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A BRIEF DISCUSSION ON PARADIGMS OF AGRICULTURAL EXTENSION IN INDIA : A REVIEW

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ABSTRACT

Paradigms basically are a distinct set of concepts or thoughts patterns, including theories, research methods, postulates and standards for what constitute legitimate contributions to a field .Or, it can be also defined as a set of theories and assumptions that comprises a worldview, or developed framework that informs action. There are four paradigms observed so far in the field of agricultural extension in India. These paradigms were prevalent in the colonial times, and then again it reappeared in the 1970s when the Training and Visit system was established across Asia. These are Technology Transfer which was persuasive and paternalistic in nature, key features were delivering specific recommendations from research using to-down and persuasive methods to increase agricultural production. Related models and approaches were mostly conventional in nature. Then a shift was observed towards advisory work with persuasive and participatory mode of extension delivery system. Responding to specific farmer inquiries about particular problem, using problem solving or persuasive methods. Models and approaches introduced related to this paradigm are commodity-based system, market-oriented extension, agribusiness extension. Next shift was towards human resource development or non-formal education with educational and paternalistic views. Training farmers and rural people, and helping farmers to organize into self-help learning groups were the key feature of this paradigm by introducing farmer-field schools and university-based extension models. The latest shift was observed towards facilitation for empowerment with educational and participatory mode of delivery. Key features of this shift encourage facilitating horizontal communication, active/collaborative/social learning, co-construction of knowledge, collective action, empowerment processes among farmers and rural people, working with groups to help them address specific issues. Participatory extension, farming systems research and extension, farmer first related models and approaches were including participatory learning and action, participatory technology development, farmer-led extension, farmer-field schools, farmer networks, study circles, facilitation of local processes, local development, and agro-ecological extension. From discussion mentioned in the study, it can understand that each of the paradigms added new insights to the extension delivery system which was mainly related to rural development and then gradually evolved in to a robust system to facilitation for empowerment to bring a sustainable development process.

***Keywords*:** Paradigms; Technology Transfer; Advisory Work; Human Resource Development or Non-formal education; Facilitation for Empowerment.

Introduction

In General context, the agricultural extension system works on sustainable agriculture and mankind. Many ideologies regarding extension have come forward which entails problem solving methods, group extension and a linkage to share information to fulfill the abstract and practical knowledge of individuals (Sadegh *et al.*, 2009). The paradigms of agricultural extension have severely reported every activity of the discipline and create an interface to be convenient in nature. Firstly, it comes with technology transfer which demonstrates new innovations in a better methodology; under this paradigm the gestures of ToT (Transfer of Technology) have been a massive milestone to achieve the desired goal of sustainability and community development. There have been several shifts in the frame works of technology transfer which includes agricultural related research and rural development toward agricultural innovation systems (Koutsouris, 2018). On a global context, the technology transfer creates an expert / lay power relations with the stakeholders,producers and other individuals to maintain the agro-ecology and prevent the pollution of any sort from that technology with extreme feasibility (Warner, 2008). Succeeding to the second paradigm it introduces the advisory system which was a major challenge to channelize every bit of information to the masses. Previous time period witnessed several technologies for guidance but with time its spread along with its advancement has roped the farming civilization towards betterment and upliftment. The concept of ToT has been very helpful in entering the Extension Advisory Services (EAS) (Jarial, 2022). Along with the lessons of farming certain nutrition sensitive knowledge has also been integrated in the advisory unit which has been nicely recognized by the global development players (Fanzo

et al., 2015). Now in the third slot comes the Human Resource Development which has been clustered in several domains like management of crop, Agricultural Economics and Extension along with Animal Science (Lopokoiyit *et al.*, 2012). Under ICAR it has been made as a separate organizational body to mound the overall skill and knowledge along with improved lifestyle of the people. Many alterations have been made further via privatization of the extension which is being considered as the important dimension (Kumar and Hansra, 2000). Lastly, the recent paradigm is the Facilitation for empowerment which implies that the area of extension is quite non-static in nature and new initiatives are emerging to focus on the changing roles of change agents, with underlining their present roles as learning-innovation, change facilitators and knowledge broadcaster (Cristovao *et al.,* 2012). The guiding principle for the paradigm includes neutrality, listening, motivation, planning and preparation, creating a setting where participants feel comfortable.

Categories of Paradigms

Paradigm-1: Transfer of technology: As Persuasive and Paternalistic in nature

The diffusion of farm technologies depend upon efficient functioning of how the new technology evolved by the scientist. Several services of agricultural extension have been taken in to account for the technology transfer but in a recent era the media mix (a unit of extension) has been in enormous use to disseminate the technology to the masses which proves to be digitally persuasive in nature. Many validity and reliability tools have been used to analyze the limiting factor in this initiative (Raina, *et.al*, 2016). Preferences has been given to sustainable spread of the technology,the on-farm demonstrations are in particular considered feasible and convenient and it alsodemands for drastic changes from the methods currently been performed in the operation of the farm or the ranch land (Miller and Cox, 2006).

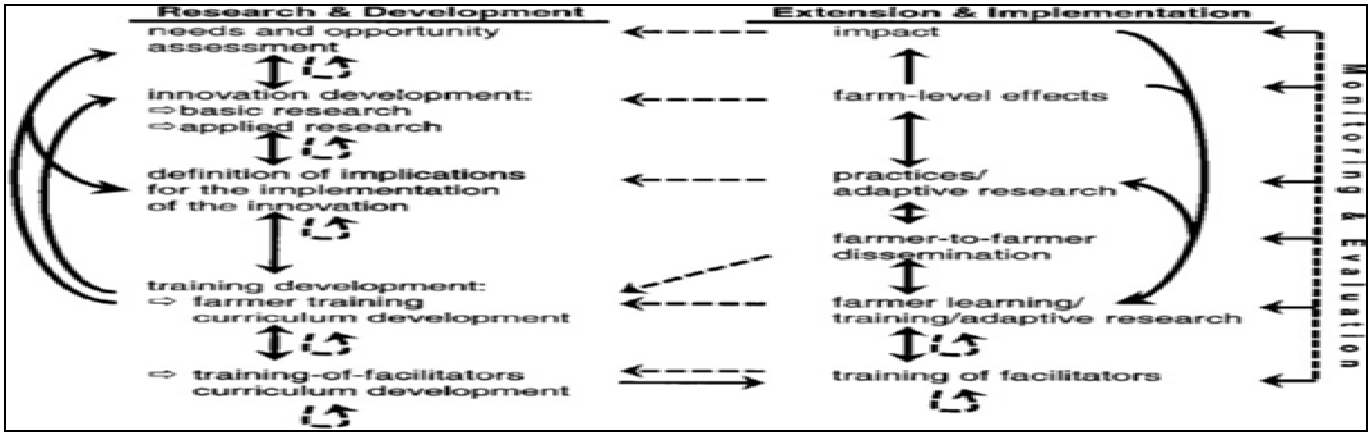

Fig. 1 : Frame work of research and development for sustainable agriculture (Van de and Braun, 2002)

This framework discusses on the research & development and its extension and implementation for sustainable agriculture. It mentions the role of research stations where the technology generation is done and then it is tested, refined and implemented along with the help of facilitators, called as change agents. This change agent plays a role to make it adoptable and feasible for the farming community.

Various TAR (Technology Assessment and Refinement) approaches have been taken which includes lab to land projects, operational research project programme and a list of krishi vigyan kendra were set up to bring a strong linkage among the masses with different job roles which made the people adopt the programme, that's why it is also paternalistic in nature.

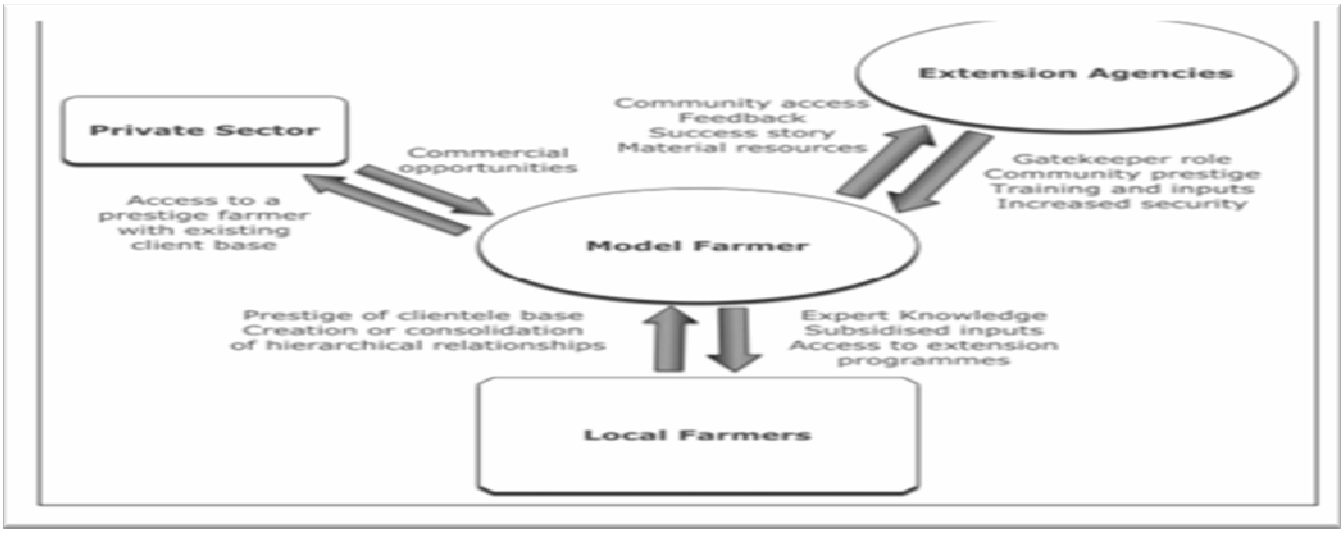

Fig. 2 : Key relationships in a farmer model network (Taylor and Bhasme,2018)

The farmer model network indicates key relationship between public extension agencies, private sectors and local farmers, to create a community work and uplift the base standard of the farmers through proper technology generation and increase both productivity and income. This model network will be easily accessible to the rural population as via two-dimensional interactive process.

Co-operative extension services are also being provided to the community, which is being considered as an important model of the past but with time the model lost its virtue and being considered as faulty in certain aspects (McFall and Mckelvey,1989). An interdependent relational pattern was being observed in the people of the rural community, creating a social networking chain. The bridging role of the extension worker between researcher and farmer which would gain momentum in proper success of the innovated technology and its implementation (Palli and Deb,2020).

Some schemes or initiatives related to this paradigm are:

I. National Agricultural Technology Programme (NATP, 1998) implant a very friendly association in the Transfer of Technology after a long process of assessment and refinement. Main objective was to address particular system constraints, weaknesses and gaps. After a long process of the technology testing, it was being demonstrated in farming condition to measure its working principle and efficiency. This statement proves that it was persuasive in nature.

II. Training and Visit System (T&V, 1974) introduced by Bastor and Benor was an approach majorly focused on the training and guiding of the farmers with motivation so that they can enhance their capacity to adopt the new technology under the farming and research and farmer to farmer model of Tot (Transfer of Technology). That's it is paternalistic in nature.

Paradigm 2. Advisory Work: as Persuasive and Participatory in Nature

Advisory work or activities majorly seen in the areas for, boosting agriculture productivity, increasing food security, improving rural livelihoods, promoting agriculture as an engine of pro-poor economic growth. Commodity based extension which acts a part of the advisory working committee and mainly has been identified as a supporting system where actors will be the commodity interest group personnel. It has played an attractive role among the farmers, to capitalize and mobilize resources which are found to be as a booster for advisory development and also the net and gross income of the respective members through nicely structured marketing was up lifted (Eswarappa *et al*, 2012).

Various online agricultural extension services are also being provided to the users and needers which can be very feasible and adopted in an eco-friendly and user-friendly manner. This online portal called as 'e-Sagu' gained lot popularity in the marketing and advisory domain named 'data warehouse'. This programme has an enormous wealth of information related to any sort of farming hindrance or query. It is basically an expert system which would provide a quality expert advice (Reddy *et al.*, 2007).

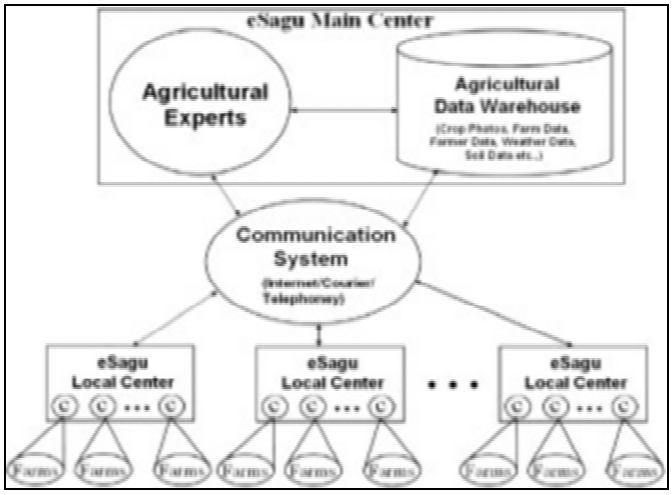

Fig. 3 : e- Sagu system. (Davis and Hemshserk, 2012)

The system represents the communication system as the modal center of all interaction between the agricultural experts and data warehouse. The information is being generated from the main center of the 'e-Sagu' system and then being conveyed to the lower end of the section that is the rural community involved in farming via local centers of the respective areas. Here, 'C' indicates coordinator. A double arrow indicates information flow. Supporting the above-mentioned information, the agribusiness advisory channels have also played an important role in the pluralistic policy issues like lack of organized block-chain and information and also include the altering roles of the various extension service providers to maintain equity and sustainability (Davis and Heemskerk, 2012).

Through this explanation it is both Persuasive and Participatory in nature.

Some schemes of Advisory Work:

- Farmer Tele Advisors (FTA)- This tele-advisory scheme mainly refers to the KCC (Kisan Call Center) started in the year of 2004, under the ministry
- Of Agriculture & Farmers Welfare. Basic objective was to answer the calls of the farmers regarding any query via a toll-free number 1800-180-1551. The service helps the farmers in a lot ways with more convenient approach. This service is highlighted to be persuasive in nature.
- ATMA (Agricultural Technology Management Agency) in every district which is centrally sponsored scheme came into action in the year of 2005. The Farmer Interest Groups are connected to this scheme as they are having a successful run of their own produce in the market via having a participative linkage under the agency, and are able to make bulk selling along with a security assurance from the body.

Paradigm 3: Human Resource Development: Educational and Paternalistic in Nature

The human resource development basically confronts the individuals with upgraded skills and knowledge. In this aspect we should highlight the perspective that all extension workers should be trained professionally and fulfill the criteria being a good extension agent. The education or rather training is an out of school method or simply non-formal in

nature which denotes it comes as extra curriculum activity as per the wish of the respective candidate. The concept of farmer field school has now established itself as an innovative and communicative model for the education purpose of the farmers in many parts of Asia and others nations also. The major aim of the farmer field school is to diagnose the problems, analysis of several theories and then conveying a nurtured solution to the farmers which helps in their capacity building and empowerment. From this we can conclude that it is educational in nature. Several models have been analyzed for the framework of the human resource development, one of them is the university-based extension models and it has been proved to be efficient, includes three forms like top-down, participatory and private (Davis, 2008). The Paternalistic portion of this paradigm includes a close relation of the employees and their efficiency of work and it should be maintained in such a way rather than moral in-differences and unjust conduct. A prudent management strategy is needed to widen the decision-making process and hope for better contribution from the parts of the stakeholders in the evaluation of the socio-economic purpose of the firm or organization (Warren, 1999).

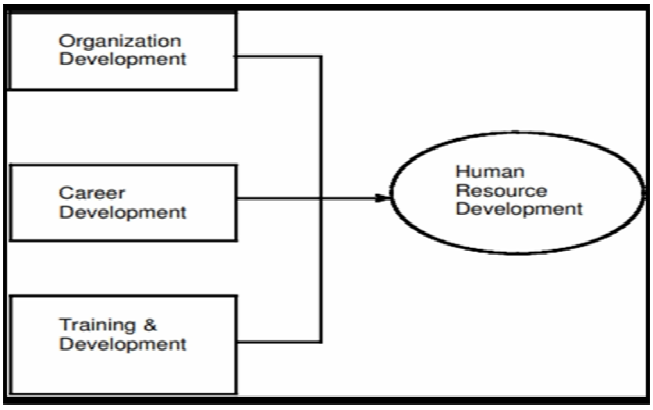

Fig. 4 : Components of human resource development (Mankin and D.P, 2001)

The mentioned flowchart depicts that the human resource development entails all the three components that are organization development- it is the overall growth of the organizational body in terms of working efficiency, career development- it is the upliftment of the employees and the professionals that marks a proliferation in the career area that is linked with the development of the respective wing or body, and at last the training and development of the clients, employees, staffs from the preliminary to the last phase of the achievement.

Some approaches and initiatives of Human Resource Development:

I. Paramparagat Krishi Vikas Yojana (PKVY, 2015) - Started under the promoted the adoption of organic village by cluster approach and PGS (Public Guarantee System) certification. The scheme worked on commercial organic farming and also motivated the farmers to conserve the natural resources. That's how it is paternalistic in nature.

II. There are few institutional establishments which works on the arena of human resource development as their core objective like; State Agricultural Management & Extension Training Institute (SAMETI, 2003), National Institute of Rural Development and Panchayati Raj (NIRDPR, 1970), National Academy of Agricultural Research Management (NAARM, 2015). All these bodies provides national & international training, training for senior level extension functionaries, offers courses like Post Graduate Diploma in Agricultural Extension Management- Massive open online courses (PGDAEM-MOOCs), Post Graduate Diploma in Agribusiness Business Management (PGDM-ABM), functioning with Panchayati Raj Institutions (PRI) to uplift rural development, organizing training and conferences, aid and collaborate with international agencies, information dissemination. Thus, all these proves to be educational in nature.

Paradigm-4. Facilitation for Empowerment: as Educational and Participatory in nature

The art of bringing adults together with the learning, by helping adults learn through self-discovery. Facilitation is about empowering others. It involves letting go of control over theoutcome of a process and giving that responsibility to the group. Facilitation for development involves: a deeper process of helping individuals or groups of people to understand themselves and their role in development; putting equal emphasis on both process and content; the art of discovering how to unleash people's ability to learn, reflect, and use their skills and potential to achieve their desired goals. State agricultural management & extension training institute is the new shift in the paradigm of agricultural extension which demonstrates the increasing participation of various stakeholder networks involving different sorts of facilitation activities as well asadoption of certain participatory initiatives. An illustrative method of verifying the roles of actors in several techniques and methodologies are being nicely presented through various studies (Cristovao *et al.*, 2012).

The emerging concept of farmer-led and market-led extension has been a considerable interest key towards facing challenges like making the process cost-effective in nature and largely anecdotal. It provides linkages to credit facilities, provides information and knowledge, imparts subsidies and requires an active involvement of the individuals. Major portion of this paradigm includes social capital and other inter-relational networks with forms of capital (Islam *et al.*, 2011). Thus, it proves to be educational in nature.

A new form of Participatory Technology Development is being proposed which is the constructive technology development (CTA) and the major purpose of this model is to shape the technology development process keeping in mind social aspects in a sequential manner. For the evaluation of this model three criteria's are being provided which are as follows- reflexivity, anticipation and social learning (Schot, 2001). That's how this paradigm proves to be also participatory in nature.

Some approaches of the aforesaid paradigm:

- Agricultural Extension Innovation- Started in the era of 2000. It was started by the Government of India along with certain extension bodies namely MANAGE (National Institute for Agricultural Extension Management) and GFRAS (Global Forum for Rural Advisory Services). The approach was basically to create an opportunistic scenario for the new innovation to be adopted. The main Objective was to uplift the

innovation capacity in the system by involving the people of the rural community to learn the hands-on skill and so that a lumpsum contribution physical contribution can also be accountable on their part. It vastly focused on joint development technologies.

- Agri-clinic and Agribusiness Centre (AC & ABC Scheme, 2010) – to create an optimistic self-employment horizon among the rural youth along with providing the professional in the respective of agribusiness, start-ups.

Thus, both the above mentioned schemes proves to be educational and participatory in nature.

Discussion on above paradigms

From the above discussion we understand that, these paradigms lay a story of succeeding chains towards development. The very ancient approach was to focus on individuals than through a high paced velocity it nicely implanted the roots of community and technological development. It also marks the era of new, digital, convenient, and holistic extension where the access was available to all sections of people. It is being recommended that a new and extended political agenda should be bought to action and to boost the food security and income generation of the rural people. A pluralistic legal mind plan should be taken in to account and implementation should include multi-sectoral services on a location bound area with specific details. All the four reinforcements to the extension discipline which are namely transfer of technology, advisory work, human resource development and facilitation for empowerment which is a new add to the list plays all sorts of educational,facilitate,paternalistic and participatory roles in a perfect equilibrium.

Certain future thrust areas in line with these paradigms are, (i) decentralization of extension services- increases the participation of the users in the programs of technology transfer and it enhances the life of them in an overall development. It includes several political and administrative agendas, (ii) fully or partially privatized extension- depends and works on the services being circulated to the each section of the society with proper working efficiency and prophecy, (iii) pluralistic extension system- entails the holistic approach of extension towards the need of the people by fulfilling the required demands and interfering in the several problematic areas and coming up with efficient and viable solutions, (iv) client orientation- having a positive and empathetic outlook towards the people and approaching them in a lucid manner. This totally binds the threads of a good relation among farmers, change agents and organizational bodies, (v) participatory extension- the participatory rural appraisal plays a major role in this segment of work that is focused towards people's participation that will lead to their achievement and success. The engagement of the people is made in a quite framed and continuous manner, so that they can realize their fullest potential, (vi)- unified extension service- is an approach to the masses of population under the farming community and organization to uphold the benefits of digitization, advanced technology and information dissemination.

Some suggestive measures to be taken to improve the lacuna of current Agricultural extension system:

Present Scenario	Suggestive Measures
Government Lags	Boosting Privatization
Mechanical performance less efficient	Concrete data with proper digitization and Advancement
Less boost of economy	More Exchange of Foreign Currencies via all means
Hesitating Knowledge and Interactive Personality	More interface with real life situation
Less conservative in nature	More eco-friendly and administrative

Conclusion

The major psychology under these paradigms isthatthey point out both the agricultural and social science aspect along with some political glimpses. The knowledge is being gained through the communicative processes with unified interfaces. Taking a look from the shift of community development to facilitation for empowerment the participants are accountable to the whole process from the initiation stage to the final stage. Thus, it helps in decision making, skill development, increases educational capacity and potential.

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