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Shifting The Paradigms Of Agricultural Extension In India: An Overview

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ABSTRACT

In scientific discourse, paradigms represent coherent frameworks comprising theoretical assumptions, methodological conventions, and evaluative criteria that collectively define the boundaries and standards of a discipline. Within the field of agricultural extension in India, four distinct paradigmatic orientations have emerged and evolved over time. The earliest of these, rooted in the colonial era and later revived during the 1970s through the Training and Visit (T&V) system across Asia, was Technology Transfer — characterized by a top-down, persuasive, and paternalistic approach to delivering research-based recommendations aimed at boosting farm output through largely conventional models. This was followed by the Advisory Work paradigm, which introduced a more interactive and participatory dimension into extension delivery, emphasizing farmer training, collective organization through self-help groups, and the introduction of farmer field schools and university-based extension frameworks. The most recent evolutionary phase has been marked by a turn toward Facilitation for Empowerment, an approach premised on educational and participatory modes of engagement that foreground horizontal communication, group-based problem solving, and farmer-centred methodologies. This review demonstrates that each paradigmatic transition contributed incremental insights to extension practice — beginning with rural development goals and culminating in a dynamic, empowerment-oriented system designed to foster sustainable agricultural transformation.

Introduction

A paradigm, in the scientific sense, constitutes the shared theoretical foundations, methodological tools, and normative standards that guide inquiry within a given field. Its defining characteristic is its capacity for transformation: as knowledge advances, as societal needs evolve, and as new intellectual currents emerge, paradigms are contested, revised, and

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eventually replaced by more adequate frameworks that better account for the realities of the time.

Historically, agricultural extension systems were conceived primarily as vehicles for conveying technologies developed by scientific institutions to farming communities. However, this conventional role came under sustained criticism for its limited success in generating meaningful developmental change, particularly in the agricultural sectors of developing nations (Kumar and Hansra, 2000). In response to evolving agricultural realities — including accelerating globalization, the growing commercial orientation of farming, and the push toward sustainability — extension has been compelled to assume a broader mandate. This expanded mandate encompasses more effective integration of farmers into input and output market chains, strengthening the socio-economic agency of rural communities, and fostering the growth of rural micro-enterprises.

Broadly considered, the agricultural extension system operates at the intersection of sustainable farming and rural human development. Various intellectual traditions within the extension field have advocated for diverse methodologies including participatory group-based approaches, problem-solving frameworks, and information-sharing networks that serve both theoretical and applied learning objectives. The evolution of extension paradigms has touched upon virtually every dimension of the discipline and has shaped the institutional and conceptual architecture of extension practice. The Technology Transfer paradigm, the first of these orientations, championed the deployment of Transfer of Technology (ToT) mechanisms as instrumental milestones toward community development and sustainability. Subsequent scholarship has traced how this framework has progressively given way to agricultural innovation systems thinking that goes beyond linear knowledge transmission (Koutsouris, 2018). From a global vantage point, the technology transfer model positioned expert-farmer relationships within a structured power dynamic that prioritized agro-ecological maintenance and environmental safeguarding (Warner, 2008). The second paradigm — Advisory Work — emerged as an effort to overcome the limitations of unidirectional knowledge flow and to make agricultural guidance more accessible and responsive. The concept of ToT proved instrumental in enabling the growth of Extension Advisory Services (EAS), linking farmers to expert networks (Jarial, 2022). Within this advisory framework, nutrition-sensitive programming has also been integrated, gaining recognition among international development stakeholders (Fanzo et al., 2015). Human Resource Development (HRD) constitutes the third paradigmatic cluster, spanning crop management, agricultural economics, animal sciences, and extension education — disciplines that are now organized under structured institutional frameworks within bodies such as the Indian Council of Agricultural Research (ICAR) (Lopokoiyit et al., 2012). Further dimensions of HRD have been shaped by the privatization of extension services, which continues to attract scholarly and policy attention (Kumar and Hansra, 2000). Most recently, the Facilitation for Empowerment paradigm has repositioned extension as a dynamic, evolving field in which change agents function as catalysts for learning-innovation, knowledge dissemination, and community-driven transformation (Cristóvão et al., 2012). This paradigm is guided by principles of active listening, neutrality, strategic planning, and the creation of participatory environments in which stakeholders feel genuinely engaged and empowered.

Categories of Paradigms

Paradigm 1: Transfer of Technology Persuasive and Paternalistic in Nature

The uptake of agricultural technologies among farming communities is contingent upon the effectiveness with which scientific innovations are communicated and made accessible. While diverse extension mechanisms have been employed in the service of technology transfer, contemporary extension practice has increasingly turned to media mix strategies — integrating multiple communication channels — as a digitally mediated approach to reaching large and dispersed audiences. Rigorous assessment instruments have been applied to evaluate the constraints and success factors associated with these outreach efforts (Raina et al., 2016). On-farm demonstration remains one of the most valued and operationally practical modalities for promoting sustainable technology adoption, given its capacity to illustrate tangible results under real agricultural conditions; at the same time, it calls for a willingness on the part of farmers to deviate from entrenched farming routines (Miller and Cox, 2006).

Key schemes and initiatives under this paradigm include:

I. National Agricultural Technology Programme (NATP, 1998): This programme established a systematic framework for technology transfer through iterative processes of assessment, testing, and refinement. Its primary mandate was to identify and address structural weaknesses and gaps within agricultural systems. Technologies were rigorously evaluated under actual farm conditions to verify operational efficacy before wider dissemination — reflecting the persuasive character of this paradigm by which scientific validation was used to convince farmers of a technology's merit.

II. Training and Visit System (T&V, 1974): Conceptualized by Benor and Baxter, the T&V system represented a structured approach to field-level extension delivery, centred on the systematic training of extension agents and their regular, scheduled interactions with farmers. The system sought to build farmer capacity to adopt improved practices through a combination of motivational guidance and a cascading farmer-to-farmer knowledge transfer model — reflecting its paternalistic orientation, wherein the extension agent

assumed an authoritative advisory role.

Paradigm 2: Advisory Work — Persuasive and Participatory in Nature

The Advisory Work paradigm is oriented toward a set of interrelated developmental objectives: enhancing agricultural productivity, strengthening food security, improving rural livelihoods, and positioning agriculture as a driver of pro-poor economic advancement. Commodity-based extension, as a component of advisory service delivery, functions through networks of commodity interest groups that serve as the primary actor base. These structures have demonstrated effectiveness in mobilizing farmer resources and strengthening marketing arrangements, resulting in improved income outcomes for participating members (Eswarappa et al., 2012). Digital platforms have further expanded the advisory landscape; the e-Sagu portal, for instance, serves as an online expert advisory system and information repository addressing a wide spectrum of farming queries and challenges, functioning as a virtual extension agent for smallholder farmers.

Notable schemes under the Advisory Work paradigm include:

- Farmer Tele Advisors / Kisan Call Centre (KCC, 2004): Established under the Ministry of Agriculture and Farmers' Welfare, the KCC provides toll-free telephone-based advisory services (1800-180-1551), enabling farmers to access expert guidance on agricultural queries at any time. This service exemplifies the persuasive dimension of advisory work, using direct farmer engagement to promote improved practices.
- Agricultural Technology Management Agency (ATMA, 2005): A centrally sponsored district-level scheme that facilitates farmer participation in organized agricultural marketing through Farmer Interest Groups (FIGs). By creating structured market linkages and offering collective selling opportunities with institutional backing, ATMA embodies the participatory character of this paradigm by empowering farmers as active agents in the agricultural value chain.

Paradigm 3: Human Resource Development Educational and Paternalistic in Nature

The Human Resource Development (HRD) paradigm is premised on the conviction that the competence of extension personnel and the capacity of farming communities are fundamental determinants of agricultural progress. All extension workers are expected to meet professional standards of training and practice that equip them to fulfill their roles as credible knowledge intermediaries. Extension education under this paradigm is inherently non-formal — operating outside conventional schooling frameworks as a voluntary, context-sensitive learning activity. The Farmer Field School (FFS) model has emerged as a particularly influential pedagogical innovation in this space, gaining wide adoption across Asia and other regions. The FFS methodology is built on systematic problem identification, application of agro-ecosystem analysis, and the co-development of practical, context-specific solutions that strengthen farmer agency and technical competence — affirming its fundamentally educational character. Among the institutional frameworks supporting HRD, university-based extension models have been identified as particularly robust, encompassing top-down, participatory, and private delivery modes (Davis, 2008). The paternalistic element within this paradigm manifests in institutional oversight structures that seek to align individual performance with broader organizational objectives, necessitating sound governance practices and inclusive stakeholder engagement in organizational decision-making (Warren, 1999).

Relevant initiatives under the HRD paradigm include:

I. Paramparagat Krishi Vikas Yojana (PKVY, 2015): This government scheme promotes the adoption of organic farming at the village cluster level through the Participatory Guarantee System (PGS) certification framework. It incentivizes commercial organic production while simultaneously encouraging natural resource stewardship among farmers — embodying the paternalistic element of institutional guidance toward conservation-oriented agricultural transformation.

II. Institutional Bodies for HRD: Several dedicated institutions have been established to anchor agricultural HRD at national and state levels, including the State Agricultural Management and Extension Training Institute (SAMETI, 2003), the National Institute of Rural Development and Panchayati Raj (NIRDPR, 1970), and the National Academy of Agricultural Research Management (NAARM, 2015). These bodies collectively deliver training programmes across all levels of the extension hierarchy, including Post Graduate Diploma in Agricultural Extension Management, thereby professionalizing the extension workforce.

Paradigm 4: Facilitation for Empowerment Educational and Participatory in Nature

The Facilitation for Empowerment paradigm reconceptualizes the role of extension as a process of enabling adult learners and communities to discover, articulate, and act upon their own developmental capacities. Rather than directing outcomes, this approach involves deliberately ceding control over the process to the group, fostering collective ownership and accountability. Facilitation for development encompasses a layered process: it supports individuals and groups in deepening their self-understanding, in recognizing their agency within developmental processes, and in cultivating the reflective and practical skills necessary to pursue self-

determined goals — with equal weight placed on the quality of the participatory process and the substantive content of the learning. Institutions like the State Agricultural Management and Extension Training Institute (SAMETI) exemplify this paradigmatic orientation by foregrounding multi-stakeholder participation and diverse facilitation strategies within extension programming (Cristóvão et al., 2012).

Prominent initiatives reflecting this paradigm include:

- Agricultural Extension Innovation (c. 2000): Jointly implemented by the Government of India in collaboration with MANAGE (National Institute for Agricultural Extension Management) and GFRAS (Global Forum for Rural Advisory Services), this initiative was designed to cultivate an enabling environment for grassroots innovation adoption. Its core objective was to enhance systemic innovation capacity by engaging rural communities in experiential learning, thereby building practical skills and generating tangible contributions to joint technology development processes.
- Agri-clinic and Agribusiness Centre Scheme (AC&ABC, 2010): This scheme aims to stimulate entrepreneurial engagement among rural youth by supporting the establishment of agriculture-based service ventures. It simultaneously addresses the need for professional advisory services in agribusiness and start-up incubation, creating a self-sustaining model for extension service delivery rooted in rural economic empowerment.

Conclusion

A cross-paradigmatic examination of agricultural extension in India reveals that each successive framework has contributed layered insights that collectively mirror the evolving intersections of agricultural science, rural sociology, and development governance. Knowledge generation and dissemination within these paradigms have been driven by communicative and participatory processes through integrated institutional interfaces. The trajectory from community development-oriented extension to facilitation for empowerment represents a fundamental reorientation: participants are no longer passive recipients of knowledge but active co-designers of the extension process, engaged from its earliest conception through to final implementation. This shift has materially enhanced farmer agency in decision-making, accelerated skill acquisition, and expanded the educational and developmental potential of rural communities.

A defining achievement of this paradigmatic evolution is the growing recognition of indigenous farmer knowledge, lived experience, and inherent capability as legitimate and valuable inputs into agricultural development. Evidence from India, the Philippines, and other parts of Asia affirms that integrating farming communities into decision-making and training processes has contributed meaningfully to national progress toward agricultural sustainability and food security goals.

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