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PLURALISTIC AGRICULTURAL EXTENSION SYSTEM IN INDIA: INNOVATIONS AND CONSTRAINTS

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ABSTRACT

The major issues before Indian extension system are: how to improve the effectiveness of extension systems? How to serve the small land holders and marginal farmers in diversified farming systems? and proper allocation of fund, human resources and its management. The ATMA model has been successful in addressing many extension problems. Hence, the model should be introduced and implemented vigilantly. ATMAs should be empowered with sufficient administrative, financial and implementation flexibilities to reach the large numbers of small and marginal farmers. There is need of coordinated attempt to synergize and converge efforts at district and block levels to improve the performance of stakeholders. It is essential to route all the state and central government extension funds and human resources through a single agency, i.e. ATMA for effective utilization of crucial resources. The state governments should provide proper financial support by allocating at least 20% of states total budget to ATMA, which in turn distributes among state departments. The development grant provided by ICAR to SAUs and KVKs should be reviewed and adequately enhanced. Scaling up of FIGs/SHGs and Farmers Associations (FAs) could be an effective mechanism for empowerment and transfer of agricultural technologies. For serving the small communities efficiently, Information and Communication Technologies could be useful tools to increase connectivity between various FIGs/SHGs. It will also reduce extension cost and the workload of extension functionaries. There is need to learn from other actors like private sector, NGOs as they have much in-depth presence with various successful model.

Keywords: Pluralistic extension system, innovations, constraints. India

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Indian agriculture has an impressive long-term record of taking the country out of serious food shortages, given heavy reliance on its pluralistic extension system. In India, extension has a mixed record. At one side, it shows role in promoting productivity, sustainable resources use, and agricultural development (Singh, 1999). On other side, public extension has fallen short of expectations. Planning Commission (2008) narrated that the links between research, extension, and farmers are seen to be inadequate and uncoordinated. Extension has grown over last six decades and is traditionally funded, managed and delivered by the public sector. It is supported and funded by the national government—through its Ministry of Agriculture (MoA) and other allied ministries. The main responsibility for extension activities rests with state governments, since agriculture is the state subject. The central government also implements several technology transfer plans through state governments. Indian agriculture is becoming more pluralistic in nature, where a large number of private sector firms and civil society extension service providers co-exist with this public extension system.

PRE-INDEPENDENCE INNOVATIONS

India was a British colony until its independence in 1947. The history of agricultural extension and development in India dates back to the year 1866 as a result of the report of Orissa famine commission. Department of Revenue, Agriculture and Commerce started functioning during 1871 in the secretariat of British India. Recommendations of the famine commission report 1880 influenced establishment of agricultural secretariat in 1881, and by 1882 agricultural departments in most of the famine commission report 1901, Imperial Agricultural Research Institute and Agricultural College, Pusa (Bihar), was started. The government of India Act, 1919, made the agricultural development become a firm foundation for the coordinated research and agricultural development. The Grow More Food Enquiry Committee Report-1951 recommended the extension organization for the coordinated development of rural life. The major initiatives were Etawah project, Nilokheri project, Gurgaon experiment, Shriniketan attempt, Sewagram attempt and Marthandam attempt. Only few selected social workers had started welfare programmes of rural development during British rule.

Reason's of failure

The planning commission set up by the government of India in 1950 summarized the various reasons for failure of earlier extension efforts by government and voluntary organizations as:

- Most of the schemes were of short duration
- Activities were not properly planned and coordinated
- Initiatives come from the government side and not from the people, and
- Some basic problems like land tenure, rural credit etc. remained untouched.

Lessons learnt

The various lessons learnt from early extension innovations are:

- For sustained rural development, self-help and self reliance through active people's participation must be the guiding principle.
- An integrated approach to rural development must be preferred for a balanced growth.
- Nation-wide government supported extension network as a permanent system was essential.
- Multi-purpose village level workers (VLWs) were needed for regularly and constantly interaction with villagers, and
- Trained extension agents with both social science and technological back ground were needed as extension professionals.

POST-INDEPENDENCE INNOVATIONS

Based on pre-independence experiences of the early extension efforts, systematic, planned and country-wide extension system passed through various stages to meet the needs of farming community. Three distinct stages of innovations for the development of extension systems can be easily identified, which includes *Community Development, Technological Development and Development with Social Justice*. The transfer of technology projects initiated by Indian Council of Agricultural Research (ICAR) has also been given (Table-1). The Community Development Program (CDP) was initiated nationwide in 1952, followed by the creation of National Extension Service in 1953. Rural agents who had both extension and non-extension responsibilities worked without having any training in extension. Under the program, the country was divided into development blocks, each comprising about 100

villages having population of 60,000 to 70,000 people. By 1962, about 5,000 blocks had been covered by the program. Each village-level worker was responsible for about 10 villages covering not only technology transfer but also cooperatives, adult literacy, and sanitation. Villagers contributed to the program in cash and kind. In 1960, the first agricultural university, i.e. G.B. Pant University of Agriculture and Technology (GBPUA&T), Pantnagar, Uttar Pradesh (UP) was established, and the Directorate of Extension was created in 1966. While the CDP continued till early 1980s, location-specific extension activities were initiated under various programs and projects such as Intensive Agricultural District Program (IADP) (1960), Intensive Agricultural Area Program (IAAP) (1964), High Yielding Variety Program (HYVP) (1966), and Farmers Training Centers (1967).

All of these initiatives brought the Green Revolution in India. In 1973, Mini-kit Trials Program, and in 1976 Integrated Rural Development Program (IRDP) were started. In 1977, the Training and Visit (T&V) system of extension was introduced under a World Bank-financed project. The National Agricultural Extension Project (NAEP) was started in 1985 followed by other significant programs and projects that focusing on or emphasizing extension aspects were Watershed Development Program (1984) in rain-fed areas, Transfer of Technology (ToT), and State Agricultural Universities (SAUs). The ICAR also launched the Technology Assessment Refinement Project-Institute Village Link Project (TARP-IVLP) in 1995. Although all of these projects strengthened extension in their own right yet it was the “Innovation in Technology Dissemination” (ITD) component of the World Bank funded National Agricultural Technology Project (NATP), which ran from 1998-2005, made a significance difference. This project implemented the Agricultural Technology Management Agency (ATMA)—autonomous agency at the district level, which reformed the traditional extension system to a very significant extent.

The extension model introduced by ATMA contained some of the key extension reforms being advocated by the World Bank, including the decentralization at the district, block and village levels, bottom-up participation of male and female farmers, diversification instead of mono focus on high-value crop, livestock and other products and pluralism involving both public and non-public institutions. Pilot activities were started in 28 districts across 7 states in 1998. By 2007, the government had expanded the ATMA model of extension to nearly all districts across the country. The success of ATMA is evident by Singh, et al. (2009); and Singh et al. (2012). The issues related to its operations, human resources and research emerged has been resolved through the new guidelines issued in 2010.

AGRICULTURAL EXTENSION SYSTEMS IN INDIA

CENTRAL LEVEL

The Union Ministry of Agriculture (www.agricoop.nic.in) comprises Department of Agriculture & Cooperation (DAC), Department of Agricultural Research and Education and Department of Animal Husbandry, Dairying & Fisheries. Secretary, Agriculture & Cooperation is the administrative head of the department and is responsible for formulation and implementation of policies of Agriculture and Cooperation. The DAC is responsible for formulation and implementation of national policies and programmes. The record production of 244.78 million tonnes of food grains during 2010-11 has been achieved through effective transfer of latest technologies development schemes being implemented by the Department of Agriculture & Cooperation backed by remunerative prices for various crops through enhanced minimum support prices. The agencies engaged in extension of agricultural activities under the public sector have been discussed below.

1. Department of Agriculture and Cooperation (DAC)

The DAC (<http://agricoop.nic.in/add.htm>) comprises several technical directorates (also called divisions) and one of them is for agricultural extension. The Directorate of Extension, headed by a Joint Secretary cum Extension Commissioner, is the nodal extension organ at the national level. The Joint Secretary is assisted by three Joint Commissioners. The directorate provides policy guidelines and operational backstopping to the state level extension organizations. At times, it has directly implemented certain major programs. DoE organises agriculture fairs at national and state level. It also offers model training programmes to develop the skills of the state extension functionaries. It support to the schemes namely, (i) Central sector scheme on extension support to central institutions (ii) revised ATMA scheme (iii) Mass media support to agricultural extension (iv) Revised schemes of Agri-clinics and agri-business centre.

The Directorate of Extension (DoE) (<http://vistar.nic.in/>) was set up under DAC in 1958 in the wake of launching of Community Development Programmes and National Extension Service throughout the country in 1953. Apart from functions of dissemination of specific knowledge to farmers and supervision of the countrywide extension training infrastructure, DoE was also later called upon to implement National Programmes like Intensive Agricultural District Programme (IADP) and Intensive Agricultural Areas Programmes (IAAP). However, since 1974 the emphasis was shifted to Training and Visit system of

Extension, which was introduced in 17 major states with the World Bank Assistance. Its role is essentially collaborative, providing guidance and technical support to the Extension Division. The directorate's technical units are extension management, extension training, farm information, and National Gender Resource Center in Agriculture (NGRCA). The Extension Education Institutes (EEIs) were established at 4 locations, i.e., Nilokheri (Haryana in 1958), Rajendranagar, Hyderabad (A.P. in 1962), Anand (Gujarat in 1962) and Jorhat, (Assam in 1987) on regional basis to meet the training requirement to middle level extension functionaries of States and Union Territories as well.

National Institute of Agricultural Extension Management (MANAGE) (www.manage.gov.in)—located in Hyderabad, Andhra Pradesh (AP)—is an autonomous organization established by the government in 1987 for assisting the central government and the state governments to help improve their pluralistic extension systems by bringing positive changes in policies, programs, and personnel skills. Main activities undertaken by the institute are extension capacity building, research, consultancies, education in management, and documentation. This institute offers dozens of training courses advertised well in advance. It also offers two post-graduate diploma programs, one in general management and the other in agricultural extension management.

2. Indian Council of Agricultural Research

The Indian Council of Agricultural Research (ICAR) (<http://www.icar.org.in/en/>)—is the apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. With 99 ICAR institutes and 53 agricultural universities spread across the country this is one of the largest national agricultural systems in the world. The ICAR has played a pioneering role in ushering Green Revolution and subsequent developments in agriculture in India through its research and technology development. It has played a major role in promoting excellence in higher education in agriculture. It is engaged in cutting edge areas of science and technology development and its scientists are internationally acknowledged in their fields.

The Agricultural Extension Division (<http://www.icar.org.in/en/agricultural-extension.htm>) which is a part of the ICAR is headed by a Deputy Director-General (Agricultural Extension), who is supported by two Assistant Director-Generals. Activities of this Division are technology assessment and demonstrations, training of farmers, training of extension staff, and creation of awareness of improved technologies among farmers. The division performs

extension activities through the following institutional mechanism. There are 44 Agricultural Technology Information Centres (ATIC) established under ICAR institutes and SAUs. There is one Directorate of Research on Women in Agriculture (DRWA) located in Bhubaneswar (Odisha). Extension division monitors the extension activities carried out by 631 KVKs through 8 Zonal Project Directorates (ZPDs) across the country.

3. Private sector

Agricultural extension by commercial companies, i.e., seed and input companies is advancing rapidly in India. Contact farming is an increasingly important vehicle for “embedded services” information tied to input sales or marketed produce (Feder *et al.*, 2011). Numerous moves have been made in India towards privatization of agricultural extension services. This move mainly occurred through experimental and pilot projects, as well as schemes during the past decade. But the bulk of extension services remain by and large public and free of charge for farmers. There are a large number of agricultural companies (about 280,000) but none may be called as a full-fledged private agricultural advisory company. Companies may work independently or in partnership with other organizations across all sectors. The basic objectives behind the information services are to speed up the product’s safe and effective use, expand market share, and ensure the necessary supply of commodities. A variety of model currently exists for delivering and financing extension by private providers. There are an estimated 282,000 input dealers in India. They are pillars of their communities, and have every interest to offer quality services. Names of a few private agricultural companies, which provide one or more services like contract farming, agro-processing, inputs supply, consulting, multi-services, and export, are Mahindra Shubhlabh Services, Ltd. (www.mahindra.com); Syngenta India Ltd. (www.syngenta.com/country/in/en); ITC Limited (www.itcportal.com/)-India; Indo-American Hybrid Seeds (www.indamseeds.com); Agro Tech (www.agrotech-india.com); Monsanto India Ltd. (www.monsantoindia.com) etc.

4. Non-Government Organizations (NGOs)

NGOs provide very important support to Indian smallholders even they cannot cover all those seeking advice as governmental organizations do. Mostly NGOs are supported by donors or outside sponsors. NGOs range considerably in size with the high social commitment. Many dedicate themselves as per demand driven extension. Basix, PRADHAN, and BAIF are among India’s larger NGOs. They operate in numerous states from many years. Basix works with more than 3.5 million microfinance customers, of whom some 90% are poor rural

households and 10% urban slum dwellers. Eighty percent of its 10,000 employees work in small towns and villages (<http://www.basixindia.com>). PRADHAN is a leading promoters of self help group, aims to conquer poverty by enhancing poor people's capabilities and access to sustainable income opportunities (<http://www.pradan.net>).The BAIF Development Research Foundation is another large NGO working in agriculture and livestock development. BAIF has more than 3,000 employees, who operate from some 75 centres. It reaches out to 2.5 million farmers, many in challenging areas. The government of India recommends that states learn from and work with BAIF (<http://sapplpp.org/links/baif>). These NGOs spearhead needs and demand driven extension. They foster the innovations in participatory way. They reach large number of farmers, but many more are still in need. Some other examples of NGOs claiming to perform extension activities are: Self-Employed Women's Association (SEWA) (www.sewa.org/); Action for Agricultural Renewal in Maharashtra (AFARM) (www.afarm.org); Energy Environment Group (EEG) (www.energyenviron.com/);Society for Advancement of Village Economy (SAVE) (www.niir.org); Arpan Seva Sansthan (<http://www.arpansevasansthan.org/>) etc.,

5. Farmers Organizations, Associations and Societies

Civil society organization includes Farmers' Associations, Cooperatives and Societies employed in extension of agricultural activities. In India, these organisations have been fairly active for years aiming self-help for development, specific commodity production, marketing, collective bargaining and many other purposes. Major emphasis has played on poverty alleviation and rural women empowerment. Farmers' association's examples are: Punjab Young Farmers Association (India); Indian Farmers Association; Turmeric Farmers Association of India; Farmers' Association Pomegranate; Association of Farmer Companies; Organic Farming Association of India (OFAI) and many more. Nearly 580,000 cooperatives are functioning in India in addition to 375,000 agricultural cooperatives with 280 million member farmers. Agricultural cooperatives deal in credit, inputs, marketing, agro-processing and farm extension services. There are fertilizer cooperatives, sugar cooperatives, and dairy cooperatives. The Indian Farmers Fertilizer Cooperative Limited (IFFCO) is one of the biggest manufacturers of fertilizers in the world. The National Agricultural Cooperative Marketing Federation of India (NAFED) is the focal organization of marketing cooperatives for agricultural produce in the country, founded under the Ministry of Agriculture in 1958. It is now one of the largest procurement and marketing agencies for agricultural products in India.

6. Commodity Boards

Given the vast area and diverse agro-climatic regions, many different crops, commodities, animals and fish species are produced across within India. There are 20 agri-export zones within India. There are five statutory commodity boards under the Department of Commerce. These boards are responsible for production, development and export of tea, coffee, rubber, spices and tobacco. In order to promote other commodities, a number of commodity development boards were established at national and state levels. In most cases, the organizational structure, research, extension and marketing systems are in the process of changing. There are thirteen centrally governed commodity boards in India.

STATE LEVEL

7. State Agricultural Universities and State Line Departments

India has a vast network of SAUs, are the major partners in growth and development of agricultural research and education under the National Agricultural Research System (NARS). SAUs have statewide responsibility for teaching, research, and extension education. SAUs are integrating teaching, research and extension at all levels of university administration. Quick communication of new knowledge to students in class rooms, extension personnel and farmers. The SAUs are much larger but still small compared with the farm population. SAUs extension operates through state-level entities, but sometimes reaches out to farmers directly. SAUs are important but under resourced. It tends to focus on primary production rather than post-harvest and marketing aspects. The Directorate of Extension Education (DoEE) is the nodal agency of SAUs for promoting agricultural development in the state through quick transfer of technology by providing training, consultancy and farm information to line departments' professional extension personnel and farmers. DoEE, works on 3 functional areas, i.e, training, consultancy and communication in close coordination with Department of Agriculture, Animal Husbandry, Horticulture, Forestry, Cooperatives, Panchayat Samities and other agencies engaged in betterment of rural people. At state level, various line departments like Agriculture, Horticulture, Dairy, Fisheries, Sericulture etc. are also engaged in extension work.

8. State Agricultural Management and Extension Training Institutes (SAMETI)

There are SAMETI's in most Indian states and they are autonomous state level institutes with a mandate of conducting training courses on new agricultural technologies, extension management, gender issues, extension reform and new information technologies. SAMETIs

provide extension management training for extension agents and functionaries for all the line departments, including how to make extension more bottom up, farmer-led and market driven. Apart from providing training, these SAMETIs also facilitate infrastructure in conducting workshops and reviews.

DISTRICT LEVEL

The major activities of agricultural extension at the district level are the assessment, refinement and demonstration of technology/products through a network of Krishi Vigyan Kendras (KVKs), the departments of agriculture, animal husbandry, horticulture, fisheries, etc. and the Agricultural Technology Management Agency (ATMA).

9. Krishi Vigyan Kendra (KVKs)

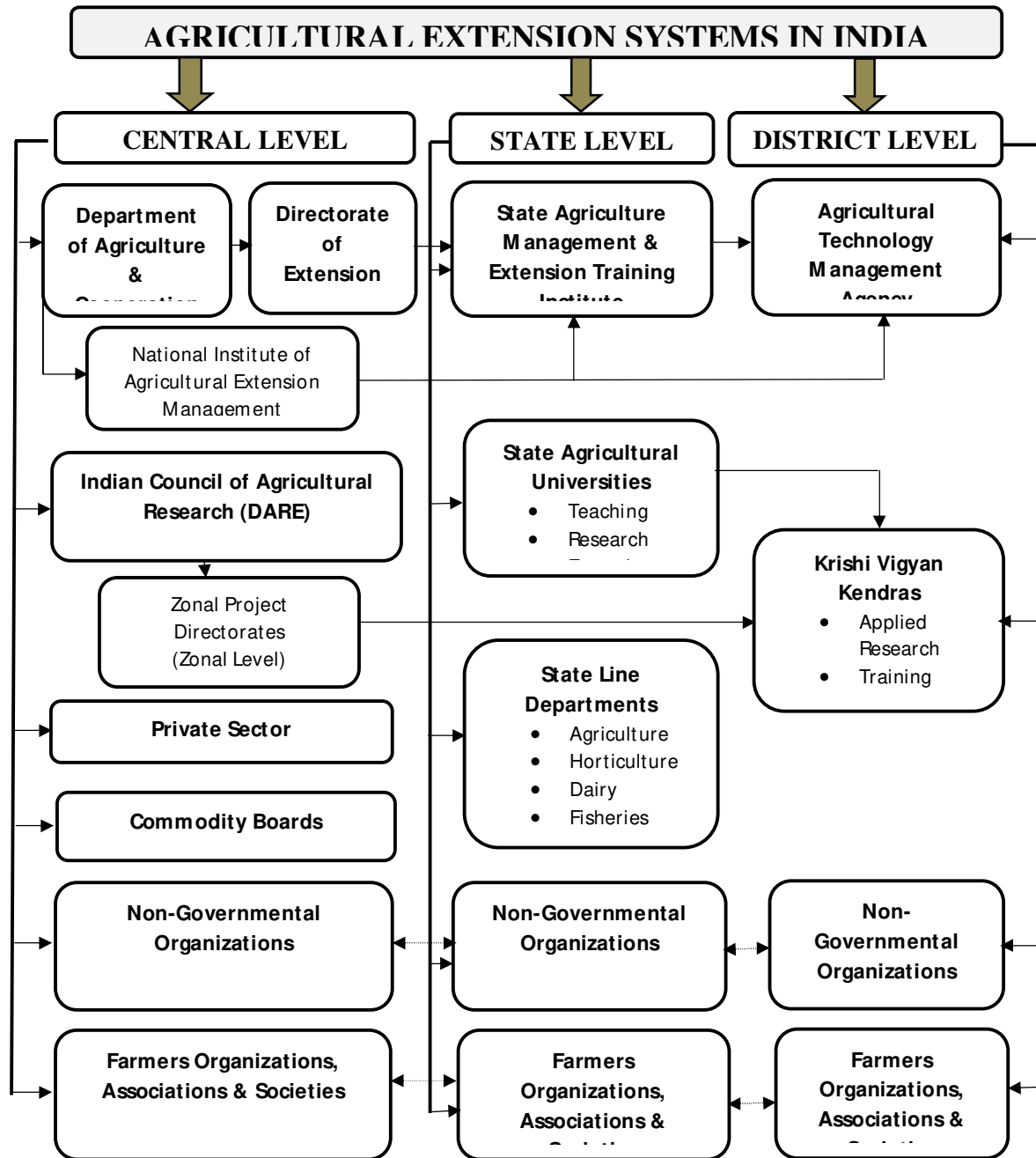
Presently, ICAR runs 631 KVKs across the country. KVKs assess, refine and transfer the agricultural technologies to the farmers in diverse farming systems. Also develop the capacity of farmers to update their knowledge and skills in modern agricultural technologies. Trainings are also imparted for extension personnel to orient them in the frontier areas of technology development. More recently, KVKs are working as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sector for imparting the agricultural economy of the district. Most KVKs have less than 20 staff with the limited reach.

10. Agricultural Technology Management Agency (ATMA)

The ATMA is an autonomous organization registered by MANAGE under the “Societies Registration Act of 1860” that has considerable operational flexibility. In mid-1990s, the Govt. of India and the World Bank began exploring new approaches to extension that would address the existing problems and constraints resulting in new decentralized extension approach, which would focus more on diversification and increasing farm income and rural employment. The central institutional innovation that emerged to address these system problems was Agricultural Technology Management Agency (ATMA) model that was introduced at the district level by MANAGE. to (i) Integrate extension programs across the line departments and the KVKs (i.e. more of a farming systems approach) (ii) Link research and extension activities within each district, and (iii) Decentralized decision making through “bottom-up” planning procedures that would directly involve farmers and the private sector in planning and implementing extension programs at the block and district level. The model was pilot-tested through Innovations for Technology Dissemination (ITD) component of a

World Bank funded, National Agriculture Technology Project (NATP) that became effective in 1998 and concluded in June 2005.

Fig.1 Pluralistic Agricultural Extension systems in India.



Source: Authors

CONSTRAINTS FACED BY INDIAN EXTENSION SYSTEM

In current scenario, where a numbers of stakeholders are involving in agricultural extension, hence, opportunity to reach a greater number of farmers is increasing. Hence, existing constraints identified by the researchers over a period of time are mentioned below.

- XIth FYP recommendation shows the major constraints as (i) Lack of convergence in operationalization of extension reforms (ii) Lack of provision for dedicated manpower at various levels (iii) Inadequacy of funds (iv) Lack of infrastructural support below district level, and (v) Inadequate support for promotion of farmers' organizations and their federation.
- Birner and Anderson (2007) narrated the constraints as high staff vacancy rates, low social status, low rank in the administrative system, lack of operational funds for effective field work and high turnover.
- There are insufficient funds for operational costs, training, and capacity development, which limits the activities and continual development of the extension staff (Swanson, 2006). However, it was experienced that there are about 90,000 on the job, which is an adequate number of extension workers for the number of farmers (about 130 million).
- Various line departments at the state and district levels have been criticized for working in isolation, with weak linkages and rare partnerships. The research-extension link has been criticized for not absorbing or using feedback from farmers and extension staff. Extension personnel and farmers are passive actors, and scientists have limited exposure to field realities (Reddy and Swanson, 2006).
- Swanson and Mathur (2003) reviewed agricultural extension system constraints as; (i) Multiplicity of public extension systems (ii) Narrow focus of agricultural extension system (iii) Co-mingling of government schemes and extension activities (iv) Lack of farmers involvement in extension program planning (v) Supply rather than market-driven extension (vi) Lack of transparency and accountability (vii) Inadequate technical capacity (viii) Lack of local capacity to validate and refine technologies (ix) Lack of emphasis on farmers training (x) Weak research-extension linkage (xi) Weak public sector linkages with private sector firms (xii) Inadequate communication capacity (xiii) Inadequate operating resources and financial sustainability.

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