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An Overview of Pluralism in Agricultural Extension and Advisory Services

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Abstract

The agricultural sector in India has experienced significant changes over the years, creating new challenges amidst rapid population growth. To meet the increasing demand for food, enhancing agricultural production through diverse strategies is essential, with pluralistic approaches to Extension and Advisory Services (EAS) playing a critical role. EAS provides technical, organizational, business, and management support to farmers and vulnerable communities, helping to improve their socio-economic status. Pluralism within extension services involves multiple service providers from government, private, and civil society sectors working together to offer a variety of services by pooling resources, technology, and expertise. Public sector extension providers alone cannot meet the diverse needs of rural populations due to financial and operational limitations. The rise of Non-Governmental Organisations (NGOs), Farmer Producer Organisations (FPOs), Self-Help Groups (SHGs), and private service providers has positively influenced the advisory sector by expanding the reach and quality of services. This study aims to explore the impact of pluralism on agricultural extension outcomes and provide evidence-based recommendations to strengthen the role of various stakeholders in delivering critical advisory services for sustainable agricultural development.

Keywords: Advisory services, Agricultural Extension, Coordination, Pluralism.

Introduction

Between the years 1960 and 2023, the population of India has exhibited a notable increase, rising from 450.55 million to 1.43 billion individuals. A considerable proportion of the populace, estimated at approximately 44%, relies exclusively on the agricultural sector for their livelihood. The changing demands and requirements for various agricultural commodities in the era of globalisation necessitate that Indian farming communities adapt and compete with these emerging changes to sustainably feed and support the growing population (1). In the realm of agriculture, the pursuit of dynamism necessitates the consideration of various factors, such as research, knowledge, technology, and notably, extension services. The fundamental role of agricultural extension services is to establish a linkage between scientific research and agricultural practitioners. As previously indicated, agricultural extension and advisory services (EAS) can be viewed as an alternative word for extension services (2). The EAS platform serves as a means of delivering innovative mechanisms, technology-assisted information, improved farm management practises, production management methods, and other forms of support to farming communities and other vulnerable populations. Extension and advisory services, commonly referred to as extension, encompass a range of activities aimed at delivering the necessary information and services to farmers and other stakeholders in rural areas (2). These activities are designed to support individuals in enhancing their technical, organisational, and managerial abilities and adopting practises that contribute to the improvement of their overall quality of life and welfare. The historical development of the Indian agricultural extension system from the time before independence to the present has highlighted the on-going difficulties that must be overcome in order to realise the goals of ensuring national food security, enhancing rural livelihoods, and protecting natural resources (3). During the pre-independence era, several rural developments initiatives were implemented, including the Gurgaon project (1920), the Shri Niketan experiment (1914), the Sevagram experiment (1920), the Marthandam project (1928), and the

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Grow More Food campaign (1942). However, the aforementioned projects were unable to generate significant effects as a result of insufficient engagement, inadequate planning and coordination, and a shorter-than-anticipated timeframe (4). Following India's independence, the initiatives included, among others, the Training and Visit (T&V) Programme in 1974, the Intensive Agricultural Area Programme, a World Bank-supported project, the Intensive Agricultural District Programme, the Community Development Project, and the Etawah Pilot Project. The T&V system involved the periodic visits of a village extension service provider to farmers, during which they would guide them on implementing an advanced package of practices to enhance productivity (5). The T&V system was characterised by centralization and a supply-driven approach, which ultimately led to the failure of this project as well. The introduction of the Krishi Vigyan Kendras (KVKs) concept in 1974 aimed to enhance agricultural revenue and integrate novel methodologies. This initiative was implemented at the district level to provide instructional programmes to individuals involved in farming, including women, men, and youth in the agricultural sector (6). Despite implementing numerous approaches, some of which may overlap with existing efforts, the agricultural community continues to face insufficient access to resources, hindering its growth. The lack of coordination among research, extension, and farmers has been identified as a significant obstacle in the extension system by the Planning Commission of India (7). The efficacy of a singular mechanism for providing extension services, whether it is a government entity, a private entity, or a civil society organisation, was found to be lacking. The absence of flexible work arrangements, compounded by constant deadlines and growing workloads, has been a significant challenge (8). Extension personnel from diverse sectors, including agriculture, horticulture, and fisheries, encountered significant challenges such as limited mobility, insufficient skill-based training, inflexible work schedules, inadequate resources, and a workforce shortage (9). The concept of Pluralism emerged in this scenario. The paradigm of agricultural extension underwent a transformation when the recognition of the necessity for pluralistic approaches in EAS was acknowledged (10). Pluralism in the context of EAS pertains to the simultaneous presence of numerous public and private entities, such as input dealers, civil society organisations, cooperatives, and self-help groups. These organisations work together to create multiple financial resources, offer a variety of services to rural areas, and make use of a variety of expertise, technology, and information (11).

Favourable Factors for Agricultural Extension Pluralism in India

- The challenges faced by the organisation include elevated employee vacancy rates, diminished social status, a disadvantaged position within the bureaucratic system, and inadequate operational fund allocation for efficient fieldwork.
- The activities and ongoing development of the extension personnel were hindered due to a lack of adequate funding for operational costs, training, and skill development programmes (5). It has been suggested that there exist an estimated 90,000 job vacancies, which could potentially meet the demand for extension workers within the agricultural sector, serving a farming community of approximately 130 million individuals.
- Different line departments' operational effectiveness was noticeably subpar at both the state and district levels and was primarily marked by isolation. Historically, there has been a lack of effective or non-existent connectivity among the various stakeholders. Historically, extension approaches were predominantly supply-driven rather than demand-driven, lacking the incorporation of valuable feedback from farmers. The inclusion of farmer feedback is crucial in facilitating effective development initiatives.
- In the current era of digitalization, the utilisation of information and communication technologies (ICTs) within the agrarian community is relatively restricted. The persistent existence of the digital divide, in conjunction with the gender digital divide, continues to pose a substantial obstacle in rural areas, impeding their ability to access and utilise technical knowledge.
- The limited capacity of public extension advisory services to effectively cater to a large number of clients is primarily attributed to the

insufficient presence of extension personnel across various organisations.

Emergence of Pluralistic Extension Systems in India

Various institutional and organisational innovations have been introduced to address the deficiencies within the public research and extension systems. These initiatives have shown promising signs of fostering an innovative agricultural system in India, characterised by pluralism (12). Pluralism in the field of extension has established a framework that facilitates the coexistence and collaboration of diverse entities such as research institutions, extension services, farmers, farmers' groups, non-governmental organisations (NGOs), and private enterprises (13). It is imperative for pluralistic extension and advisory service systems to actively promote the facilitation of resource access and knowledge transfer among the various entities and beneficiaries within the extension innovation system (11). Additionally, these systems should work collaboratively to enhance the overall performance of the innovation system. The structure of pluralistic agricultural extension system is represented in Figure 1.

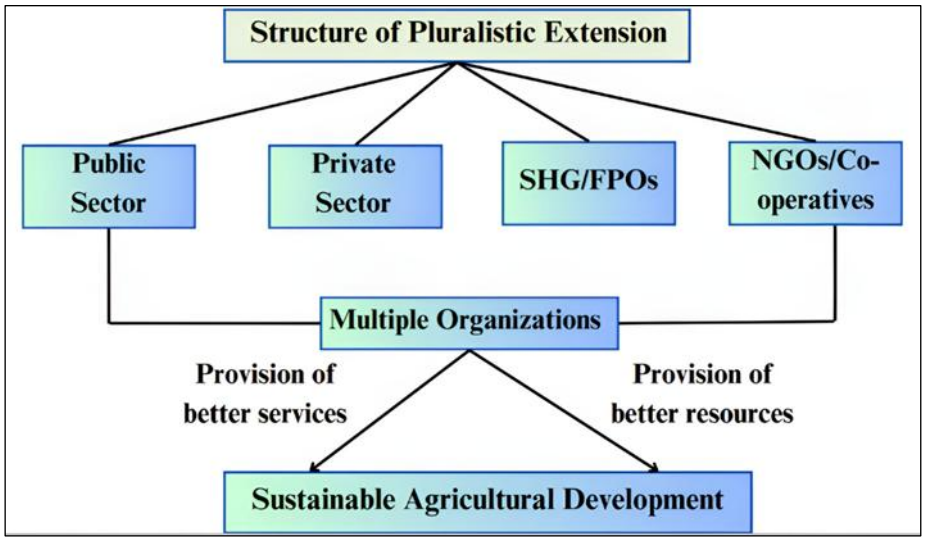

Figure 1: Structure of pluralistic extension in India

Major Actors in Pluralistic Extension and Advisory Service System

Department of Agriculture and Cooperation (DAC): The DAC is made up of numerous technical directorates, each of which has divisions within it. Extension of agriculture is one of these divisions. The Directorate of Extension, overseen by a Joint Secretary or an Extension Commissioner, serves as the central extension agency at the national level (14). The primary function of the directorate is to facilitate the development of policy guidelines for extension organisations operating at the state level. Additionally, it offers training activities that serve as models to enhance the professionalism of extension functionaries. The mentioned programmes are supported by a number of other programmes, including the Agricultural Technology Management Agency (ATMA) Programme, Mass Media Support for Agricultural Extension, and the Revised Programmes for Agri-Clinics and Agri-Business Centres (15). Hyderabad, Andhra Pradesh (AP) is home to the National Institute of Agricultural Extension Management (MANAGE), an independent body founded by the government in 1987.

Indian Council of Agricultural Research: The major organisation in charge of organising, directing, and managing agricultural research and education in the country, including horticulture, fisheries, and animal sciences, is the Indian Council of Agricultural Research (ICAR). There is a total of 99 ICAR institutes and 53 agricultural universities that operate under the umbrella of ICAR. It is worth noting that ICAR is recognised as one of the prominent and largest national agricultural organisations globally (15). Through its research and use of cutting-edge technology, the ICAR significantly contributed to India's agricultural accomplishments during the Green Revolution.

Private Sector: Extension advisory services have undergone significant transformations following the emergence of private sector organisations. Several public entities have chosen to voluntarily withdraw to facilitate progress. These modifications were primarily implemented through pilot projects, alongside the implementation of various initiatives. However, the majority of extension services continue to be provided by the public sector without any cost to farmers. The agricultural industry comprises a significant number of companies, approximately 280,000 in total (11). However, it is noteworthy that none of these entities can be classified as a comprehensive private agricultural advisory company. The concept of contract farming enables organisations to operate autonomously or in collaboration, without the involvement of intermediaries. The term "share cropping system" is synonymous with private extension services (16).

Non-governmental Organizations (NGO): NGO refers to a non-profit organisation or a collective established by individuals voluntarily, operating at various levels such as local, regional, national, or international. The activity is characterised by a focus on tasks and is motivated by individuals who share a mutual interest (17). The organisation engages in a range of activities related to sustainable development, including the provision of services, policy advocacy, policy monitoring, and the facilitation of information dissemination to promote potential participation. NGOs play a significant role in facilitating direct connections between farmers and large organisations, thereby empowering farmers across various dimensions (14). Basix, PRADAN, and BAIF are prominent NGOs operating in India with a focus on the agricultural sector.

Farmers Produces Organizations: Civil society organisations encompass various groups involved in the extension of agricultural activities, such as farmers' organisations, cooperatives, and societies. In the Indian setting, a variety of organisations have shown significant commitment over time to projects involving self-help for development, focused commodity production, marketing, collective bargaining, and a variety of other goals (18). Significant attention has been given to the alleviation of poverty and the empowerment of rural women. India currently hosts a substantial number of cooperatives, with approximately 580,000 in operation (19). Additionally, there are 375,000 agricultural cooperatives specifically catering to the needs of around 280 million farmers. Some of the prominent FPOs in India include Indian Organic Farmers Producer Company Ltd, VANILCO, Samarth Kisan, Farmer Crop Care, and several others (14).

Input Dealers: Extension advisors, who also serve as agri-input dealers, have effectively connected with farmers by providing informal access to a range of agricultural inputs and technological services. Certain participants in the agro-input industry have made efforts to provide comprehensive solutions to farmers, encompassing both farm and allied inputs, through the utilisation of novel distribution and marketing channels (20). Since 2006, there has been an increasing focus on the significance of agro-input dealers and their businesses as potential channels for the dissemination of agricultural information. To increase the visibility and importance of input dealers, the MANAGE launched the "One-Year Diploma in Agricultural Extension Services for Input Dealers (DAESI) Programme" in 2003 (21). The implementation of the scheme has effectively influenced the agricultural community through the introduction of novel technologies.

State Agricultural Universities and State Line Departments: Within the framework of the National Agricultural Research System (NARS), the Indian State Agriculture Universities significantly contribute to the development and growth of agricultural extension research and education. State agricultural universities (SAUs) are entrusted with the comprehensive mandate of providing education, conducting research, and facilitating extension activities across the entire state. The integration of academics, research, and extension at various crucial levels plays a substantial role in the incorporation of SAUs. The size of the SAUs is relatively larger, although they remain small in comparison to the overall farm population (12). The extension programme of the SAU primarily functions through state-level entities, although occasional direct engagement with farmers is also undertaken.

State Agricultural Management and Extension Training Institutes (SAMETI): The SAMETIs are autonomous organisations located in each state of the country. Their main goal is to arrange training

sessions on a variety of subjects, including new agricultural technologies, extension management, gender concerns, extension reform, and new information technologies (22). The SAMETI institution provides extension agents and functionaries from several line departments with thorough extension management training packages. These training sessions aim to enhance the implementation of extension services by promoting a bottom-up approach, empowering farmers, and aligning with market demands. In addition to overseeing training sessions, SAMETIs also bear responsibility for facilitating the necessary infrastructure arrangements to facilitate workshops.

Agricultural Technology Management Agency (ATMA): The introduction of the ATMA has resulted in a paradigm shift. ATMA is a semi-autonomous decentralised model that facilitates the transfer of technologies for major crops (13). The State Extension Programmes for Extension Reforms (SSEPER) scheme will be supported by the government-led ATMA model. This scheme was designed to be implemented at the district level in each state. The first experiments of the ATMA model were carried out in 1998 as a part of the Innovation in Technology Dissemination (ITD) programme, which was a crucial part of the National Agricultural Technology Project (NATP). These experiments were carried out in 28 districts across seven Indian states, with the support of the World Bank (23). The ATMA established a platform to facilitate collaborative extension activities among various line departments, including animal husbandry, fisheries, and forestry. By encouraging farmers to actively participate in the decision-making process and bridging the gap between research and extension units within a district, this platform hopes to achieve its goals (24). Currently, the ATMA is being effectively implemented in 691 districts across 28 states and 5 union territories.

Krishi Vigyan Kendra (KVKs): Currently, there are 731 KVKs run by the ICAR all over the country. When it comes to assessing, enhancing, and distributing agricultural technology to farmers working in a variety of farming systems, KVKs are essential. Furthermore, it is imperative to enhance the farmers' ability to acquire and apply contemporary agricultural technologies, thereby facilitating the continual improvement of their knowledge and skills. To enhance the professional competencies of extension personnel and enable them to effectively address more complex situations, training sessions are conducted (25). In recent times, KVKs have assumed the role of resource and knowledge hubs for agricultural technology. They support numerous programmes run by the public, corporate, and nonprofit sectors to strengthen the region's agricultural economy. The majority of KVKs possess a limited number of 20 professional extensions, thereby constraining their ability to effectively engage with the agrarian community (26). An analysis of strengths, weaknesses, opportunities, and threats (SWOT) of pluralistic extension system is presented in Table 1.

Table 1: Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis of Pluralistic Extension System

Strengths	Weaknesses	Opportunities	Threats
• Numerous agencies' efforts can be complemented and augmented by one another by using various successful ways. • Help to meet the diversified needs of the farming fraternity.	• Challenge with the quality of information from non-public entities. • The provision of conflicting information leads to confusion among farmers. • The intentions and goals of each stakeholder involved may not coincide with those of farmers. • Sometimes the entire extension system gets more complicated.	• A great platform for farmers' participation in extension programs. • Allows farmers to select from a variety of agencies based on their specific needs and facilitates a demand-driven approach to extension services.	• Absence of effective collaboration between organizations. • A clash of organizational objectives and problems due to undisclosed intentions. • Absence of effective superiority and conflict resolution techniques. • Political and economic factors prevent

• There has been a notable rise in outreach efforts in areas where the public system exhibits deficiencies. • The dissemination of novel technologies and acquisition of relevant skills among agricultural practitioners.	• Possibility of duplication of effort.	• The public sector organizations should change their directions to take a lead in pluralistic approaches. • There is a scope for merging the farming community with other concerned personnel in the same value chain.	effective collaboration. • Potential conflict between different actors in the pluralistic system.

Way Forwards

Complementary Services: Coordinated Approach

Enhancing the public sector's role as a facilitator and enabler will ensure smoother coordination through the "lead and supplement" dynamic. Public sector providers are generally strong in backward linkages, connecting farmers with essential inputs and resources, while private sector actors hold a comparative advantage in forward linkages, such as market access and value addition. NGOs, civil society organisations (CSOs), and community-based organisations (CBOs) have demonstrated effectiveness in community mobilization efforts (11).

Tailored Service Delivery: Meeting Needs and Demands

Understanding farmers' needs is essential. Advisory services should focus on market orientation, livelihoods, and financial literacy. It's important to build capacity for both organized and unorganized farmers and connect them to financial services. Gender-sensitive strategies must be implemented to ensure women's participation in decision-making and access to services.

Exploration of Diversified Funding Mechanisms

Innovations in financing mechanisms are crucial for demand-driven advisory services, aligning public funding with farmer empowerment and service provider accountability. While resource-poor farmers may require continued public support, subsidies should be phased out as farmers become able to contribute.

Bridging the Gender Digital Divide: Ensuring Access and Involvement

The lack of economies of scale significantly restricts outreach to all farmers, contributing to a gender divide. It is essential to implement targeted efforts to ensure the participation of every member of the agrarian community. Furthermore, leveraging information and communication technologies (ICTs) will greatly enhance the availability of advisory services, making them more accessible to all (27).

Conclusion

In an economy characterised by diversification, such as India, the presence of both government and private entities operating in a competitive environment rather than in cooperation can hinder progress. The traditional linear model of technology transfer no longer meets the needs of today's complex and dynamic agricultural landscape. The public extension system faced challenges in efficiency and effectiveness despite significant government investment, with outdated approaches and a lack of sustainability worsening the situation. Funding constraints also hindered the ability of extension services to support farmers effectively due to shrinking budgets and limited resources for training. Emerging challenges like climate change, natural disasters, and food insecurity call for a more comprehensive and adaptive approach to extension services. Characteristics such as uncertainty, unpredictability, and uncontrollability are now fundamental realities. Extension agencies must

transform from simple knowledge providers to active facilitators, empowering farmers to navigate these uncertainties through effective information sharing, insightful discussions, and thorough risk assessments. Embracing flexibility and agility to successfully adapt to rapid changes can be a significant potential within EAS. They should equip farmers to manage risks, capitalize on new opportunities, and explore alternative livelihoods when necessary. A pluralistic extension system, featuring diverse stakeholders with varying motivations, demands a decisive shift from control to collaboration. An innovation systems approach, grounded in a comprehensive understanding of the political economy of rural development, will effectively guide us in successfully navigating this complex environment. However, the incorporation of pluralism has the potential to yield greater advancements in the welfare of farmers. The utilisation of extension advisory services in conjunction with pluralistic approaches is widely regarded as an effective means of reaching multiple farming communities. Despite the availability of various competitive service providers, the primary challenge lies in effectively coordinating different actors. Additionally, the current public extension system faces considerable obstacles in the extension field. Delivery of pluralistic extension involves a variety of organisations, including but not limited to ICAR, SAUs, companies in the private sector, bodies that are semi-autonomous or autonomous, and institutions from civil society. This approach also entails additional complex responsibilities for administrative personnel, including bureaucrats, planning authorities, and management authorities. The pluralistic approach offers the potential for collaborative efforts rather than individualistic endeavours, thus necessitating cooperative endeavours to enhance effectiveness.

Abbreviations

EAS: Extension and Advisory Services, NGO: Non-Governmental Organisation, FPO: Farmer Producer Organisations, SHG: Self-Help Group, T&V: Training and Visit system, KVK: Krishi Vigyan Kendra, DAC: Department of Agriculture and Cooperation, ICAR: Indian Council of Agricultural Research, MANAGE: National Institute of Agricultural Extension Management, DAESI: Diploma in Agricultural Extension Services for Input Dealers, NARS: National Agricultural Research System, SAU: State Agricultural University, SAMETI: State Agricultural Management and Extension Training Institutes, ATMA: Agricultural Technology Management Agency, SSEPER: State Extension Programmes for Extension Reforms, ITD: Innovation in Technology Dissemination, NATP: National Agricultural Technology Project, SWOT: Strengths, Weaknesses, Opportunities, and Threats, CSO: Civil Society Organisations, CBO: Community-Based Organisations.

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Author Contributions

All authors contributed equally to the conceptualization, literature synthesis, analysis, and interpretation of this review. All authors critically reviewed and approved the final manuscript.

Conflict of Interest

The authors declare that there is no conflict of interest pertaining to this review paper.

Ethics Approval

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