

# **Agricultural Extension Systems in India**

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India has made significant achievement in agriculture by increasing food production by four folds during last six decades. Among many drivers to accomplish this task, the policy, research and extension support have played crucial role. Public extension played a major role in ushering green revolution in Indian agriculture. However, considering the varied agro-ecological situations under which farmers operate besides variations in the resource base of farmers, the extension system envisaged to achieve desired growth in agricultural sector has to be pluralistic in nature and hence multiplicity of extension systems are operating in India.

## **Extension Systems in India**

Agriculture development in India is basically a state subject. But, the crucial role the agricultural sector play from the perspective of ensuring food security of its large population, the Union Government play a major role in formulating policies that has direct bearing on the growth of agricultural sector. The Union Government mainly provides road map through its policies, programmes and budgetary support to the sector. The programmes conceived at national level are mainly implemented by the states' through its development departments. Besides, states also formulate region-specific development programmes.

Similarly, Indian Council of Agricultural Research (ICAR) is an apex body at the national level that supports research and extension activities to evolve effective Transfer of Technology (TOT) models. The State Agricultural Universities also contemplates to develop extension models suitable to take up transfer of technology besides implementing the models evolved by ICAR system.

### **1. Post-independence period**

The first planned attempt started with the launching of Community Development Programme in 1952, followed by the National Extension Service in 1953. These programs were able to educate responsive farmers to take up improved methods of farming across the country. The other important Area-Based Special Programmes were; Intensive Agricultural District Programme (IADP, 1960), Intensive Agriculture Area Programme (IAAP, 1964) and High Yielding Varieties Programme (HYVP, 1966) besides Farmers Training Centers (1967) to train farmers on high yielding

varieties and improved methods of farming to back up the above programs. The cumulative effect of these programs resulted in increased productivity, which made way to usher in '*Green Revolution*' in Indian agriculture during late 1970s.

However, these programs widened gap between resource rich and resource poor farmers. In order to enable resource poor farmers to take benefit of improved farm technology, many client-based programs were introduced. The most important ones being; Small Farmers Development Agency (SFDA, 1969), Marginal Farmers and Agricultural Labourers Programme (MFAL, 1969), District Rural Development Agency/Society (DRDA, 1976), Integrated Rural Development Programme (IRDP, 1978) and Lab to Land Programme sponsored by ICAR (LLP, 1979). Although, these programs were able to improve the socio-economic conditions of beneficiaries, they were isolated in a given time and implemented in a phased manner.

By the middle of 1980s it was observed that extension services in the developing countries were suffering from a number of weaknesses, including the dissipation of extension workers' energies on low priority tasks; the lack of single as well as clear line of command; and low level of agricultural knowledge and skill among field level functionaries. As a means of reforming and strengthening the extension service, a reorganized agricultural extension system known as 'Training and Visit' (T & V) system was introduced in the country.

## **2. Training and Visit System**

This system was introduced in India in 1974 with the World Bank assistance. Training and Visit system became the dominant method of restructuring the extension services in over sixty countries in Asia, Africa and Latin America. The system aimed to achieve change in production technologies of farmers through professional assistance for the contact farmers from well trained extension personnel on agricultural research and supported by supply, service and marketing facilities which were earlier lacking in National Extension Service.

The important features of T & V system are : (1) Professionalism, (2) Single line of command, (3) Concentration of efforts, (4) Time-bound work, (5) Field and farmer orientation, (6) Regular and continuous training and (7) Linkage with research.

**Training:** Training was imparted to the extension personnel at two levels; in the first level the middle level officers (SMSs) of the department of agriculture was trained by the university scientists (master trainers) in the monthly workshops generally organized at the district level in the nearby research station. Subsequently (second level) the SMSs used to impart training to grass root level extension

functionaries in the fortnightly meetings in the respective taluks. Over the period, strategic changes were made in the conduct of training to meet growing demand of technology and at present bimonthly workshops are being conducted in majority of the states.

**Visit:** Knowledge and skill gained by the field extension functionaries during the fortnightly training programme was transferred to contact farmers through regular field visits. These contact farmers were in turn shared the knowledge and skill to 10-15 fellow farmers.

The main *weakness* of T&V system was it largely remained as Departmental program characterized by centralized operations with inadequate farmer driven and farmer accountable feedback systems resulting in low level of farmers' involvement. The single-discipline- commodity oriented approach had serious limitations in rainfed areas where holistic farming systems approach was required. This further lacked focus on location specific needs of regions, disadvantaged areas, and target groups.

### **3. Broad Based Extension System (BBES)**

This system aimed at rectifying the defects of T & V system in some of the states. In the BBE : (a) the role of subject matter specialists was amplified and they were invited to formulate messages suitable to their land based activities (agriculture, sericulture, animal husbandry, horticulture, Human resource development, creating agriculture infrastructure etc.), (b) village extension workers had full time job by offering messages during lean season also, and (c) the concept of broad based education laid emphasis on formulating and delivering composite messages to the farmers to meet the needs of their full agricultural environment.

### **4. District Level Agriculture Technology Management Agency (ATMA) Model**

In country like India where Agro-climatic zones widely differ besides significant variation in socio-economic status of farmers', uniform extension service is not the panacea for all the regions. It was realized that public extension system will have to be placed in new decentralized institutional arrangements which are demand-driven, farmer-accountable, bottom-up and have farming system approach. To address these issues, the ATMA was envisaged as alternate public extension institution.

ATMA extension mechanism/model was firstly implemented in Andhra Pradesh, Bihar, Himachal Pradesh, Jharkand, Maharastra, Orissa and Punjab covering 4 districts in each state during 1998 under the guidance of National Institute of Agricultural Extension Management (MANAGE), Hyderabad. The evaluation report

of Indian Institute of Management (IIM) Lucknow revealed that the ATMA's extension approaches have been proving to be very promising in execution of the reforms and thus the progress was extended to other states.

Government of India is funding ATMA programme in all the districts of the country. ATMA is a registered society of key stakeholders (farmers, line/development departments, non government organizations, input dealers, mass media, agri-business companies, farmers organizations, etc.) involved in agriculture activities for sustainable agricultural development in the district. Though the State Department of Agriculture serves as a nodal agency for implementing ATMA, the programme aims to increase coordination and integration among developmental departments. Emphasis has been laid on providing flexible working environment and establish effective integration of all the stakeholders at the district level and thereby increase input in to programme planning and resource allocation, especially at the block level and thereby increase accountability of stakeholders.

Every district has to prepare the Strategic Research and Extension Plan (SREP) for implementing ATMA in respective districts. The SREP is prepared through participatory methodologies such as Participatory Appraisal Techniques involving all the stake holders and farmers. The SREP contains detailed analysis of all the information on existing farming systems in the district and research-extension gaps required to be filled up. It also prioritizes the research-extension strategies within the district. It becomes the basis for development work plans at block/district level. ATMA is a more comprehensive farmer centric bottom-up approach extension program which is in operation in all the districts of the country.

## **5. Extension approach of State Development Departments**

Agricultural development being the state subject, the major responsibility of implementing all the programmes of central and state governments goes with state department of agriculture. The major State Development Departments (Departments of Agriculture, Horticulture, Sericulture, Animal husbandry and Fisheries) having focus on development of agriculture and allied activities do undertake outreach activities. The effective extension system is visible only in the case of Agriculture Department, which was one of the major partners in implementing Training and Visit System. Some of the states have suitably modified T and V system (like Broad Based Extension System in Tamil Nadu) to suit their local needs and also incorporate Demonstration as one of the components of the programme.

Presently the State Department of Agriculture is a nodal agency to implement Agriculture Technology Management Agency (funded by Ministry of Agriculture and Cooperation, GOI) at the district level. The coordination and integration of activities of other development departments is envisaged under ATMA.

***More decentralized Extension network- Raitha Samparka Kendra (RSK)***

In order to have more decentralized extension network below the district level for effective dissemination of modern agricultural technologies, Government of Karnataka has launched “*Raitha Samparka Kendra (RSK)*” during 2000, with the objective of providing extension services to the farmers at Hobli level. Presently there are over 745 RSKs located at Hobli level functioning under the administrative control of Zilla Panchayat. The main objectives of the RSKs include: (a) providing updated information on crop production and marketing (b) facilitate on the spot provision of agricultural inputs, (c) facilitate on the spot provision of testing the agricultural materials, and (d) provide a forum of interface with public and private technologies and inputs.

The State Department of Horticulture is implementing National Horticulture Mission since 2000. The Human Resource Development through training and demonstrations is an integral part of the mission. Under this programme, training of the farmers, field level workers and officers by both Government sectors (SAUs and ICAR Institutes) and Non-government Organizations is being undertaken.

Departments of Sericulture, Animal husbandry and Fisheries are conducting a variety of extension activities like discussion meetings, demonstrations, field visits, fairs, field days etc. by the technical field functionaries to transfer the new technologies.

**6. Initiatives of ICAR**

The Indian Council of Agricultural Research (ICAR) took up number of extension programmes over the years. The first programme was National Demonstration Scheme (1964) initiated during 1964-65 to demonstrate the production potentiality of major crops in the farmers’ field. The Operational Research Projects (ORPs) was started during 1975 to identify technological as well as socio-economic constraints and to formulate and implement the problem solving technology modules on area/watershed/ target group basis in operational area. Lab-to-Land programme was launched during 1979 to transfer low cost technologies in agriculture and allied enterprises. As part of technology mission on oilseeds and pulses, the council started Frontline demonstration in 1990-91. Institution –Village Linkage Programme was

launched during 1995 which was funded under National Agricultural Technology Project (NATP) during 1998-2004. Under innovation technology demonstration component of NATP, the ICAR established Agriculture-Technology Information Centre (ATIC) in State Agricultural Universities to work as single window support system linking the various units of research institution with intermediary users and farmers in decision making and problem solving exercise through availability of technology inputs, products, information and advisory services under one roof. Since 2006-07, ICAR is implementing National Agricultural Innovation Project (NAIP), in a consortium mode.

### ***Krsihi Vigyan Kendra (KVK) - the Knowledge Hub***

Krishi Vigyan Kendra (Farm Science Centre) is an innovative institution of ICAR established at district level. The first KVK was established during 1974 and has grown as a largest network in the country with 611 KVKs during 2011. KVKs are funded by ICAR and administered by ICAR institutes / SAUs /Deemed Universities / Non-government Organizations or State Department of Agriculture.

KVKs play a vital role in conducting on farm testings to identify location specific agricultural technologies and demonstrating the production potential of crops at farmers' fields through frontline demonstrations. They also conduct need based training programmes for the benefit of farmers and farm women, rural youths and extension personnel to update their knowledge and skills and to orient them in the frontier areas of technology development.

KVKs are creating awareness about improved agricultural technologies through large number of extension programmes. Critical and quality inputs like seeds, planting materials, organic products, biofertilizers and livestock, piglet and poultry strains are produced by the KVKs and made available to the farmers. Agricultural Knowledge and Resource Centres are set up at KVK to support the initiatives of public, private and voluntary sectors at district level.

A number of successful case studies have emerged out of effective implementation of various technological and institutional interventions by KVKs. The KVKs are evolving as the future grass root level institutions for empowering the farming community. KVKs have made dent and has become part of decentralized planning and implementation instrument to achieve desired level of growth in agriculture and allied sector. Studies were conducted from both internal and external agencies on performance of KVKs at different point of times have indicated that the KVKs have significantly contributed in educating farmers in improved practices and enhancing productivity levels.

## **7. State Agricultural Universities (SAUs)**

State Agricultural Universities apart from lending support in implementing ICAR sponsored extension programmes, have evolved several innovative extension models to effectively reach the farming community. The type of extension activities undertaken by SAUs vary from state to state. The UAS Bangalore is undertaking transfer of technologies to farmers and others through Krishi Vigyan Kendras, Extension Education Units, Farmers Training Institute, Bakery Training Unit, Staff Training Unit, Agriculture Technology Information Centre by organizing diversified extension educational activities viz., farm trials, demonstration, meetings, discussion, conventions, training programme, farmers field school, field days, krishi mela, exhibition, agricultural campaign, educational tours, exposure visits, diagnostics visits, farm advisory services etc. The SAUs publish agriculture literature (books, package of practices, booklets, folders, and leaflets) in local languages for dissemination of agricultural technologies to the farmers and extension personnel. Expert Centres and Village Resources Centres are established in collaboration with Indian Space Research Organisation (ISRO) for interaction of farmers with experts on a variety of agricultural information. Mobile message services and Kissan Call Centre (established at ATIC) as well as KVKs are providing timely information to the farming community regarding agricultural technologies, weather data and market information.

## **8. Extension activities of Commodity Boards, Financial Institutions, Input agencies, Non-Government Organizations and Media Organizations**

Commodity Boards (Coffee board, Spice Board, Tobacco board, Coconut development board etc.) are extending crop/ commodity specific technical know-how to the farmers to a limited extent as many of these boards do not have grass root level functionaries throughout the country. Financial institutions normally provide assistance in preparation of agriculture project proposals by their technical staff to the farmers and others.

Agricultural input agencies besides providing critical inputs like seeds, planting materials, fertilizers, plant protection chemicals etc, they also sponsor/organize training programme to educate farming community. The Media organizations (Print and electronic media) are disseminating timely information on weather, technical information and marketing information. Various committed Non-governmental organizations and Philanthropists are also rendering rural extension services to the rural community in the field of agriculture and allied sectors, health, sanitation, education, water supply etc., across the country.

## **Conclusion**

Despite the concerted efforts made by Public as well Private Extension systems to put in place an effective extension mechanism, the present extension systems appear to be inadequate to address the challenges faced by the farmers in the context of changing agricultural scenario. There is very little penetration of extension system below the taluka level. The major reason being lack of grassroot level extension functionaries to work at panchayats or village level. The public extension system would continue to play an important role in technology dissemination to serve the large chunk of small and marginal farmers, besides the other extension service providers to supplement and compliment the public extension service. At the same time, extension mechanism has to be demand driven, location specific and address the diversified demands as well as those of marketing and value addition which calls for organized arrangement of farmers, since small and marginal farmers find it difficult to address range of issues required for sustained development.

The visibility of viable decentralized, democratic, farmer centric, demand driven, vibrant and participatory institutional mechanism have to be ensured at the lowest cutting edge administrative level (Panchayat level institutions) to cater to the needs of the farming community.

There is a need to deploy trained man power at grass root for ensuring effective extension. Experience of RBRC project has amply demonstrated that Commodity Based Farmers Associations can be effective in providing required backward and forward linkages, besides addressing end to end issues. Such associations empower farming community with required decision making abilities and reduce the dependence on external sources. This innovation model needs to be replicated in other locations to serve the needs of the farming community.