Technology Application in different Farm Environments

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In India, transformation of agriculture could be realized with much needed interventions of National Agricultural Research System (NARS) in the form of various revolutions in agriculture and allied sectors. The benefits of transformational technologies were derived as they were efficiently utilized by the individual farmers in their local situations.

The commonly alleged observations quite often we hear that revolutions are confined to chosen areas, involving certain farmers, crops, livestock and commodities. The main reason for this is not the scarcity of agricultural knowledge, research findings and technologies, but lacking in translating them in to production accomplishments especially in location specific micro farming situations for the betterment of farming community. Therefore, it largely depend on understanding the various aspects in totality how the technologies are generated, assessed, refined, demonstrated and disseminated to integrate farming system as a whole.

Robert Chambers evolved the concept of Farmer First in 1987 which had insights of three broad categories of types of agriculture (Industrial, Green Revolution and the CDR or Complex, Diverse and Risk-prone); the pipeline approaches and methods of transfer of technology (TOT) for the uniform and controlled conditions of industrial and green revolution agriculture did not fit CDR conditions; farmers’ practices seen as adaptive performance; the proposition that adoption by farmers is validation of a technology; the comparative advantages of farmers over scientists in innovating for complex systems; and many others. Farmer First was established as paradigmatically different from TOT, and vital for CDR agriculture. It became a movement.

Five years later, in 1992, Ian Scoones and John Thompson came with Beyond Farmer First concept. This stressed perspectives that broadened and complemented Farmer First: the pluralism of different knowledges; the recognition of knowledge as not a stock but a process; seeing farmers, extensionists, scientists and others as social actors; recognizing political dimensions and the significance of power relations; and elements of a new professionalism in agricultural science.

A workshop on Farmer First Revisited was held in 2007 which differed from the original Farmer First. In Farmer First, it was mutual recognition of marginalized innovators, the solidarity of heretics, the sense of being a vanguard, of having a common commitment that could be transformative. In Farmer First Revisited it was seeing how far we had come, how many more domains than just farmer participation were relevant, and how rich the range of innovations had been. In Farmer First the focus was on the complexity and diversity of farming systems and the creativity of farmers. In Farmer First Revisited it was the complexity and diversity of domains of action and intervention and of relationships, and the co-creativity of many different actors.

In Farmer First concern was to move beyond the reductionism of production and productivity and to privilege the complex, diverse and risk-prone realities of the majority of farmers, focusing on participation on-farm with and by farmers. Now the universe itself is complex and diverse. Many aspects are multiple or multi; multiple stakeholders, multiple perspectives, multiple realities, multi-functional agriculture, multi-method approaches. There are concepts and domains that are new or new in emphasis like food systems, trade, market chains, value chains, innovation pathways and most of all innovation systems.

Now we have far many agencies other than public organizations and various kinds of public-private-farmers partnerships. Earlier farming was an adapting performance. Participatory approaches and processes were central. Now relationships and interactions are
seen more clearly to have dimensions that are related to power, trust, transparency, virtual, grass root, peer, and advisory network. Partnerships like public-private, multi-stakeholder partnership etc, and collaborations like co-management, co-breeding, co-creation, co-evolution, co-development, etc. have emerged in present day context.

Different sets of support systems are emerging in many states like micro irrigation system in Gujarat, poly house technology in Uttarakhand, three tier model of Amul in Gujarat, mother dairy and fruit and vegetables marketing model by NDDB, production and export of high value fruit crops in Maharashtra have been taken up with full support from state governments and private agencies.

Since the 1990s, Farmer Field Schools (FFSs) have been utilized as a vehicle of technology application in different projects of diverse sectors. A private initiative of Mahindra Shubh Labh Services Ltd. in 2001 aimed to establish franchises of Mahindra Krishi Vihar (MKV) to provide access to inputs and machinery, credit, and advisory and field supervision services.

The micro irrigation system has been taken up as a movement in Gujarat as a tool for wise usage of resources resulting in higher agricultural productivity, thus improving the livelihood and empowering farmers to participate meaningfully in the growth of the Agriculture Sector in the State.

Uttarakhand faced with factors like undulating topography, fragile environment, fragmented and small holdings, little or no irrigation facilities, poor marketing structure has launched an ambitious project to set up cluster-based 20,000 modern polyhouses to boost production of vegetables and flowers.

The polyhouses are proposed to be constructed with an area size ranging from 100 sq meter to 200 sq meter. Through this project, the government is aiming to increase four to ten times higher productivity of cash crops. The project will also provide support for capacity building of local youth and employment of local artisans in the construction of polyhouse designs.

The Amul Model structure consists of a Dairy Cooperative Society at the village level affiliated to a Milk Union at the district level which in turn is further federated into a Milk Federation at the state level. The above three-tier structure was set up in order to delegate the various functions, milk collection is done at the Village Dairy Society, Milk Procurement & Processing at the District Milk Union and Milk & Milk Products Marketing at the State Milk Federation. This helps in eliminating not only internal competition but also ensuring that economies of scale is achieved.

Madhya Pradesh became the first state in the country and perhaps the only state in India to have a private extension policy. The policy states that the private extension would aim for cost reduction, improving the efficiency of extension system and inculcating accountability in extension services.

Considering changed socio-economic perspective, climate variation, agro-climatic situations, and other institutional factors, the technology needs to be generated accordingly. Different technology application models again need to be developed to suit the micro environments. A large network of research, social, and developmental organizations are being working at field level, need close convergence for desired outcome.