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Overcoming Challenges in Primary Sector in India: The Three Is Framework

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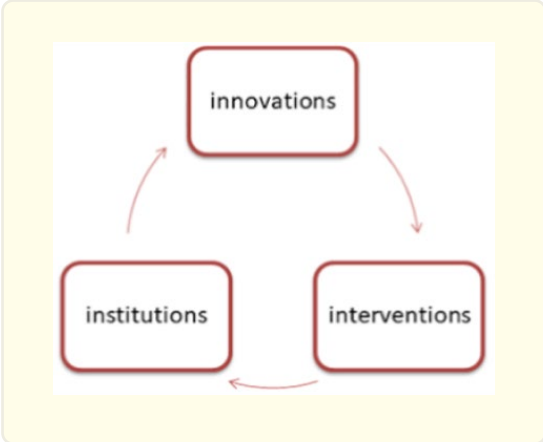
In keeping with a rapidly urbanizing world, there is a need to transform agriculture and allied sectors such as fisheries and livestock production to ensure that livelihoods and resources are protected. In addition to urbanization, challenges such as climate changes, point towards an urgent need to understand how agrifood systems will change. Debruin and Holleman state three major components of agrifood systems to consider:

i. food production;
ii. integration forward (e.g., logistics, processing and wholesale) and backward. (e.g., markets, retail and trade) food supply chains; and.
iii. Consumer behaviour and diets. (Debruin and Holleman:forthcoming).

If we were to analyse (i) and (ii), we find that the common factor connecting two of the components is efficiency. First, when we consider food production, it has been noted that rapid urbanization leads to declining contribution of primary sector to the total GDP of an economy. However, in terms of absolute production, countries attain self-sufficiency in food production and India has experienced a similar pattern. Self-sufficiency in food production has been associated with higher productivity of labour in the sector, especially with mechanisation. Therefore with the advent of technological progress and continued government hand hold, primary sector including fisheries continue to produce at their highest potential but require less labour than before. This leads to initially, moving out of primary sectors, attrition followed by labour mobility within the primary sector but eventually with better education, there is also a shift towards secondary and tertiary sector such as industries and services. Second, when we consider, food supply chains across the integration, both forward and backward- we can see that there is a movement towards move efficient systems of supply including online channels involving supply as well as value chain components. In the fisheries sector, for example, information and communication technology is being used in the fishing sector for accurate information on capture or culture farming to processing and commercialization. There are specialized applications like Sonar for tracking fish. Other uses include Global Positioning Systems (GPS) for navigation and location tracking, business mobile phones, data exchange and emergencies, wireless programming with the fishing community, web-based information and networking resources. Further, as mobile phone services became more widespread, fishermen were able to land on catches that wholesalers were ready to buy at the right time, place and in some right form. The Fish Market Price and Information System initiated by ICAR- Central Marine Fisheries Research Institute and implemented by National Fisheries Development Board, for example, is yet another example. FMPIS involves analysing fish price information at fish markets from major cities and towns through a mobile based software application (both Android and iOS) by collecting the prices of commercially important inland and marine fish species. These information's, real time are meant to support the stakeholders viz., producers traders, exporters and consumers in taking rational decision on what, when, how and where to buy and sell with maximum efficiency along the value chain.

For agriculture, the Indian Government has introduced the Jio Agri (Jio Krishi) platform in 2020 in order to help overcome the challenges of urbanisation. Such initiatives are instrumental when we have set ambitious target such as Doubling Farmers' incomes. However, we believe that in Involves developing any sector, we need to consider three critical Is: namely, Institutions, Interventions and Innovations.



Innovations

Innovation is said to be the key to imagining everything that the future can be. Innovation implies the development and application of ideas and technologies that improve goods and services or make their production more efficient. It is a matter of great pride that the innovative character has been exhibited in agriculture across all players in the value chain. We need to envisage the identification/ documentation of existing/potential technologies in the agriculture and allied sectors such as horticulture, mariculture, cage culture, pen culture, ornamental fish culture, etc. along with the economic appraisal and analysis to render solutions and blueprints that are economically viable, environment friendly as well socially and culturally compatible. Examining from a social science perspective, there exists a difference between the theoretically possible maximum and the realized production, or the yield gap. Interventions play a crucial role in reducing the yield gap as much as possible.

Interventions

Interventions are envisaged as the set of activities/ instruments intended to bridge the gap between the technology generator and the end user. These interventions could be related to the management of resources, optimizing resource use and value chain, reducing cost or enhancing profit, generation of employment, enhancing allocative and technological efficiency, and promotion of trade. These could be innovative marketing channels including online sale of farm products, the diversification of products, (value added products) as well as markets (engaging in international trade i.e., export). Interventions could occur through technological breakthrough by the farmer and fishers and/or scientists at the research institutes or synergy of both actors. Through demonstration of successful case studies, one can explore the synergistic linkages within the respective sector whereby the transmission of benefits/losses occurs across and within the sector and between the various actors. It is crucial to explore the channels through which the interactions take place to understand not just from the point of production but also distribution. Such an understanding would help guide future innovations. For the successful transmission of innovation as well as for innovation itself to take place there is a crucial role for institutions.

Institutions

Institutions are organizations or establishments devoted to the promotion of a particular cause, especially of a public character. In a broader perspective, institutions can also be a set of rules or regulations that helps provide a governance structure to a particular sector or even region. Thus, there is a crucial role for the governing bodies in understanding institutions. The Indian fisheries sector has multiple players who are involved in the production and value/supply chain. Institutions play a major role in bringing them to a common platform by coordinating the multitude of aspects such as production, landings, marketing, trade, consumption, and policy formulation. There is a need to focus on strengthening institutions that continue to serve as chief source of finance and security such

as banks and insurance providers as well as lend institutional support such as NABARD that enable innovations and intervene to enable a well-functioning market. Institutions can also be sites of research and development such as the ICAR institutes that undertake innovative activities through community involvement. Institutions therefore have substantial role in the functioning of the Indian agricultural sector. The attempt needs to be to evaluate the strengths, weaknesses, opportunities, and threats of these crucial institutions for enhancing income of the community.

It only through endeavours that will highlight all three innovations, interventions and institutions that we can envisage a transformation of agrifood systems that continues to support livelihood with resilience to withstands shocks such as pandemic and climate change.

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