

Public–private partnership for convergence of extension services in Indian agriculture[†]

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After Green revolution, Indian agriculture has seen a paradigm shift in technology development and dissemination. There is now an overflowing basket of goods and services ready to be served to the Indian farmers. But the traditional agricultural extension system designed to disseminate information and services to the farming community is not able to deliver as per expectations. This gap in demand and supply has lured private sector players to come in and explore the vast opportunities. The economic policies allow private extension agencies to capture the world's largest farming community and they have been very proactive. They supply quick, timely, efficient and appropriate services, making the traditional way of disseminating the technologies by public system seem even weaker. Though it is guided by profit motive, they serve the purpose of meeting the unmet needs of farmers in India. This situation has raised questions/doubts on the intention, policies, products they are promoting and the people they are targeting. At this juncture, the government has no option but to remain an active partner with private extension system. But it has a role to play in monitoring and controlling the quality of services and goods. Total privatization is not advisable for agriculture. So, for better utilization of scarce resources, there is a need to reduce the redundancy, repetition and to facilitate convergence and better linkage in this Public–Private Partnership. This article will focus on some essential factors that need to be considered.

Keywords: Agriculture, extension system, farming community, private sector.

AFTER green revolution, India has witnessed an explosion in agricultural productivity. The high yielding varieties of wheat and rice and the improved agronomic practices have made India capable of feeding the whole nation. Indian government has been very instrumental in playing a major role in providing essential services to the farming community through agricultural extension. The function of agricultural extension system is to disseminate technology, knowledge and advice to farmers. But certain obstacles like ever-growing population, low manpower, inadequate budget for extension activities, administrative rigidity and old policies have rendered the agricultural extension system stagnant. Though the 'Lab to Land' programme was introduced in late 70s, there is still a wide gap between technology generation and its adoption i.e. technology gap. It is clear that the extension system is not performing at desired level. Public extension services are blamed for being inefficient and out of touch with needs of their clients¹.

But, time and tide waits for none. Globalization, the changes in policies and the growth of Indian economy have opened up many opportunities and challenges for the stakeholders of Indian agriculture. Staple based subsistence system has rapidly transformed to an intensive information based commercialized entrepreneurship. But then, there are several threats too: growing inter-farm as well as inter-regional disparity, low productivity and unequal household income. These maladies have critical implications on the rural population that constitute two-thirds of the total population of the country. As a result, many farmers are leaving agriculture. And the youth migrate to cities.

Fiscal deficits in several developing countries are increasing and as is evident in several cases, they were due to poor management of public programmes. This directs our attention to the problem of making agricultural extension cost-effective and responsive to specific farmer's needs.

Agricultural extension service in India is concerned mainly with transfer of technology based on advisory services to the farmers. Education and services are two parallel pillars of the extension system and both these pillars are necessary for structural and functional stability. If one becomes weak, system will collapse.

[†]The views expressed here are those of the authors' and not necessarily of the organization they are attached with.

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It is well known that extension system must respond to the needs of society and should be responsive and productive. 'Extension needs to teach farmers the management and decision making skills, help rural people, develop leadership and organisation skills, enabling them to organise better, participate in co-operative credit societies and other support organisations².'

There is increasing demand for knowledge on agricultural practices and technologies among the farmers, but fulfilment of these demands solely by public extension system is limited. Inadequate human and financial resources, bureaucratic nature of extension workers, and huge load of administrative responsibilities on field level workers^{3,4} have rendered the public extension services as supply driven rather than demand driven. According to Davis *et al.*⁵, the extension worker to farmer ratio is very wide in India, i.e. 1 : 5000 (estimated 60 thousand extension workers) which is far wider than Ethiopia (1 : 476) and China (1 : 625) whereas agricultural population to agent ratio is 1 : 9788 in Congo⁶.

We have calculated the ratio as follows. In India, the numbers of cultivator and agricultural labourers are 11.86 Cr and 14.43 Cr respectively. If we add these numbers, it would be around 26.29 Cr or 22% of the population, i.e. 1.2 billion⁷. It is on record that about 40% of the field level extension workers posts are still vacant. Out of 143,863 positions in the Department of Agriculture, only 91,288 posts are filled in India⁸. Using the data, farmer : extension workers ratio works out to be 2879 : 1. Therefore, an alternative and supplementary approach of extension that is in the form of participation of private agencies has come into picture.

World scenario in private extension

The globalization and liberalization era has challenged us to rethink about revitalizing the extension system. Extension-experts and economist are proposing to privatize the public extension service, in collaborative mode⁹. The experience in promotion of private extension service since last two decades around the world, viz. China¹⁰, United Kingdom¹¹, The Netherlands¹², Brazil¹³ and Australia¹⁴ impressed the stakeholders and established the fact that the private sector could deliver efficiently and profitably. Many developed countries have gone ahead with this system and outcome has been seen as a mixed one¹⁵.

Innovative initiatives are very much crucial for enhancing agricultural productivity and reducing poverty. Public sector investment in research and extension has historically driven the technological change in agriculture. But the trends in data suggest that public sector's role may not be as significant in the future¹⁶. One of the reasons is that technologies already developed have not so far been disseminated to the farming community. Research and

development in agricultural sector are sometimes, far ahead of the present agricultural practices.

The private companies, however, are striving hard to work out the recipes that sometimes though do not fit the needs of farmers, but obviously fit their psychology. 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 still remain low¹⁷. That is why private extension system has restricted itself as a supplement to strengthen extension system through services and technology support in an innovative, market oriented and sustainable manner.

Private sectors investment in agriculture in India

The trend in investment in agriculture in India shows the volume of investment has increased 2.6 times in last two decades but there was a gradual increase in share of private investment than public. Presently private sector accounts over 80% share in total investment in agriculture (Figure 1). Private sector's contribution in agricultural marketing, extension and research is becoming increasingly important especially with the introduction of biotechnology, information communication technology and protection being given to intellectual property. Financial pressures have, in turn, led to the search for ways of reducing public sector costs by allowing private sectors to take parts in marketing, extension and research, value added services, and cost-sharing arrangements among public, private, NGOs and farmers' organizations. But still the importance of public sector investment in rural physical and social infrastructure development, poverty alleviation, subsidy and research has not been reduced.

Private extension system and approaches

Private extension, providing effective services to the farmers is becoming prevalent in developing countries

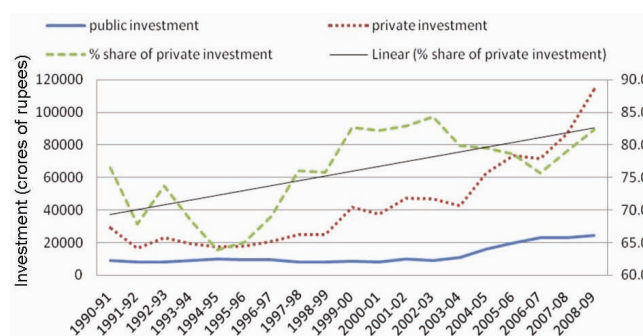


Figure 1. Investment in Agriculture in India¹³.

like India. It comprises of any person or organization in the private sector, which delivers advisory services in agriculture and is seen as an alternative to public extension¹⁸. A number of approaches in private extension are followed in India, viz. share cropping system, contract farming system, consultancy farms, input-cum-advisory extension, voucher system agribusiness cum extension, farm clinic based extension, NGO based extension, etc.

Some private firms typically focus on the type and levels of use of inputs, disease prevention/control as well as harvest and post-harvest techniques/technologies. They aim to increase farmer outputs, reduce post-harvest losses, and improve the quality, consistency and timeliness of the crop. There are several such examples from various developing countries, especially in the area of broilers, fruits, vegetables, cotton and tobacco cultivation¹⁹.

With the decreasing farm size, concentration and specialization of production, location-specific and timely information now have become much more valuable for farmers of India. Information is now an integral part of each farmer's organized planning to reap highest productivity with competitive advantage. As the value and volume of information increases, there are greater incentives for the private sector to cover more value by improving the quality of information and its applications, including location-specific, time and formats, and helping farmers apply this information to their operations²⁰.

Some specialized services like marketing intelligence, price forecasting, soil testing, customized fertilizer, foliar nutrition services, mobile based extension, etc. are also common now-a-days. Guided by private extension, farmers became more export oriented and focused. Accountability of extension service has increased with committed and quality services. More employment opportunity has opened up.

Private extension service can be successful even in resource poor areas provided appropriate technologies along with integrated extension service including marketing facilities are available²¹. But the private agencies, when they have their own marketable agricultural inputs are desperate enough to convince the farmers so that they use only those products. The situation fools the farmers and compels them to be irrational in the choice of products such as fertilizers and chemicals as well as their use in non-judicious manner, so much so that it raises health hazards and environmental issues.

At present, there are many private companies working as extension agencies in India like 'Hariyali Kisan Bazaars' of DCM Shriram Consolidated Ltd, 'Aadhars' of Pantaloon-Godrej JV Company, 'Choupal Sagar' of Indian Tobacco Company, 'Kisan Sansars' of Tata Group, Reliance Fresh of Reliance Company, and others such as the 'Naya Yug Bazaar, Gurdian Aushadhi, Kisan Seva Kendra of Indian Oil Corporation, Mahindra and Mahindra, Rallis and many other. The government has to play a role in ensuring that these organizations are effective

and efficient in providing advisory and technology delivery service to the farmers.

Effectiveness of private extension organization

The effectiveness of an organization can be defined as how well it performs its activities to attain the pre-determined objectives. In order to reach a huge population of farmers of India, the role of extension in transferring technologies has to be fast, effective and efficient. In the present context where several organizations are working in India, it is necessary to emphasize on effectiveness of extension agencies working at ground level in fulfilling the objectives.

Effectiveness of any organization is determined through organizational effectiveness and functional effectiveness. Organizational effectiveness is a pre-requirement for functional effectiveness. If an organization is effective in management, having friendly organizational environment, good business policies and a clearly formulated vision, then it has positive implications in functional effectiveness. Functional effectiveness depends upon how well it is performing in farmers' field in terms of input delivery; service and its quality level, timeliness and price. The effectiveness in input delivery system, types of effective service provided by the organization, extent of adoption of technology by farmers, increased yield of the farmers who had adopted the technologies disseminated by the organization, increase in profit of those farmers and farmers perception about the organization's performances which reflects their satisfaction, etc. are the indicators of effectiveness of an private as well as public extension organization. The input delivery system can only be effective when there is ensured availability of inputs, better accessibility of inputs to farmers, quality and timeliness of inputs with reasonable price of inputs. There have been case studies of private extension initiatives working in India, that provide inputs, services with quality and timeliness to the farmers. The constant advisory support in addition leads to easier adoption of technologies which in turn, lead to increase in yield and income and ultimately satisfaction of the farmers²².

Factors associated in association of farmers in private extension

As farmers are the main stakeholders of system and ultimate end-users of agricultural technology, it is necessary to understand their needs, aspirations and outlook. Today's main issue in agriculture apart from scarcity of water is the loss of youth from agricultural activities. This issue can be resolved through in-depth study of different socio-psychological and socio-personal characteristics. Young and educated farmers rather than old and traditional are more associating with private extension

system²³. What are the factors behind association of younger farmers with private extension system?

The socio-personal and socio-psychological factors behind the association with private extension are level of education, occupation, family size, social participation, extension agency contact, economic motivation, innovation proneness and marketing orientation. Among these, six variables are more important: marketing orientation, education, economic motivation, social participation, family size and extension agency contact²⁴. This means profit oriented, market oriented progressive farmers are joining private extension more. But only a few farmers in India are really progressive. What will be the fate of other farmers in India? Private extension alone is not a panacea for present agrarian problems. It has several constraints and limitations.

Constraints and issues in private extension

To reach higher level of effectiveness and to accelerate the growth, hindrance in the form of constraints that have emerged must be minimized and issues have to be resolved and worked out. There are organizational and functional constraints predominant in any organization including huge work load of ground level workers, job security issue, lack of proper planning, high business orientation, price of products above affordability of farmers²⁵, lack of whole family approach, etc. It has some disadvantages such as focus on high value crops and progressive farmers with large areas, self interest of profits with less attention on improving the farmer's condition. Though relatively good for higher value crops/commercial crops, it restricts the flow of information and increases social disparity²⁶. Many extension professionals in academic and research institutes have therefore doubted the intentions of some of private extension systems.

Commodity based agribusiness and input dealers strive to push their products without any regard of farmer's needs. Sometimes contradictory messages given by many agencies may actually put farmers in a confusing state. The natural resources, which are being poorly administered by the farmers due to inadequate information till now, may continue to be so because of too many options. Private extension system has supremacy over public extension systems in technology provision, through supply of seeds of vegetables and planting material, fertilizers and other chemicals to farmers²⁷. But they are not bothered about environmental issues when selling their products. If we critically probe on the relative advantages and specializations, perhaps we may find a way for better resource conservation.

Possible way through convergence

At this juncture, government has to remain as an active partner with private extension system in order to monitor

and control its quality. Its performance can be substantiated and the private sector can play an increasingly important role in rural knowledge systems, but total privatization is not feasible and advisable, even for commercial agriculture²⁸⁻³⁰. The public extension should concentrate more on policy issues, quality control issue, control by rule functions and establishing mechanisms to benefit resource-poor farmers. The policy issues related to supply of credit, land holding, prices, input and marketing, are crucial³¹.

The efficiency of an extension service for farmers depends on the effectiveness of planning at four levels, viz. policy, programme, projects and strategy. Policy and programmes should be decided by the public extension system while projects and strategy can be undertaken by the private extension organizations. When private extension organizations get involved in provision of extension support to farmers, there will be competition among the various extension providers, which will take care of consumer welfare and public interest, along with competitive advocacy and competition culture. In this case both technical and allocation efficiency, which are basically economic in nature, are taken care of by the private extension agencies, resulting in cost minimization, profit maximization and optimal use of resources³².

Private extension services are a viable business opportunity for private entrepreneurs as they provide a type of service for which there is a demand. To provide a wide range of services, extension organizations need a large number of partner agencies capable of effectively supplementing and complementing their expertise. This suggests that extension – by the public or private sector – should play the role of a bridge to help connect the farmer to other organizations. Whereas a private agency might wish to develop these links and partnerships and be actively involved in them, the public service may need to give more emphasis on facilitating their formation⁴.

In India, systems and institutions should co-exist addressing the needs of farming community so as to derive synergistic advantages of both. There are pluralistic extensions organizations such as public, private, cooperatives, NGOs, etc. working in this country. A lot of manpower is being utilized in this process. There is duplication of efforts with multiplicity of agents in extension work without convergence or coordination, resulting in loss of efficiency. In order to reduce the redundancy, repetition and better utilization of scarce resources convergence and better linkage is required in Public Private Partnership mode.

Public organizations are strong in backward linkage, private organizations are strong in forward linkage and NGOs are strong in social engineering and mobilization. Each and every organization has comparative advantages over other. Single development agency may have limitations of resources. That is why convergence is needed: a clear strategy for a planned multi-stakeholder involvement

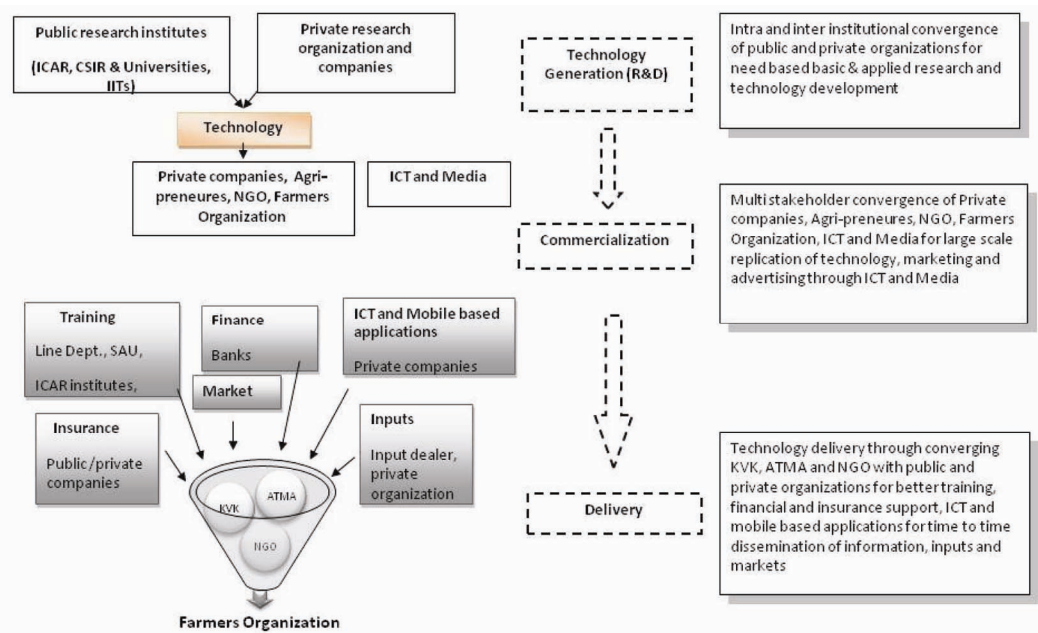


Figure 2. A proposed multilevel convergence model.

with mandated activities as per their expertise, to supplement and complement the efforts and to ensure effective involvement of community partnerships.

For functional effectiveness, the prioritized constraints have to be removed through working in collaboration with other agencies like Agricultural Technology Management Agency (ATMA) for better ground-level co-ordination. Krishi Vigyan Kendra (KVK) should be linked with private extension system for successful demonstration and field days with farmers, so that they can be motivated through 'seeing is believing' and building confidence in them through 'learning by doing', i.e. by working by and with them³³.

Food security has three basic dimensions: (a) production of food through crop husbandry, animal husbandry, fish cultivation, etc., (b) marketing of food for better availability; and (c) the entitlement to food for greater accessibility. Public extension services mainly focus on the first dimension, while private extension services can concentrate on the second dimension, which deals with storage, transport, processing, wholesale and retail activities by giving impetus to retail management, value chain management. The contracting firms also do a lot of services in relation to the second dimension. There is a tremendous scope of employment generation and reduction of post harvest losses through the process. Whereas NGOs and other ground level organization can play a vital role in relation to the entitlement of food³⁴.

Multilevel convergence model is conceptualized in Figure 2. In the first level, intra and inter institutional convergence of public and private organizations for need based basic and applied research and technology development has been depicted. Technology generation

includes Research and Development, Commercialization and Delivery. In the second level, we need multi-stakeholder convergence of private companies, agripreneurs, NGOs, farmers organizations, ICT and media for large scale replication of technology, marketing and advertising through ICT and Media. And in the third level, technology delivery through convergence of KVK, ATMA and NGO with public and private organizations for better training, financial and insurance support, ICT and mobile-based applications for dissemination of information, inputs and markets has been conceptualized.

Several cases of successful convergence reported from different states of India are presented in Table 1. Convergent efforts are required in other sectors to resolve issues of Indian farmers.

Conclusion

Promoting private extension and privatization of extension services are two approaches that are used by different countries to improve the delivery of extension services. The former approach leads to a wide range of service providers. The system is entirely private and they use their own revenues to promote technologies, inputs and services. Most of the private, profit-oriented actors belong to this category. It also consists of organizations that receive funds from government and other donors for implementing extension programmes and they are mostly of 'not-for-profit' type. There may also be a third type consisting of membership organizations that raise some resources from members (either as membership fee or service fees) for providing services. Convergence of all

Table 1. Successful cases of convergence in India

Convergence cases	Major agencies /institution/ programme involved	Outcome	Place
Banana fibre extractor: a case of successful convergence ²⁸	KVK of ICAR-CTRI, State Govt, NGOs, SHG, DST, UNDP and ICAR-ZPD-III	Livelihood security of farmers through commercial extraction of banana fibre	Andhra Pradesh
Mithun identification using microchip installation ²⁸	KVK Papumpare, DAH, State Forest Department, NGO, FO, ICAR-NRC Mithun	Scientific identification of Mithun through installation of microchip, helped in ownership dispute settlement and preventing theft	Arunachal Pradesh
Hybrid maize seed production ²⁸	DMR New Delhi, ZCU Zone-III, KVKs of 8 states, NRC Mithun, AAU, Farmers Seed Producer	Food security through increase in maize productivity in north eastern states	North Eastern States
Assuring a livelihood security to tribals in East Godavari district ²⁸	KVKCTRI, ITDA, AP Forest Department, SAU and NGO	Livelihood security of farmers through sustainable tamarind production and marketing	Andhra Pradesh
KVK-ATMA convergence model ²⁹	ATMA, ZPD, Zone-VII, state and ICAR KVKs, Govt of Madhya Pradesh, JNKVV	Helped to sustain the double digit growth of agriculture in the Madhya Pradesh	Madhya Pradesh
Hosangabad model ³⁰	MANAGE, Dhanuka Group, Govt of Madhya Pradesh	Sustainable development through agricultural resource management and development	Madhya Pradesh

KVK, Krishi Vigyan Kendra; ICAR, Indian Council of Agricultural Research; CTRI, Central Tobacco Research Institute; NGO, Non-Governmental Organization; DST, Department of Science and Technology; UNDP, United Nations Development Programme; ZPD, Zonal Project Directorate; DAH, Department of Animal Husbandary; FO, Farmers Organization; DMR, Directorate of Maize Research; ZCU, Zonal Coordination Unit; AAU, Assam Agricultural University; ITDA, Integrated Tribal Development Agency; JNKVV, Jawaharlal Nehru Krishi Vishwavidyalaya; ATMA, Agricultural Technology Management Agency; MANAGE, National Institute of Agricultural Extension Management.

these extension efforts through public private partnership effectively monitored by the government is a need of the hour. Most of the developing countries including India are experiencing paradigm shift from subsistence agriculture to commercialized agri-business under liberalization, globalization and privatization era. Therefore, to cope with the pace of competition, information providers have to be service-providers also. Service based on demand and needs of clients shall pave the way for establishing effective, timely and efficient extension system. Improved models for effective management of available resource have to be fitted for various regions and fields by continuous assessment of needs. In such a big country, a single model is not applicable. For better communication with farmers, ICT tools and mobile based extension should be encouraged.

Agriculture can be attractive and remunerative if it is relooked as a business and farmers as business man. When a farmer is educated enough to pay for quality inputs, information and services, to get access to profitable market, they will get rid of the psychology that has been developed through subsidy-based farming and become businessmen. All that has to be done by a converged extension system is to develop a commercial mentality among farmers; the rest will be done by farmers themselves.

The policy makers have to define a clear cut extension policy for a pluralistic system and area of convergence through designing stakeholder coordination mechanism and framework that who will provide what kind of product or service to whom at what quality. Long-term

commitments, capacity building of stake holders and a strong system for monitoring and evaluation are indispensable prerequisites for successful implementation of convergence. If all the extension organizations are converged at different levels according to their relative advantage area, the days are not far when young farmers will be motivated and mobilized to adopt better technologies provided by coordinated and converged extension approach.

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