



How Extension Empowers Agricultural Communities?

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Agriculture serves as the fundamental basis of India's economy, engaging more than half of the nation's people, with women making substantial contributions to its prosperity. Women's contributions to farming and allied occupations, despite being significant, are frequently devalued and disregarded. The agriculture sector continues to experience gender inequities, which hinder women's access to resources, decision-making positions, and possibilities for advancement. Women, who make up over 50% of the agricultural labor force in India, participate in a wide range of farming tasks, including soil preparation and post-harvest maintenance. However, their involvement is limited by complex and diverse obstacles. The challenges encompass restricted availability of land ownership, financing facilities, markets, technology, and educational resources. Furthermore, cultural norms and societal expectations frequently limit the independence and movement of women, thereby restricting their ability to make a complete contribution to agricultural development. Empowering women in agriculture goes beyond mere inclusion; it requires building an enabling environment that recognizes, values, and amplifies women's agency, abilities, and contributions. Agricultural extension services play a crucial role in reducing the gaps and promoting gender-inclusive agricultural growth. Agricultural extension was traditionally envisioned as a top-down process, where subject-matter specialists shared technical information with farmers and assumed adoption. Although this modeling approach led to some innovations during the Green Revolution, in many cases it ignored local circumstances, indigenous knowledge systems, and the diversity of farming needs. However, when the intended targets are not achieved, a section of researchers squarely blame the failure of extension which could be partly due to their ignorance and pre-conceived mindset of overall understanding of the context in which the extension efforts are taken as well as unrealistic expectation on positive gains of the technology or innovation (Ponnusamy and Pachaiyappan 2018). This linear line of thinking soon revealed its limitations, paving the path for more participatory, inclusive, and farmer centric extension models. Present scenario of agricultural extension is not merely focused on a system of technology transfer; rather it is not only an education and empowerment process but a capacity building process. All this helps farmers to optimize their decision-making process as regards crop management → pest control → soil health → irrigation → marketing and risk management. Extension services are important for providing farmers with scientific knowledge and practical skills to improve productivity, use resources efficiently, and promote environmental sustainability. The 1980s and 1990s saw the necessity for a paradigm change due to the shortcomings of the traditional approach. Farmers became collaborators in innovation rather than passive recipients as a result of a slow shift in focus toward group-oriented initiatives, farmer field schools (FFS), and participatory rural assessment (PRA). They promoted reciprocal learning and verified the local communities' knowledge. In the twenty-first century, the introduction of information and communication

technologies (ICTs) has further transformed extension techniques. E-extension, mobile-based consulting services, and digital platforms have given farmers access to real-time solutions tailored to their region. A multi-stakeholder extension ecosystem has resulted from the increased involvement of non-governmental groups and public-private partnerships. Poverty and hunger reduction crucially depend on the increased productivity and profitability of diverse smallholder farmers who form 81% of total farmers where successful delivery of agricultural extension plays a critical role (Glendenning *et al.*, 2010). Many government programmes are directly and indirectly focusing on addressing these issues of serious concern.

Core Functions of Agricultural Extension in Farming Communities

Disseminating Knowledge : Extension services provide farmers with timely and relevant information on crops, pest control, soil health, water management, and innovative practices, helping them stay updated and informed.

Promoting Sustainable Practices : Extension plays a crucial role in fostering environmental sustainability by educating farmers on resource-efficient and ecologically sound practices, ensuring current productivity without compromising future needs (Ozcatalbas *et al.*, 2017).

Enhancing Participation and Decision-Making : Extension increases farmers' self-assurance and ability to make knowledgeable, autonomous decisions by providing reliable information and hands-on learning opportunities like field schools and demonstrations.

Training in Post-Harvest Management and Marketing : Extension gives farmers training in post-harvest management, value addition, packing, minimizing storage loss, and marketing techniques, which improves their access to lucrative markets and boosts their revenue.

Empowering Women and Youth : By providing training in contemporary techniques, leadership, entrepreneurship, and financial literacy, targeted programs strengthen the role of women and young people in agriculture and encourage equality, participation, and sustained involvement in the industry.

Facilitating Access to Markets, Credit, and Institutions : Extension acts as a bridge to markets, credit facilities, and agricultural institutions, helping farmers understand market trends, access subsidies and loans, and benefit from government schemes and institutional support.

Key Players in Agricultural Extension

Krishi Vigyan Kendras: Krishi Vigyan Kendras (KVKs) are central to India's agricultural extension, bridging the gap between research and farming by adapting technologies to local agro-climatic conditions. They also promote rural entrepreneurship through skill development, supporting government efforts to raise farmer incomes. With one KVK in every district, their grassroots reach ensures timely, region-specific support. Strengthening KVKs is essential for building a sustainable and resilient agricultural future.

State Agriculture Departments: Serving as a link between farmers and scientific research, the Extension Division is essential to the coordination of agricultural extension throughout India. It carries out important projects under the Krishnannati Yojana, including as the Sub-Mission on Agricultural Extension (SMAE), and assists state governments in developing strong extension services. The ATMA Scheme is a significant initiative under this that improves outreach to farmers at the state level. Additionally, the Division offers information support through partnerships with All India Radio for Krishna Vani programs and Prasar Bharati for DD Kisan. Farmers can access region-specific advice via Kisan Call Centers at 21 locations through the toll-free number 1800-180-1551. Additionally, it publishes bilingual magazines to keep stakeholders informed on agricultural developments and extension activities.

NGOs and Community based organizations: NGOs play a vital role in agricultural extension by mobilizing diverse funding sources such as ATMA grants, government schemes, and CSR contributions. They partner with institutions like IARI through models like Village Outreach and support capacity building programs such as DAESI by MANAGE.

Using methods like Participatory Rural Appraisal (PRA), farmer-to-farmer learning, Krishi Melas, and village adoption, NGOs effectively promote technology transfer and empower rural communities. Community-Based Organizations (CBOs) also contribute significantly. These structured, voluntary groups facilitate knowledge sharing, mutual aid, conflict resolution, and collaborative efforts, often filling gaps left by limited government outreach. Their grassroots presence makes them powerful agents of agricultural and rural transformation.

Digital Extension Services: Digital technologies are being quickly adopted by agricultural extension, and platforms such as WhatsApp are improving information sharing (Ahmed & Kumar, 2023). Knowledge transmission has become quicker and easier because to mobile tools including voice messaging, SMS, and internet-based material. Farmers can receive fast and engaging support from digital resources such as chatbots, podcasts, videos, and online forums. Precision farming and resource optimization are also made possible by emerging technology like artificial intelligence, drones, and sensors. When combined, these developments are revolutionizing farming methods and increasing farmer involvement.

Way Forward

In order to empower rural communities in the dynamic terrain of today, agricultural extension needs to change dramatically. To improve problem-solving skills in the real world, extension education should prioritize hands-on field experience. Beyond adoption studies, research should focus on topics including market access, climate change, and sustainable resource usage. It is imperative to move toward farmer-focused, participatory approaches that enhance peer learning and expand outreach through the use of digital resources. Demand-driven, climate-resilient, inclusive, and supported by ongoing capacity building for extension professionals are all requirements for extension services. More comprehensive support will be provided by incorporating viewpoints from fields including communication, gender studies, and management. Importantly, to demonstrate the worth and efficacy of extension in promoting agricultural growth, strong impact evaluation techniques are required.

Conclusion

Agricultural extension is more than a service—it's a powerful tool for rural transformation. Effective extension turns farmers into informed learners, entrepreneurs, and community leaders. It builds confidence and independence by helping them evaluate technologies and adapt them to local conditions. This empowerment can turn struggling farmers into successful role models who uplift entire communities, especially in times of climate and market challenges.

References

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