

Extension Services in Agriculture Sector

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Abstract: Farming is for rural people; therefore agricultural extension service is also for rural people. It has no closing time or opening time. So, it is informal in nature, which brings about a desirable change in rural people. Keeping this point in view, an attempt has been made in this paper to highlight the need of agriculture extension services based on the information needs of farmers. It covers the information requirements of farmers and states the objectives based on which the agriculture extension services need to be designed for effectively serving the information needs of the farmers. The paper also highlights the different types and methods of extension services, and briefly provides the important features of two Indian agriculture repositories; Agropedia and e-Arik.

Key words: Extension Services, Agropedia, e-Arik.

I. INTRODUCTION

Extension service in agriculture is indispensable and it offers more than just expert assistance in improvement of production and processing, but it also enables flow of information and transfer of knowledge and scientific findings to practice. These activities are performed according to the rules that regulate the establishment of organization, functioning, goals and fields of operation, ways to execute extension activities by the extension agent, their obligations and rights. Extension service has undergone numerous changes and has influenced unevenly application of certain scientific achievements in the practice (Zivkovic, Jelic, & Rajic, 2009).

The purpose of extension services is to bridge the gaps in communication between producers of all types and researchers with an interest in relevant areas. The bridges that are in place have a main goal of having the industry as a whole operating at optimal performance. For the most part, the communication networks that are in place are sufficient; however, like many things, there are shortcomings associated with different aspects of these networks, such as industry support for university efforts, resource availability and sharing between universities and industry, the prioritization within the extension service, bio-security concerns, and costs associated or recovery with providing services (Pohl, Caldwell, & Farnell, July 20–23, 2009).

II. DEFINITION OF EXTENSION SERVICE

- a) Extension is a process or a service way of getting knowledge developed from one environment to the other.

- b) Extension services are service employed in the diffusion of new innovations to people who live in the remote areas of a community. They have limited access to their information needs in the areas of agriculture, building, trade, healthcare, domestic work and other areas of human activities (Mai-Lafia & Goshit, 2009).
- c) Extension is an informal educational system that is directed to adult, carried out thoughtfully and systematically applying teaching and learning principles under the atmosphere of mutual trust and respect (Pohl, Caldwell, & Farnell, July 20–23, 2009).

III. NEED FOR EXTENSION SERVICES IN AGRICULTURE SECTOR

Addressing new and growing challenges in agriculture requires extension service to play an expanded role with diverse objectives. Extension service is an essential pillar both for rural community progress and as part of a strategy of agricultural research and development. It helps in dissemination of useful information and practical application of knowledge in agriculture sector. Agricultural research remains an academic endeavour unless it is informed by practical problems, and efforts should be made to deliver solutions to farmers by appropriate forms of extension. Therefore, agriculture research institutions should focus on the technical aspects for generating useful technologies, while extension service should focus on the acceptance and adoption of those technologies.

IV. OBJECTIVES OF AGRICULTURAL EXTENSION SERVICES

The agricultural extension services should be designed with the following objectives:

- ❖ *Informational:* To provide farmers with information on economic and market situation in agriculture and its environment, modern technology of agricultural production.
- ❖ *Dissemination:* Application of the latest technology innovation to agricultural practice.
- ❖ *Advisory:* Support farmers and their families in solving problems related to their profession and family, and community resources management.
- ❖ *Educational:* Supplementing and increasing the professional skills of farmers.

V. INFORMATION NEEDS OF FARMERS

Farmers require a diverse range of information to support their farm enterprises. Information is needed not only on best practices and technologies for crop production, which the traditional public-sector extension system provided during the Green Revolution, but also information about post-harvest aspects including processing, marketing, storage, and handling. Farmers require information related to the following:

- ❖ Most appropriate technological options
- ❖ Management of technologies, including optimal use of inputs
- ❖ Changing farm system options (mixed farming and diversification, animal husbandry, fisheries etc.)
- ❖ Sourcing reputable input suppliers
- ❖ Collective action with other farmers
- ❖ Consumer and market demands for products
- ❖ Quality specifications for produce
- ❖ Time to buy inputs and sell produce
- ❖ Off-farm income-generation options
- ❖ Implications of changing policies (input subsidies and trade liberalization)
- ❖ Access to credit and loans
- ❖ Sustainable natural resource management and coping with climate change.

VI. CHARACTERISTICS OF DIFFERENT TYPES OF EXTENSION SERVICE

Depending on the concept and main tasks of the extension service, it is possible to define following types of extension service (Zivkovic, Jelic, & Rajic, 2009):

Compulsory Extension Service: This service is related to the early stage of development of agriculture when farmers are economically dependent and are at the lowest educational level. So for the purpose of achieving certain goals, the

legalized forcing is used and punishing of those who wouldn't subdue to this obligation.

Economical Extension Service: This service is possible in market conditions and uses economical incentives for realization of its goals, and its efficiency is demonstrated in capital deficiency.

Educational Extension Service: This service provides opportunities for learning through educational materials, publications, organizing of short courses, study trips, etc. This type of extension service is used for protection of the environment and nature.

Universal Extension Service: This service is established on legal basis and by using economical incentives such as:

- Price bonus/recourse
- Insurance incentives
- Lower interest rates
- Assistance in organization of the market.

This type of extension service is very effective when economical and educational levels of farmers are high.

Optional Extension Service: This service is based on free will of the farmers. The farmers can receive advice and information, on request and when needed. It is efficient in circumstances when farmers are able to develop and progress on their own, given the initiative and sufficient level of financial resources.

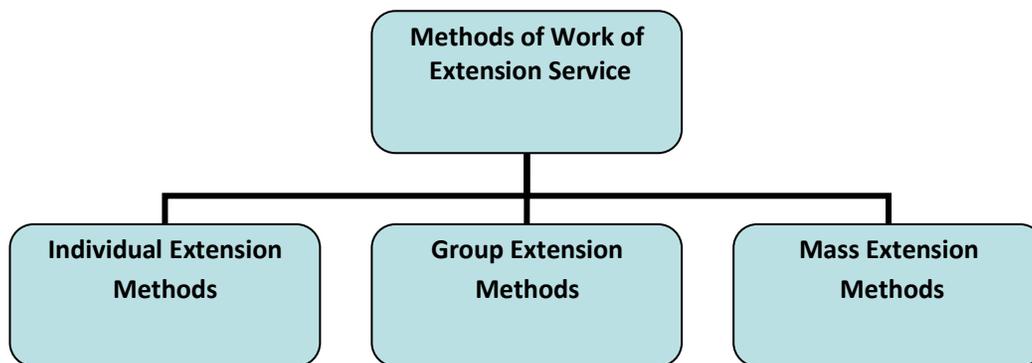
VII. METHODS OF WORK IN EXTENSION SERVICES

Extension service is realized by application of the following extension methods⁶:

- ❖ Individual
- ❖ Group
- ❖ Mass

The constituent extension methods and their characteristics have been schematically shown in Figure 1.

Figure-1: Methods of Extension Service



- Represents intensive Method
- They are applied in the form of
 - house visits and advisory discussions
 - talks (visit to the farm, field, etc.),
 - practical demonstration methods
 - Farmer going to the extension office, etc.
- Formed to improve extension work or work with producer associations.
- Includes
 - diverse: expert lectures,
 - group discussions, extension clubs
 - expert excursions and trips
 - Mutual (informative) meetings, etc.
- Used for informing and educating potentially large groups of agricultural producers.
 - Includes:
 - use of television and radio stations
 - expert brochures
 - expert articles in newspapers
 - leaflets, internet, etc.

VIII. ICT TOOLS FOR EXTENSION SERVICES IN INDIAN AGRICULTURE

This section provides brief information on two Indian agriculture repositories and its extension services. The repositories are:

- ❖ Agropedia
- ❖ e-Arik

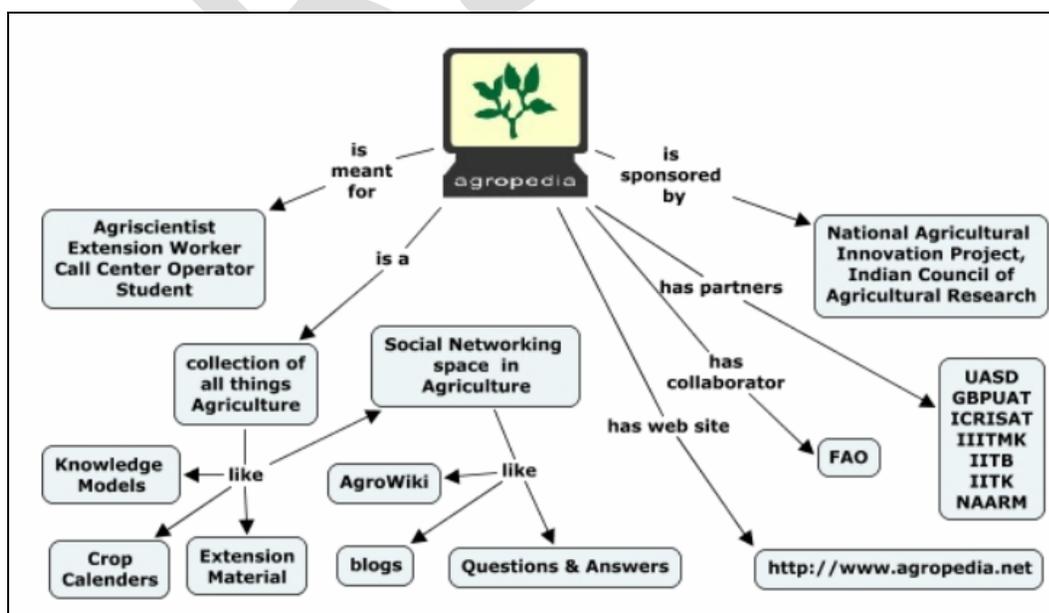
8.1 Agropedia:

Agropedia is an agriculture knowledge repository of universal Meta models and localized content for a variety of users with appropriate interfaces built in collaborative mode in multiple languages. Agropedia aims to develop a comprehensive digital content framework, platform, and tools in support of agricultural extension and outreach. In other words, this repository aspires to be one stop shop for any

information, pedagogic or practical knowledge related to extension services in Indian agriculture – an audiovisual encyclopedia, to enchant, educate and transform the process of digital content creation and organization completely.

Agropedia uses state-of-the-art practices and techniques of the semantic web. It is a platform where specialists in the agriculture research and education domain, students, and others interested in agriculture can make lasting contributions to the vast knowledge base. The specialists have a choice to contribute to Jangyan (emergent knowledge). All other registered users are co-creators of Jangyan through their participation in the Agrowiki, Agroblog, Agroforum and Agrochat like interaction spaces. Therefore, the users of Agropedia are the architects of knowledge, which is the lifeline of Agropedia. The Agropedia provides an easy-to-use, entertaining and intellectually stimulating web interface (Tripathi, Yadav, & Prabhakar).

Figure-2: Structure of Agropedia



8.2 e-Arik

E-Arik (“Arik” means Agriculture in the Adi tribal accent of Arunachal Pradesh State) has been implemented by the College of Horticulture and Forestry, Central Agricultural University. This project examines the application of ICT in providing agricultural extension services and its socio-economic impact among rural tribal farming community in the “Yagrung” and nearby villages of East Siang district of Arunachal Pradesh State. This project provides all time expert consultation on agriculture production, protection and marketing aspects through ICTs. The e-Arik research project staff regularly undertakes field visits to observe crop condition, diagnosis the pest and diseases, nutrient deficiency, physiological problems, and prepares the reports which are digitally stored.

Project portal (www.earik.in) provides information on crop cultivation, agriculture and rural developmental departments and their schemes, day-to-day market information and weather conditions, which is also displayed in the village knowledge centre notice board. Further, information on health, education, governance and other information for tribal farmers are available in the project

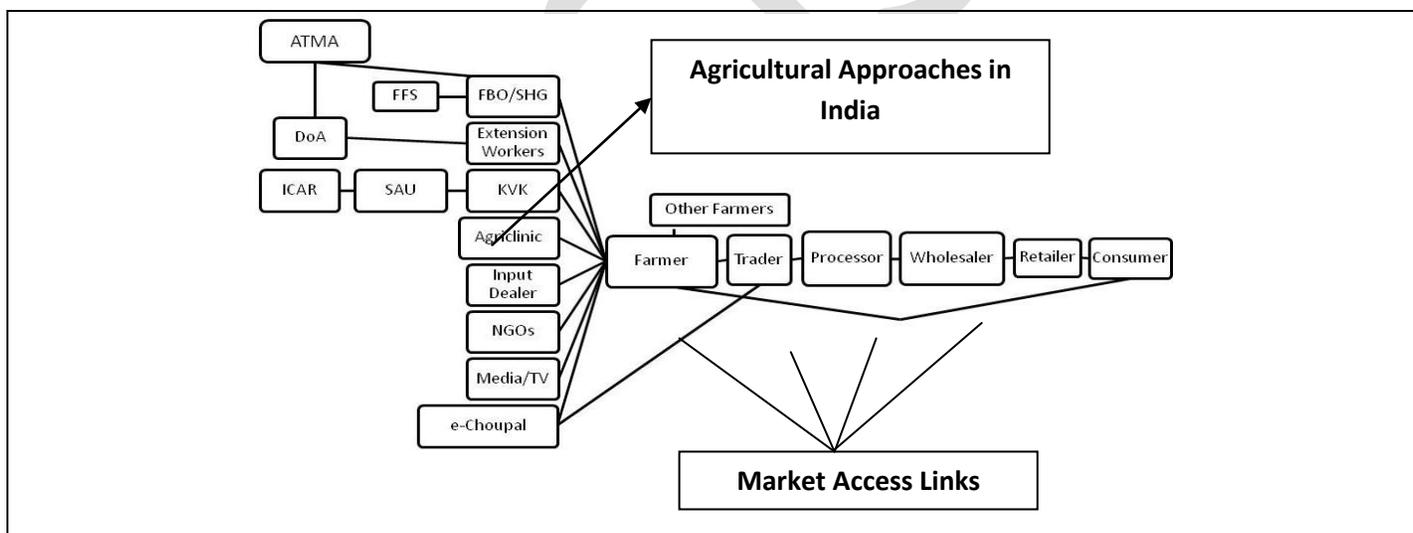
portal. The village agricultural library at the e-Arik-village knowledge centre is having the collection of farm publications, multimedia CDs and daily news papers for the ready reference of the farmers and others. Farm input display unit at e-Arik-village knowledge centre exhibits bio-fertilizers and organic pesticides and fungicide samples for the familiarization among the farmers (Raj, 2008).

IX. AGRICULTURAL EXTENSION APPROACHES IN INDIA

A holistic approach to agricultural extension today goes beyond technology transfer for major crop and livestock production systems. Agricultural extension facilitates problem solving; creates links to markets and other players in the agricultural value chain; and provides access to information, skills, and technologies.

The conceptual framework described here focuses specifically on the role of agricultural extension approaches in engaging and facilitating farmers’ access to information. This is one of several functions extension is now expected to address in the provision of a diverse set of services.

Figure-3: Information Exchange of Some Agricultural Extension Approaches in India



Labels in Figure-3:

ATMA = Agricultural Technology Management Agency

DoA = Department of Agriculture

ICAR = Indian Council for Agricultural Research

FFS = Farmer Field School

FBO/SHG = Farmer-based Organization / Self-help Group

SAU = State Agricultural University

KVK = Krishi Vigyan Kendra (Farm Science Centre)

NGO = Nongovernmental Organization

Information can be easily transferable and is context-independent, while knowledge is a process of contextualizing information through awareness so that it becomes situation specific. Despite the wide scope the agricultural extension must now cover, focusing the analysis on information provision and access will help identify challenges, constraints, and possible solutions that can help in refining the existing methods and approaches. The framework focuses on farmers' needs for information and considers the type of information needed in various contexts, which can also include links to post harvest and consumer demands (See Figure-3). At each link in Figure 3, information is exchanged and shared by a number of actors, including input suppliers, cooperatives, traders, processors, nongovernmental organizations (NGOs), and government extension services. On the left portion of the farmer block in Figure-3 are some of the current agricultural extension approaches in India, which generally provide information for on-farm production only. On the right portion of this block, information is also exchanged but it refers to post harvest and market access links, consumers and other farmers (Glendenning, 2010).

X. CONCLUSION

Agriculture extension services are aimed for providing information on agriculture and farming to the farmers and people involved in the research and study of agriculture. Agriculture extension services can be a backbone of any country especially for a country like India which has around 50% of its workforce dependent on agriculture. With proper agriculture extension services, the farmers can be guided to achieve the maximum yield scientifically. Although,

the governments have realized the importance of agriculture repositories and the related extension services for the farmers, there has not been much development in this regard. The agricultural extension services should not be restricted for farming, but should also provide information on trading, new scientific methods of farming, information on loans, government schemes etc. For green revolution, the country needs an effective and efficient agriculture extension services.

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