National Young Professionals Development Program (NYPDP)

(A program of the MANAGE-University Alliance for Advancing Agricultural Extension and Advisory Services)

MANAGE NYPDP Mentors Diaries:

Reflections That Cultivate Tomorrow's Agricultural Extension

National Institute of Agricultural Extension Management (MANAGE)
(An Autonomous Organization of Ministry of Agriculture and Farmers Welfare, Govt. of India)
Rajendranagar, Hyderabad – 500 030, Telangana, India
www.manage.gov.in

Social Network Analysis (SNA) in Agricultural Extension Research

Sreeram Vishnu
Assistant Professor
Kerala Agricultural University (KAU)
Thrissur, Kerala
sreeram.vishnu@kau.in

Sreeram Vishnumoorthy

Insights from MANAGE NYPDP Mentor

01 About the MANAGE NYPDP Program

The National Young Professionals Development Programme (NYPDP) is a timely initiative by MANAGE, Hyderabad aimed at shaping agricultural extension scholars by fostering a spirit of professionalism and building new capacities. By adopting the principle of “catch them young,”. NYPDP focuses on nurturing capable and committed agricultural extension professionals who can lead the sector forward. By integrating both technical expertise and soft skills, the initiative effectively equips participants to tackle the complex and evolving challenges in agricultural extension. It is heartening to see a premier institution like MANAGE is spearheading this initiative at the national level, in collaboration with agricultural universities across the country, creating a ripple effect for broader outreach and impact.

02 Application of Social Network Analysis (SNA) in Agricultural Extension Research

Social Network Analysis (SNA) is a powerful tool for understanding the social relationships and interactions among individuals within a group (Borgatti and Li, 2009). It provides valuable insights into the actors involved and the connections between them within a specific social context (Clark, 2006). Originally applied in disciplines such as sociology, psychology, and anthropology, SNA has evolved significantly with advancements in graph theory and computational capabilities.

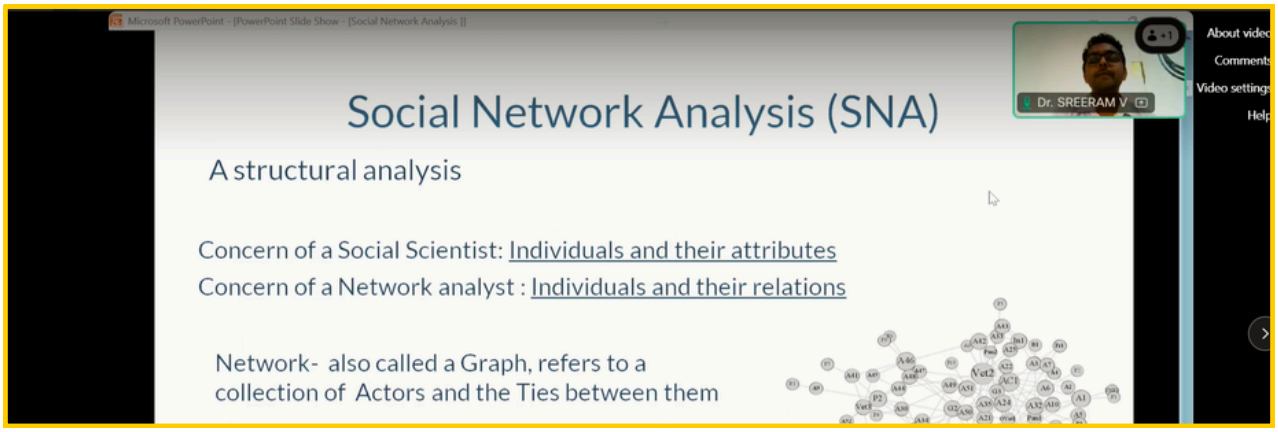
SNA offers valuable insights in agricultural extension research by revealing how information, innovations, and influence flow among farmers, extension personnel, and other stakeholders. By mapping these relationships, SNA helps identify key actors, communication gaps, and opportunities to strengthen knowledge exchange networks—ultimately enhancing the effectiveness of extension interventions.

03 Role of Social Network Analysis (SNA) in Identifying Key Actors

SNA helps identify key actors, influencers, and knowledge flows within farming communities by mapping and analyzing the relationships among individuals or organizations. Through network metrics such as degree centrality (number of connections), betweenness centrality (influence as a bridge between others), and closeness centrality (ease of reaching others), SNA highlights who holds the most connections, who serves as information brokers, and who can rapidly disseminate knowledge (Freeman, 1979). This can be achieved through a set of procedures grounded in graph theory to analyze the presence, direction, and strength of connections between actors (Scott, 1988). This allows researchers and practitioners to pinpoint influential farmers, extension personnel, or institutions that play pivotal roles in the diffusion of innovations, enabling more targeted and effective extension strategies.

Besides, SNA can be used to better stakeholder engagement, targeting marginalized communities and evaluating the impact of extension programmes by tracing the changes in the network structure.

Some of the potential applications of SNA include mapping and quantifying the value chains (Lazzarini, et al., 2001; Borgatti and Li, 2009; Trienekens, 2011; Bellamy and Basole, 2012) , monitoring and impact assessment (Ekboir et al., 2011) and understanding adoption of technology (Matuschke, 2008; Magnan et al., 2015) and rural innovations (Spielman et al., 2010).



04 Identification and Empowerment of Local Champions through SNA

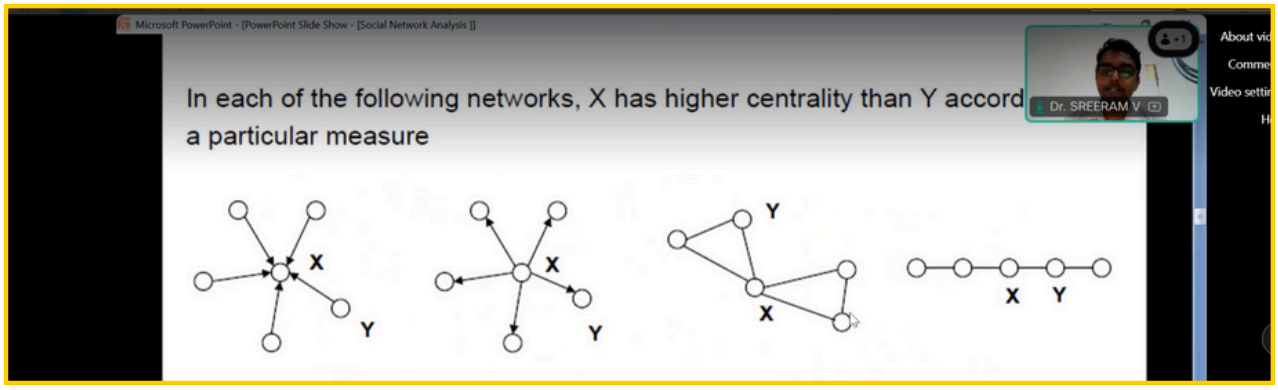
Extension agencies can leverage the potential of SNA to map the social ties, which reveals how individuals are connected through advice-seeking, information sharing, or collaboration. Beyond formal titles, SNA uncovers informal leaders who may have strong influence due to trust, experience, or peer recognition which are valuable for grass root change. Besides, using SNA capacity building progammes can be better targeted. Once identified, these individuals can be trained, supported, and involved in pilot projects or knowledge dissemination, amplifying the impact of extension messages.

05 Role of SNA in Strengthening Agricultural Stakeholder Linkages

SNA can visualize the entire agricultural knowledge and innovation system, showing how farmers interact with extension agents, researchers, and private actors. This helps identify existing linkages, gaps, and opportunities for collaboration (Kamara et al., 2023; Vishnu et al., 2019). Further, SNA helps evaluate the structure and effectiveness of innovation platforms or farmer-research-extension interfaces, guiding improvements in inclusivity, responsiveness, and shared learning (Kolleck and Bormann, 2014). Moreover, by analyzing changes in network structure before and after interventions, SNA allows extension agencies to assess whether stakeholder linkages have been strengthened and if knowledge flows have improved.

06 Leveraging SNA for Inclusive and Responsive Agricultural Extension

Some of the potential areas where policy makers can use the insights from the SNA include, identifying marginalized groups (uncover farmers or communities that are isolated or poorly connected within the network), strengthening information equity (SNA reveals who has access to information and who does not), targeting influential community leaders and enhancing coordination among institutions (Visualizing interactions helps to reduce duplication, encourage partnerships, and promote integrated service delivery).



07 Policy Implications of Marginalization in Agricultural Knowledge Networks

At first, policies can promote inclusive extension approaches, such as group-based learning or participatory methods, to actively engage marginalized populations. Secondly, these policy measures can support the creation or strengthening of local knowledge hubs or farmer-led platforms, ensuring that underrepresented groups have a voice and role in co-producing and sharing agricultural knowledge. Finally, Governments/ funding agencies can use the knowledge networks as part of monitoring and evaluation frameworks to ensure that extension services are reaching all groups effectively.

08 Preparing Graduates for Emerging Agricultural Extension Roles

Extension professionals today are expected to take on multifaceted roles that go beyond traditional information support and dissemination. These include mobilizing producer groups, facilitating market linkages, brokering networks, supporting climate change resilience, and mediating appropriate technologies. To effectively prepare graduates for such emerging responsibilities, faculty must first be sensitized to these evolving demands. This requires continuous professional development through targeted training programs, faculty exchange initiatives, collaborative projects with industry, and exposure to field realities via internships and applied research.

Universities, in turn, must play a proactive role in enabling this transformation. They can do so by institutionalizing support mechanisms such as funding for innovation in teaching and learning, recognition and incentives for faculty engagement in emerging areas, and adaptive policy frameworks that encourage interdisciplinary approaches and stakeholder collaboration. Through these strategic measures, faculty and universities can jointly nurture a new generation of extension professionals equipped to address complex challenges in agriculture and rural development.

09 Suggestions for Young Professionals in Agricultural Extension

Young professionals should proactively seek opportunities to strengthen their research competencies and professional outlook. This includes engaging in relevant internships (such as those offered by MANAGE, various NGOs such as PRADAN, BAIF, Digital Green, Swayam Shikshan Prayog and international organizations such as CIMMYT and ICRISAT), participating in capacity development programmes (like the National Young Professionals Development Programme - NYPDP), and enrolling in MOOCs to enhance their knowledge and skills. Additionally, active involvement in professional networks (such as Agricultural Extension in South Asia) can provide valuable exposure and collaboration opportunities. Importantly, cultivating a regular writing habit and strong publication record from the early stages of one's career is essential for establishing a credible and impactful professional trajectory.

10 Indian Curriculum Development and Implementation in Comparison with Other Countries

While I may not have direct exposure to the curriculum practices of other countries, my understanding suggests that many global education systems have more dynamic mechanisms for regularly revising and updating curricula in response to emerging needs and challenges. In contrast, curriculum revision in India often occurs at a slower pace, which can hinder its relevance and responsiveness.

Moreover, curriculum design in India still has considerable ground to cover in terms of equipping scholars with the practical skills and perspectives needed to address real-world development challenges effectively.

11 Internships, Online Courses, and Training to develop Agricultural Extension Students' Competence in Social Network Analysis

Several MOOC platforms, such as Coursera, edX, and Udemy, offer certificate courses in Social Network Analysis (SNA) that are highly beneficial for students of agricultural extension seeking to build analytical and research skills. Additionally, online learning communities focused on SNA—such as the Social Network Analysis Researchers group—are active on platforms like Facebook and LinkedIn, offering opportunities for peer learning, discussion, and staying updated on recent developments.

YouTube is another excellent source of learning, featuring high-quality tutorial series. Notable examples include

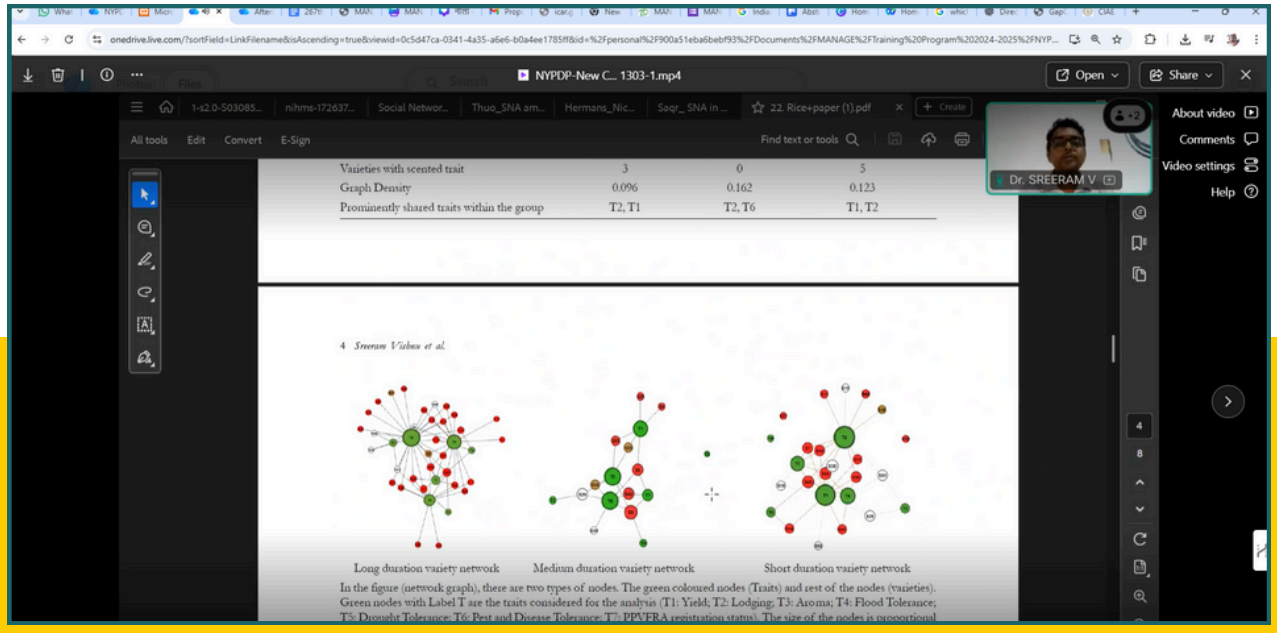
The Historical Network Research Community by Martin Grandjean (Refer to the extension evaluation resources of the University of Wisconsin-Madison Division of Extension) and

Social Network Analysis by Lada Adamic (University of Michigan)
University of Florida IFAS Extension (https://edis.ifas.ufl.edu/topics/program_evaluation), and several others.

Moreover, reputed institutions like ICRISAT and select Indian Institutes of Technology (IITs) occasionally conduct advanced training programs and workshops on SNA, which can be valuable for gaining in-depth, application-oriented knowledge in the field.

12 Author Competencies, Development Journey, and Contributions in Agricultural Extension

My professional competencies lie in the areas of Agricultural Innovation Systems, Knowledge and Information Systems, Digital Competency, and Climate-Smart Agriculture. I have been developing these competencies through continuous engagement in academic and professional discourse with fellow extension professionals, contributing to research publications, and upskilling myself through specialized courses and training programs. I actively contribute to the discipline by mentoring young scholars, sharing domain-specific knowledge, and collaborating with them on research and publication efforts.



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MANAGE launched its flagship National Young Professionals Development Program (NYPDP) in 2024, in partnership with agricultural universities across India. The program is designed to cultivate next-generation competencies, explore emerging career pathways, and identify research priorities in agricultural extension. NYPDP orients young scholars toward contemporary themes in extension research, practice, and policy, fostering leadership among future extension professionals in an ever-evolving agricultural landscape. As of September 2025, eleven successful NYPDP cohorts have trained 603 young professionals from 72 universities across 22 states, nurturing a vibrant and interconnected community of emerging extension leaders. Collaborative editions with institutions such as SDAU (Gujarat), SOA (Odisha), KAU (Kerala), CAU (Meghalaya), CCSHAU (Haryana), RAJUVAS (Rajasthan), and KVAFSU (Karnataka) have significantly enriched the program, creating a robust ecosystem of experiential learning and academic exchange.

This publication, "MANAGE NYPDP Mentors Diaries: Reflections That Cultivate Tomorrow's Agricultural Extension", captures the insights and experiences of mentors with the NYPDP participants. It serves as a source of inspiration and guidance for future generations committed to strengthening agricultural extension and building resilient, sustainable farming communities

MANAGE - Center for Agricultural Extension Innovations, Reforms and Agripreneurship (MANAGE- CAEIRA)
National Institute of Agricultural Extension Management (MANAGE)
Rajendranagar, Hyderabad- 500 030, INDIA
https://www.manage.gov.in/caeira/caeira.asp