. To envision the transient production system, there are three pillars, production, distribution and consumption. But the middle one (distribution) is missing or adequate attention is not paid. Agricultural market suffers from uncontrollable supply and demand fluctuation across major commodities. There will be ups and down and therefore a mechanism like MSP based procurement is necessary. But that cannot be the principal way of transferring the remunerative prices to the farmers. Dependency on administered price like MSP and procurement based on MSP is not a sustainable solution.

Evidences from government document revealed that the existing infrastructure in agriculture is inadequate to effectively absorb and efficiently monetize the farm output leading to seasonal and regional variations in demand-supply balance. The food wastage in Indian agriculture is huge loss (about ₹ 92,000 crore in 2013 as per estimates of ICAR). To translate waste into wealth, there is need to promote the small scale processing and value addition. Overall, value addition for the total food produced in India is estimated just about 10% (varying from 4% in fresh agro-produce to 50% in milk) as compared to about 65% in developed countries like US and 23% in developing countries like China. In this backdrop, it becomes essential to

emphasize on developing and strengthening value chain ecosystem in agricultural sector. Recent initiatives viz. Agriculture Infrastructure Development Fund by Government of India would generate momentum in movement of robust and congenial development of value chain ecosystem for all stakeholders that would make agriculture more diversified, remunerative and demand driven besides minimizing price volatility, waste and risk in agriculture. This could be possible by increasing investment in agriculture. Public sector has done, lot of investment especially in rural road, canals etc., which have paid high dividends. New generation investment in cold chains, storage, refer cold chain vehicle, warehouses, packaging etc. are required. We have warehouse receipt concept but warehouses are not there. We need a lot of logistics to make post-harvest management in agriculture more efficient and robust. In addition, providing a level playing field for all stakeholders in value chain is indispensable to operate free and fair market. That means all provisions of recent agricultural laws must ensure a level playing field for all stakeholders in value chain. To meet the aspirations of stakeholders of value chains in agricultural economy has triggered new market architecture. The capacity development also includes adequate R&D support to produce in desired quality, scientific handling of produce at post-harvest level, technology for processing and value addition, and packaging of final products for consumption.

The recent policy reform, viz. Essential Commodities (Amendment) Act, 2020 (ECA) paves way for better organisation and strengthening of value chains in agriculture by removing the unpredictability and arbitrariness in notification of stocking limits at the whims of the government, and pre-defined criteria for imposing stocking limits based on the price rise. The processors of processing plants and exporters involved in trade are exempted from 'regulations for stock limits' even in case of extraordinary circumstances in the economy. The

extraordinary situations are like war, drought, flood, natural calamities, earthquake etc; may arise due to acts of God (beyond the capacity of nation). In this situation, storage of agricultural food stuff is not permissible. The provisions of ECA (Amendment) 2020 would be invoked automatically when the price rise is in extraordinary way. The conditions elaborated in ECA (Amendment) Act 2020 are: (i) in case of perishables, if the price of the commodity increases by 100% in last one year (12 months average) or 5 year average; (ii) in case of non-perishable if the price increases by 50% in last one year or 5 year average. In both the conditions, these commodities will be considered as essential commodity and their storage will be halted. In case of food already in storage or warehouse in both above mentioned situations. There are two players/ stakeholders in value chain viz. processor and exporters, who are exempted from stocking limits of food stuff in case of extraordinary conditions or situations: (i) If the processor has processing unit, he is eligible to store the food stuff up to annual installed capacity of processing plant. He cannot be forced to liquidate the stock or halt the stock of food stuff in extraordinary circumstances; (ii) Any legally vetted exporter engaged in export, if has advance export demand order in hand, he is free to store the food stuff up to that limit in extraordinary circumstances.

What needs to be done?

1. Value chain management in agriculture has to deal with state government. The centre and state government should build the ecosystem to make these reforms successful. There should be a national level agriculture advisory council at PMO level. It should work like GST council for taking appropriate decisions.
2. The trade area outside APMCs and public APMCs need to integrate agriculture with global markets. *Modus operandi* and guidelines need to be put in place for export promotion and

3. Free and fair trade approach serves only those who are capable. In agriculture, farmer being a weaker party, there is a need to establish regulatory mechanism for registering buyers with the intent to track and trace in case of default in transaction in market. We have to provide level playing field to all the stakeholders in the value chain. Moreover, we must ensure corporate sector, private APMCs and public APMCs have the same rule.
4. The non-food commodities should be included in the list of APMC for enhancing private sector participation.
5. To get access to technology by farmer, there is need to ensure access to technology platform along with platform for market.
6. In direct trade, traders are not expected to go every single farm gate. There is need to promote aggregation platform in proximity of 5-6 km from the farm gate.
7. A corpus fund needs to be created just like SC/ST community at state level to provide legal support to the farmer as a weaker party in case of dispute resolution.
8. There must be a capacity building of FPOs to deal with corporate and private players and also how to interact with other stakeholders on digital platform. There should be a systematic plan for training and corresponding budget.
9. Reputed bodies must be setup under the new agriculture legislations just to prevent collusion and oligopoly like characters of private players.

Several directly and indirectly inhibiting factors for sustainable value chain development ecosystem would be addressed with creation of enabling provisions for infrastructure, technology, and favourable policies environment, apt institution, support through developmental initiatives, technological dissemination, financial provision, capacity building of stakeholders at various levels etc. To ensure this, in September 2020, the Union Government enacted two new

farm Acts- Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020; and Farmers' Empowerment and Protection Agreement on Price Assurance and Farm Services Act, 2020 for transformation and modernization of agricultural sector and also amended the Essential Commodities Act, 1951 for food stuff to provide an enabling environment for accelerating agricultural development. These legislative measures aim to create a value chain system for efficient agricultural marketing, improving trade related infrastructure and strengthening value/supply chains of the agricultural commodities. The provisions in the Acts have potential to incentivize producers to diversify towards high value crops by reducing market and price risk. These Acts also provide an enabling environment for the processor and exporters to secure raw material of a pre-specified quality. This in-turn would strengthen the linkages between producers and processors/exporters. The provision of supplying farm inputs and services to the farmers will increase the adoption of modern technologies and good agricultural practices for producing quality products demanded by the consumers. Moreover, these Acts will provide opportunities to small-scale farmers, who are able to adjust their products (product upgrading) and production methods (process upgrading) to sustainable standards, may be able to find a niche for producing for international markets. As the consumer prices for speciality product are usually higher than for conventional products, sustainable production may even bear the potential to increase income. The growing demand for speciality food, the increasing sales via supermarkets and the increasing professionalization and expansion of production, specialty food stuff food value chains may acquire the character of conventional value chains.

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Configuration of data collection mechanism in Indian Agriculture market reforms

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Robust data collection mechanism covering all possible themes and issues in agri-market reforms era is going to be one of the most important assets. This will ensure an organization to remain relevant and viable in dynamic environment. The use of Industry 4.0 technologies in data collection, management, processing, and extracting value from data is going to bring revolution with Government intention of ‘minimum government and maximum governance’.

Keywords: Agriculture, Data, Markets, Mechanism, Reforms

PLANNING and preparing thoroughly and carefully before taking any action in any venture is must to avoid wasting time, money and resources. This means one should double-check one's measurements for accuracy before initiating an action. Knowledge is power. Data is equal to knowledge. Good data provides indisputable evidence, while anecdotal evidence, assumptions, or abstract observation might lead to wastage of resources due to taking action based on an incorrect conclusion. Hence latest knowledge, including latest information and analysis is a requirement in all walks of life. Indian agriculture is not only the most organized sectors but is cannoned by multiple variables and challenges that require support in informed prediction and decision making. Data allows organizations to effectively determine the cause of problems and also helps organizations to visualize relationships between what is happening in different locations, departments, systems, etc. Measurement data can help stakeholders in agriculture better manage their operations – the more information they have, the more they can make decisions that are tailored to their enterprise's specific needs. The information obtained can help

stakeholders identify efficiencies that lead to higher productivity, profitability, and lower input costs besides minimizing volatility, risk and increasing the transparency in transaction in agricultural operations. In essence, improving quality is first and foremost among the reasons why organizations should be using data. By allowing researcher and policy makers to measure and take action, an effective data system can enable an organization to improve the quality of people's lives.

There are several actors and factors working directly and indirectly in a phenomenon. When people face difficulties/challenges to carry out their economic activities, strategies are put into place to overcome a challenge. To measure the effectiveness of a given strategy, data collection modus operandi would determine how well a proposed solution is performing, and whether or not the approach needs to be tweaked or changed over the long-term. Empirical based evidences in policy advocacy demonstrate why changes are needed. Looking at these data points side-by-side allows researchers and planners to develop more accurate theories, and put into action for effective solutions. To comprehend the economy with all the complex interactions between

economic agents, each country should prepare proper (macro) economic analysis. Mistakes and errors lead to production of imprecise policies.

Liberal economics aims at a level-playing field to the supply as well as demand side factors for sustenance of robust markets. The Government of India enacted two legislations — Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 metaphorically known as contract farming act; and Farmers Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 seeks to apparently provide ‘competitive alternative trading channels’ parallel to APMC, unregulated markets; and to promote ‘barrier free interstate and intrastate trade’. But this Act impinges on the exclusive legislative power of the state legislatures. It does not appear to address the issues of the farmers in the existing APMC Mandis (local exchange markets). The information on sale-purchase of produce from unregulated markets and free movement of produce from farmer field to outside state and country boundaries need to be gathered to understand performance of policy measures in agriculture sector.

The Essential Commodities Act, 1955 was enacted to regulate

the distribution and sale of essential commodities such as food items. The objective was to ensure procurement and sale at an appropriate price and ensure equitable distribution of food which was often subject of hoarding and black marketing. The items such as pulses, cereals, rice, onions were under its ambit. The Government of India has passed The Essential Commodities (Amendment) Act, 2020 and this Act marks a huge departure keeping listed food items out of its purview. Thus the government may now not be bound to purchase the same and sell it through the public distribution system at fair prices to the poor. To encourage value chain development in agriculture, the processor (volume up to full processing capacity of plant in a year) and exporter (quantity demand already in hand in a year) have been exempted from food stocking limit even in case of exigencies and abnormal economic circumstances. This paradigm shift in legislative environment for conduct of agribusiness has impactful ramifications for existing data collection mechanism.

More than 86% farmers in India own or cultivate on less than two acres of land and have little surplus to sell. They are the victims of middlemen (arthiya) at the Mandis and are forced, by circumstances, to sell their produce at very low prices. The perishable nature of their produce also puts pressure on them to sell it off quickly, and which has skewed their bargaining position. Their produce is 'risk-intense' and often a victim of untimely rains, droughts, hail storms, infestation, etc. This often leads to partial or total loss of the farmer's crop and income. Contract farming has the potential to increase income and to reduce risks for farmers. The GoI has enacted- Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020. This Act gives freedom to farmer to negotiate a contract price with the sponsor. The farmer is left to his own devices to negotiate aspects such as farm produce, produce price, quality, quantity, effects of pestilence, *force majeure*, food safety standards, and labour to be employed. The moot

point is whether an average marginal farmer is well-equipped to perform all these tasks. This legislature enables for creation of unregulated private points of sale at village or cluster of villages level throughout the length and breadth of the country. This Act provides no assurance of minimum support price guaranteed based on his input costs. The purchaser may refuse to buy his crop based on his arbitrary inspection. There is no provision for independent and fair inspection. There are chances that the legislations will not correct skewed market conditions. The farmer will be out maneuvered and have no choice but to accept a one-sided contract. On the other hand, corporate players — with their bargaining position, understanding of contracts, financial strength, legal support systems may show monopsony rent seeking conduct and may not offer the poor ill-educated farmer a fair sustainable price. The Union government would have to consider balancing the needs of producers and purchasers. On legal front, adjudications envisaged before sub-divisional magistrate may not provide the correct judicial outcome due to lack of legal training. The farmers may not be able to challenge unconscionable nature of contract. But the market economic theory states the more competition in market will lead to better price realization of produce by farmers. The caveat is whether the creation of unregulated private points of sale at village will ensure that the produce continues to be sold at par with MSP with government support. To get answer of such issues, there is need to put in place a mechanism to collect information on crops viz. price, arrival, quality, grade, number of buyers, sellers crop insurance, loan, direct benefit transfer etc, on regular basis.

SUMMARY

The effect of the three legislations may run ambiguously to the logic of open, robust and balanced markets, and perhaps may not fully address the established historical issues plaguing the agri-market. These legislations may or may not have desirable ramifications for food security. Since

the new regime envisaged a drastic change from the past, the Union government may also think to provide for a regulator to ensure fair play, correct inspection of crops for sale, widen crop insurance, prevent hoarding, collect data on production, farmers' incomes etc. The myriad of complex issues in agriculture will surface with rolling out of these legislations. The policy makers, researchers and planners need new knowledge and information on innumerable researchable questions to bring consistency between policy and practice in the realm of beneficiaries. For instance, the knowledge on effect of the new regime on corporate sponsors and on the ultimate consumer, on quality regulation, dispute resolution by which SDM court jurisdiction, like when farmer of Haryana sells his produce in Amritsar in Punjab and dispute arises in Punjab, what sorts of wherewithal are with farmer to seek justice. To devise mechanisms to work within reasonable margin band for the benefit of farmers, corporate interests and the final consumers is possible only when robust data collection mechanism is in place. These complex issues may unfold and the Union government may have to address in the future as and when the enactments are actually implemented. The success of developing new knowledge for bridging gap between policy and practice and risk assessment at different phases of smooth transitioning of legislations relies heavily on the success of the data collection mechanisms. Structuring data collection mechanism using Industry 4.0 technologies and making sure that everything ties together to support an empirical based evidence for research findings would give confidence to policy makers, planners and executive management or regulators and other functionaries for rolling out the legislation after apt timely tweaking in course of action for smooth functioning in agriculture in general and agri-markets in particular.

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