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State of agricultural extension reforms in India and the need of convergence

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State of agricultural extension reforms in India and the need of convergence
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Extension reforms play a significant role in catalyzing the extant policy and provisions that are affecting the extension service across the country. Although the country has been bestowed with a series of reforms in the past seven decades, the changing contours of agriculture over the years demand new set of interventions and reform measures. Regimes in the past decades have brought series of measures to strengthen the extension system. In lieu, this study took the cognizance of reforms and it was found that the most of the reforms are concentrated on a single theme and even the multiple reforms are overlapping with similar mandates. This resulted in poor performance and poor accessibility to the needy households¹. Moreover during pandemic the existing system reforms showed a fair amount of refinement. Therefore the study highlights the importance of convergence across the common themes of various interventions brought in to enhance the extension services for all the time.

Key words: Agricultural extension, convergence, private extension, national extension service

1. Introduction

Farming in India has now become a vulnerable occupation than a viable option with manifold increase in extreme events and uncertainty in recent times. Given the 43 per cent of farmers and 1.3 billion people depend on it and it is extremely important to secure food on the backdrop at the time of extreme events¹. Near stagnant low growth rates and the global headwinds circumventing agriculture sectors are priorities and sustainable developmental goals 2030. In addition, Share of Expenditure on Agriculture Research & Education in Agricultural GVA stands mere 0.37 per cent far less than other developing economies². In addition the narrowing private investment and sluggish growth of overall economy is further expected to jeopardize emerging markets from global perspective. However the recent farm reforms brought in to strengthen the farm sector as whole are modest and convincing to stakeholders but their impact on small and marginal farmers who stays far away from the policy touch points and institution, is still arguable. The most viable option reach out to these people is through public & private extension and advisory system. In addition there also need for well function of National Agricultural Research System (NARS) to bring relevant technologies and knowledge in order to exercise the reforms in the agricultural extension system³⁴. This would help in reducing yield gap between research stations and farmers’ field to significant extent.

2. Present status and future prospect

Agriculture extension services in India have been publicly funded and delivered through the Department of Agriculture, Cooperation and Farmers welfare (DAC), an apex institution of extension service with supporting nodes (state departments) at states and union territories. With limited resource and manpower in private sectors DAC continues to dominate the extension system in India. However there is a considerable effort from various agencies and private firms continuously striving to provide extension service to the farming community. This concerted effort from both private and public makes this system one of the largest

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knowledge and information dissemination institutions in the world. Agriculture extension system has seen a significant structural change in the last five decades across the states and sectors. This powered the Indian public agricultural extension to undergo number of changes. The role played by the existing agricultural extension system from the times of green revolution is immense in terms of connecting farm and farmers to key institutions such as KVK, SAUs and state department of agriculture. Further progress in poverty and hunger reduction crucially depends on the increased productivity and profitability of these farmers, which in turn depends on the successful delivery of agricultural extension. These institutions are playing pivotal role in technology dissemination, where need-based training & exposure visits to farmers and farmer-led extension have played a very effective tool for technology dissemination. The country is already reeling under confluence of pressures originating from limited land and water availability due to degradation of natural resources; climate changes; changes in demand & consumption patterns, moving toward high-value agriculture; increasing population pressure; liberalization of trade and global trade war. When the ambitious scheme of doubling farmers’ income by 2022 is in operation, strengthening the existing extension system is imperative. The DFI Committee in its 11th report considers Extension Service System (ESS) as the first mile activity in creating farmer capacities, that can sustain income based agricultural practices. Given this set of importance a complete overhaul of the existing system is warranted.

The country in its saga of 75 years independence has considerably strengthened the extension system with more than 100 research institution, 74 plus SAUs, CAUs, and widening the reach of state ministers, departments and institutions along with significant development in private extension services provided by companies and corporate. In addition 722 KVKs are in tandem engaged in all the district of the country for validating and acclimatizing the technologies for local conditions to make technology inclusive farming. In addition there is 100s of NGOs. Further in 2002 government has launched Agri-Clinics and Agri-Business centres Scheme to supplement and strengthen the existing extension mechanism through private participation by extension services at free or nominal cost by educated and trained candidates in a self-employment mode. In addition government has also brought ATMA (Agricultural Technology Management Agency) in 1998 under the Innovation in Technology Dissemination (ITD) component of the National Agricultural Technology Project (NATP). It was initiated in association with World Bank and first piloted in 28 districts and later expanded through the country. ATMA is fully integrated and planned agency to bring together different agencies involved in extension activities under one platform to decentralize decision-making through ‘bottom up approach’ (Figure 1). Moreover it was an attempt to link research, extension, farmers, NGOs and the private sector.

Figure 1. Integrated approach of ATMA

Although it claimed to be an innovative model of extension, the agency was still plagued with issues such as lack of dedicated manpower, functional autonomy and attitudinal barriers at all levels has vehemently limited from achieving its goals. Even then ATMA raised a platform for interaction
between line departments and farmers whilst introducing the bottom up planning and commodity interest groups into field extension practice. Whatever the problems and achievements so far, the future prospect lies with integrating the efforts of existing organization with the aim of achieving pluralistic extension service. Further there is also a continuous quest for technological innovation and solution in farm practice and reach, by over more than 50000 scientific communities. Moreover there is a continuous tweak in policies and programmes to mainstream the extensions services starting from community extension based extension to ICT enabled one. However still there are persistent issues pertaining to the coverage of, access to, and quality of information provided to marginalized and poor farmers. On deeper analysis it was found that the organizational performance issues are still hindering the effectiveness and efficiency of public agricultural extension system viz., staff numbers, low partnerships, and continued top-down linear focus to extension. The review made by concludes that there is an increasing need to work in partnership and to share knowledge and skills in order to meet the information needs of marginal and smallholder farmers in India. Thus convergence of efforts and schemes aiding extension activities is necessary at this juncture. There by enable existing system to solve longstanding farm distress in more realistic, holistic and inclusive manner. Given that the sizable population is engaged in agriculture it is essential to know the future trend of development to secure food supply and livelihood. The biggest threat to agriculture production in this century is climate change and factoring in climate change to assess the future trend is necessary. The country is expected to cross China in population by 2027 and demography is expected to peak by 2040. While improvement in production and productivity system would be the only the way forward to achieve goals food security, hunger free society, nutrition outcomes and sustainable and secure food system for ageing India. Hence revisiting the extension reforms in agriculture is a dire necessity for pragmatic and sustainable farming and food system.

3. Evolution of extension advisory system

The first wave extension service provision was initiated through the Community Development (CD) and the National Extension Service (NES) programmes, which showed clear government intent to provide a number of services in areas such as agriculture, health, animal husbandry and education to all sections of the society. Over the years evolution of agriculture has resulted in demand for new technology to secure stable food production, mitigate the climate change effects and also build climate resilient farms and farmers. Indeed strong agricultural extension is the way to reach the farm innovations and technology to millions of farmers. In an effect the country’s extension service has seen huge transformation/evolution from agent based system to ICT enabled to mobile relied service for effective dissemination of information to farming community. Now there are limited barriers on information related to agriculture and anybody can access anytime, anywhere and any number of times and farmers’ access to sources of reliable and relevant information has become increasingly important. This was mainly attributed to strong NARS, comprising apex Indian Council of Agricultural Research (ICAR) and State Agricultural Universities (SAUs). Since its inception ICARs has brought perfect blend of Education, Research and Extension to reach technology innovations to millions of farm communities. The role played by agriculture research and extension system in adoption of high yielding verities in last seven decades has resulted India becoming food secure, surplus country with commendable transition from ship to mouth in early 60s and impressive growth after the green revolution in 70s and 80s and food surplus since early 2000 and now.
The success of extension depends mainly on extent information dissemination and its effect on improving agriculture value chain. While 86.08% land holdings were held by small and marginal farmers (cultivating an area of 2 hectares or less), where they have less resources at their disposal to communicate and ascertain information through ICT and hence there is an increasing need for stronger intermediaries that can facilitate information access for diverse smallholder farmers. Existing information dissemination at various intermediaries involved is presented in figure 2.

![Image: Information flow from agricultural extension](image)

**Figure 2. Information flow from agricultural extension**

4. Case of Private extension

Given the diversity of agriculture regions and how the farming population is dispersed it was pertinent to provide extension service to all the farmers. It was earlier found that the extension worker: farmer ratio is very wide in India i.e. 1: 1000, now it has widened further. Therefore the involvement of private players in agriculture extension became imperative to improve accessibility and its relevance in the agricultural development. It would further strengthen the extension service delivery system in the country by reaching all the corners and the farmers, affecting efficiency in decision making, resource conservation, allocation and planning and timely farm operation and marketing. The key stake holder in private extension and approaches to extension is represented in Figure 3.

**Figure 3. Key private stakeholders’ and approaches in agricultural extension**

It was observed that both public and private extension systems are innovating approaches for the transfer of technology and information to farmers so as to empower them to face the challenges of market liberalization and globalization. In addition the favorable factors for successful private extension service viz., advancement in ICT, broad public research system, changing cropping pattern, contract farming, inability of public system to reach large clients and others. However there are challenges for operation of private extension in India originating from service affordability to small and marginal farmers, large tracts under subsistence farming, contradiction in messages and overexploitation of resources among others. For addressing these challenges it is essential to analyze
SWOT for omission of errors in implementation and a better leverage to the private system to operate extension service (Figure 4). Nonetheless in order to flourish and strengthen the approaches/efforts of private extension it is important to devise a public sector extension policy in such way private bodies will be willing to provide extension services is partially determined by government actions\textsuperscript{21}.

![SWOT Analysis](image)

**Figure 4. SWOT analysis of private extension system\textsuperscript{18}**

### 5. Convergent efforts

There are continuous efforts in strengthening extension system in India to reduce the gap between labs to land. The existing system is dominated by public system with key institutions throughout the country; it is more or less work on traditional system\textsuperscript{25}. Traditional agricultural extension systems designed to disseminate information and services to the farming community are not able to deliver as per expectations. Often Public extension services are criticized for being inefficient and out of touch with needs of their clients\textsuperscript{21}. And also trends in data advocate that public sector’s role may not be as significant in the future (ISNAR). Hence the time is apt to put an effort to get in platform by converging the underlying efforts of key stakeholders in extension service. Moreover, gone are the days when the private sector was treated with suspicion and now there is much optimism about private sector’s capacity to deliver new and attractive technologies, even though existing levels of private investment in research in developing countries stands at low level\textsuperscript{26}. India favorable demography and Young and educated farmers are more associated with private extension system\textsuperscript{27}. As the country’s level of education and youth population expected to be increasing, it is pertinent involve then and mainstream private extension system.

The first leg of convergence started by establishing of (Agriculture Technology Management Agency) ATMA where scope was given to create a platform for convergence of human and financial resources available in the government, civil society, farm community and private sector in 1998\textsuperscript{28}. In fact the initiation of Agri-Clinics and Agri-Business centres Scheme was a convergent effort for training the graduates on self-employment mode with the active participation of Department of Agriculture,
Cooperation & Farmers Welfare (DAC&FW), National Institute of Agricultural Extension Management (MANAGE), Hyderabad and Nodal Training Institutes (NTIs) and National Bank for Agricultural and Rural Development (NABARD), Mumbai. Also the National Agricultural Technology Project (NATP) has envisaged the role of both public and private systems under the innovations in technology dissemination component with involvement of ATIC (Agriculture Technology Information Centre) of universities for transfer of technology, consultancy cell in each ATIC for providing technology information to farmers, entrepreneurs, researchers and other needy people. While also initiating the collaborative research work with private agencies for generating information on certain basic aspect.

6. Pandemic and existing extension system

During the pandemic, the Extension Advisory System (EAS) was actively involved in guiding the farmers to dispose their produce as nationwide lockdown was in force. However, there is a considerable fact to reorient the priorities and this is not the first time this was sought earlier during SARS/HIV in 2004 similar suggestions were made to rehabilitate EAS. Further the improvement in existing extension system is evident from the fact that the new farm laws are not been effectively communicated to the farming community, resulting in protest in parts of country. Lack of end to end communication strategy allowed misinformation and vested interest to spread the rumors causing farm protest across the nation mainly in Punjab and Haryana. There is also a lack of single ended handy channel to communicate with farmers by central agencies, authorities and institution breeding farm laws. In order to overcome this lacuna Central government is forming Conciliation Board, to be set up by the SDM to resolve dispute, besides supervision, monitoring and proper implementation. For effective implementation of the farm laws or any other intervention affecting the farming community, the following three point reformatory measures are essential, besides convergence of systemic reforms on track.

First strong communication channel for education various stakeholders víz., farmers, elected representatives, ground level officials and local change agents. Revisiting the model of village extension system (VES) is equally crucial to encourage truthfulness of information in the communication channel.

Second prioritizing the actual farm extension in the village level where the main motto of extension activity is cornered over the years and burdened with distribution of farm subsidized inputs and restricted their activity to welfare measures instead of Agril extension.

Third keeping in view the large penetration of smartphones and broadband connectivity in the rural areas government can plan effective roadmap for deployment of ICT based extension system by employing progressive farmer as a Kisan Mitras and deploy Agri graduates and diploma holders on adoc basis for strengthening the knowledge base of these Kisan Mitras. Moreover, raising the budget of public extension system is crucial to operate various intervention effectively and timely. It is desirable to increase the agriculture budget to at least 1 per cent of Ag GDP.

7. Ways for convergence

There is no dearth of intervention in last seven decades for increasing the public extension service to the needy farmers. Government and civil society organization are engaged continuously to provide extension service in all the times at free of cost. However, there are still issues pertaining to the policy such as supply of credit, land holding, prices, input and marketing; quality control, control by rule functions and establishing mechanisms to benefit the resource
poor farmers, in order to solve these issues there is need for convergence of efforts of different interventions, institutions and organization for resource-poor farmers and farms. The first level of convergence has to happen by making private extension service viable business opportunity for private entrepreneurs and investors. There is also a need for a standard mechanism for them to engage with large organization and wide set of partners to supplement and complement each other’s efforts. Second, is to enhance the engagement of FBOs and others institution which are engaged in frontline extension activities to large public institution to reduce the information and technology adoption lag. Third as suggested by public institutions must emphasize on facilitating the formation of links between the farmer and other organization as well as encouraging the private players in extension activities. Fourth fortunately country is bestowed with pluralistic extension organization viz., public, private, cooperatives, NGOs, etc. there is a sort of duplication of efforts by these players without any effort of cooperation and convergence. PPP mode may be explored to reduce the idleness, duplication and better utilization of scarce resources. Fifth as evidenced, repetition and better utilization of scarce resources Public organizations are strong in backward linkage, private organizations are strong in forward linkage and NGOs are strong in social engineering and mobilization. The comparative advantage of each organization may be explored for advancement of extension service to hitherto untouched regions and sections of the society. Last is by linking the frontline public extension agencies like ATMA, KVK and others to dedicated private players for successful demonstration and field days with farmers. The idea to leverage in linking of these organizations through ‘seeing is believing’ and building confidence in them through ‘learning by doing’, i.e. by working together.

The possible extension convergent model is represented in Figure 5. As evident, the three-apex organization will play key role in bringing together the agencies and institutions in extension service delivery viz., Public research institution, civil society and Government ministries. Among all the three-apex organization the highest level of responsibility lies with public research institution and civil society organizations which can play role starting from R and D to Monitoring and evaluation.

9. Conclusion

As observed from the above note, it is clear that there is no dearth of interventions to harness and stimulate the extension service in India. They are evident in changing the key contours of various delivery mechanism. However, their reach has not met with the desired/ potential level to affect the large people. Moreover, they tend to concentrate on specific theme with a mere focus on important aspects. This affinity has resulted in a poor performance and low efficiency as observed by many authors, who suggested unveiling the convergence across various interventions directed upon the similar themes/mandates/aims. On taking note of suggestions from various articles the study has put forward a multivariate convergent model that can be leveraged to better target and help the needy. Insofar this model perhaps helps in conserving resource endowment directed to various intervention and reforms at large.

Table 1. Convergent efforts and their outcome
<table>
<thead>
<tr>
<th>Convergence cases</th>
<th>Schemes/programmes/ mission/ policy/ Institution</th>
<th>Outcome</th>
<th>Place</th>
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<tbody>
<tr>
<td>Banana fibre extractor: a case of successful convergence ³⁵</td>
<td>KVK of ICAR-CTRI, State Govt, NGOs, SHG, DST, UNDP and ICAR-ZPD-III</td>
<td>Livelihood security of farmers through commercial extraction of banana fibre</td>
<td>Andhra Pradesh</td>
</tr>
<tr>
<td>Mithun identification using microchip installation ³⁵</td>
<td>KVK Papumpare, DAH, State Forest Department, NGO, FO, ICAR-NRC Mithun</td>
<td>Scientific identification of Mithun through installation of microchip, helped in ownership dispute settlement and preventing theft</td>
<td>Arunachal Pradesh</td>
</tr>
<tr>
<td>Hybrid maize seed production ³⁵</td>
<td>DMR New Delhi, ZCU Zone-III, KVKs of 8 states, NRC Mithun, AAU, Farmers Seed Producer</td>
<td>Food security through increase in maize productivity in north eastern states</td>
<td>North Eastern States</td>
</tr>
<tr>
<td>Assuring a livelihood security to tribes in East Godavari district ³⁵</td>
<td>KVK CTRI, ITDA, AP Forest Department, SAU and NGO</td>
<td>Livelihood security of farmers through sustainable tamarind production and marketing</td>
<td>Andhra Pradesh</td>
</tr>
<tr>
<td>KVK-ATMA convergence model³⁶</td>
<td>ATMA, ZPD, Zone-VII, state and ICAR KVKs, Govt of Madhya Pradesh, JNKVV</td>
<td>Helped to sustain the double digit growth of agriculture in the Madhya Pradesh</td>
<td>Madhya Pradesh</td>
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<tr>
<td>Hosangabad model³⁷</td>
<td>MANAGE, Dhanuka Group, Govt of Madhya Pradesh</td>
<td>Sustainable development through agricultural resource management and development</td>
<td>Madhya Pradesh</td>
</tr>
</tbody>
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Source: Authors own compilation
**Figure 5. Suggested multilevel convergence model**

**Source:** Authors own compilation

**References**


