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Constraints faced by Stakeholders of Agricultural Innovation System in Bundelkhand Region of Uttar Pradesh, India

Ayush Kumar[1], Dheeraj Mishra[2*], B.P. Mishra[3], P.K. Ojha[2], Gaurav Shukla[4], Abhishek Kalia[5], B.K. Gupta[2], A.P. Verma[2] and Nirmal Chandra[1]

[1]Research Scholar, [2]Assistant Professor, [3]Professor, Department of Agricultural Extension
[4]Assistant Professor, Department of Statistics and Computer Science
[5]Assistant Professor, Department of Basic and Social Science
Banda University of Agriculture and Technology, Banda (UP), India

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ABSTRACT

The present study was undertaken to identify and analyze the constraints faced by key stakeholders engaged in Agricultural Innovation System across all seven districts of the Bundelkhand region of Uttar Pradesh. A total of 280 respondents were purposively selected, comprising researchers, extensionists, In-charge of NGO, managers of supporting institutions, owners of agro-service providers, and progressive farmers. Data were collected through structured interviews and analyzed using frequency and percentage methods. The findings revealed that researchers faced major challenges such as limited access to funding for high-tech research (97.15%) and complex administrative procedure (48.57%), Extensionists reported poor farmer participation of farmers in extension activities (65.72%), while NGO in-charges cited not aware of advanced/ improved technology (74.28%). Managers of supporting institutions identified market competition (77.14%) as the most pressing issue, whereas agro-service providers emphasized short supply of inputs in critical time (80.00%) and absence of government assistance (75.71%). Progressive farmers highlighted the improved/ latest farm equipment are expensive (94.28%) and lack of location-specific scientific technologies (88.57%). The study concludes that financial constraints, weak institutional support, inadequate training, and poor access to technology are the recurring barriers across all stakeholder categories. Addressing these challenges through policy reforms, capacity building, and stronger institutional linkages is essential to strengthen the agricultural innovation system and accelerate sustainable agricultural development in the Bundelkhand region.

Introduction

Change is integral to development, and the world is experiencing rapid transformations, necessitating evolving needs. In the realm of agricultural development, approaches to innovation have similarly evolved. In the 1980s, the National Agricultural Research System (NARS) was conceptualized to direct investments in agricultural development. This system

Corresponding author; Dheeraj Mishra
Email: dheeraj.bhu12@gmail.com

emphasizes enhancing research supply through the provision of infrastructure, capacity, management, and policy support at the national level. However, in the current context, NARS encounters limitations in adapting to swiftly changing market conditions, particularly in addressing emerging and high-value niche markets. It is acknowledged that research is not the sole avenue for generating or accessing knowledge. Consequently, the Agricultural Knowledge and Information System (AKIS) has gained prominence. AKIS recognizes the diverse sources of knowledge contributing to agricultural innovation and underscores the importance of developing communication channels. It explicitly acknowledges that education enhances farmers' capacity to engage in innovation processes. Nonetheless, AKIS also faces certain limitations, such as its focus being confined to actors and processes within the rural environment, with insufficient attention to the role of input and output markets, the private sector, and the enabling policy environment.

In the grand tapestry of agricultural innovation, the Agricultural Innovation System (AIS) emerges as a holistic maestro, orchestrating the symphony of planning, knowledge, production, and application. Picture three interwoven threads: NARS, the weaver of knowledge; AKIS, the herald spreading this wisdom far and wide; and AIS, the alchemist transforming knowledge into tangible reality (Roseboom, 2015). The World Bank (2012) paints AIS as a vibrant network of organizations, enterprises, and individuals, all united in the quest to breathe life into new products, processes, and organizational forms, guided by the institutions and policies that shape their journey. While fortifying research systems may flood the fields with fresh knowledge and technologies, they do not automatically sow the seeds of innovation across the agricultural landscape.

2. Methodology

The present study was conducted across all seven districts (Banda, Chitrakoot, Hamirpur, Mahoba, Jhansi, Lalitpur, and Jalaun) of the Bundelkhand region in Uttar Pradesh. Various entities, including state and national line departments, KVK, research stations, NGOs, supporting institutions, agro-service providers, and progressive farmers, have been actively engaged in extension activities aimed at enhancing the agricultural sector in these districts.

From each district, a selection of 5 researchers, 5 extensionists, 5 NGO in-charges, 5 managers of supporting institutions, 10 owners of agro-service providers, and 10 progressive farmers was made. In all, 35 researchers, 35 extensionist, 35 in-charge of NGOs, 35 managers of supporting institutions, 70 owners of agro-service providers and 70 progressive farmers were selected. The selection process prioritized the proportionate representation of the population, with greater emphasis placed on the higher population of progressive farmers and owners of agro-service providers. Consequently, a total of 280 stakeholders were included in the study.

The data pertaining to perceived constraints was collected through from each stakeholder structured interview schedule. The respondets agreement with the constraint was recorded in terms of 'Yes' and 'No'. The descriptive statistical analysis i.e. frequence and percentage was used to interpret the data.

Table 1. constraints faced by Researchers in Agricultural Innovation System

S.no.	Constraints faced by Researchers (n=35)	Frequency	Percentage
1.	Limited access to funding for high-tech research	34	97.15%
2.	Complex administrative procedure	17	48.57%
3.	Inadequate connections to line departments	04	11.42%

Result and discussion

Constraints refer to the difficulties faced by stakeholders during the specified activities in Agricultural innovation system. The responses of the stakeholders were gathered through closed-ended questions and during the time of the interview. Each stakeholder's overall constraints were calculated by adding the scores from all of the items they answered, converted into frequence and percentage for yes responses. For most three constraints were narrated under each head of Agricultural Innovation System in descending order and present in stakeholder wise tables.

3.1 Constraints faced by Researchers

Table 1 reveals that according to researchers, *limited access to funding for high-tech research* was reported as the most critical constraint (97.15%), followed by *complex administrative procedures* (48.57%), and *inadequate connections with line departments* (11.42%) was considered a relatively lower constraint. The similar study was found in Ramannanavar and Nagnur (2018), Nair and Jahagirdar (2022), and Chaudhri et al. (2023).

3.2. Constraints faced by Extensionists in line department

The table 2 revealed that the Extensionists in line departments

highlighted *poor participation of farmers in extension activities* (65.72%) as the major challenge, followed by *higher workload from non-mandatory activities* (45.71%), and *lack of innovation-oriented training* (22.85%) were also significant barriers. The similar study was found in Sinah and Oladele (2016), Patel (2017), and Nair and Jahagirdar (2022).

3.3 Constraints faced by in-charge of NGOs

As evident from table 3 in the case of in-charge of NGOs, *lack of awareness of advanced/ improved technology* (74.28%) was the foremost constraint, followed by *poor financial status* (40.00%) and *poor collaboration with the government agencies* (22.85%). The Similar findings were found in Kumar *et al.* (2018), sofi et al. (2025), and Kumar and Kaur (2015)

3.4. Constraints faced by Managers of Supporting institutions

Table 4 concludes that the Managers of supporting institutions reported *market competition* (77.14%) as the most pressing constraint, followed by (60.00%) managers of supporting institutions faced *targets restricting the work progress,* and *Difficult to pursue advanced technological information* (51.42%) further constraining their performance. The similar findings was found in Ifeanyieze et al. (2017), and Kumar et al. (2018).

Table 2. Constraints faced by Extensionists in Agricultural Innovation System

S.No.	**Constraints faced by Extensionists** (n=35)	Frequency	Percentage
1	Poor participation of farmers in extension activities	23	65.72%
2	Higher workload due to non-mandatory activities	16	45.71%
3	Lack of innovation-oriented training	08	22.85%

Table no. 3 Constraints faced by In-charge of NGOs in Agricultural Innovation System

s. no.	**Constraints faced by In-charge of NGOs (n=35)**	**Frequency**	**Percentage**
1.	Lack of awareness of advanced/ improved technology	26	74.28%
2.	Poor financial status	14	40.00%
3.	Poor collaboration with the government	08	22.85%

Table 4. Constraints faced by Managers of supporting institutions in Agricultural Innovation System

s. no.	**Constraints faced by Managers of Supporting institutions (n=35)**	**Frequency**	**Percentage**
1.	Difficult to pursue advanced technological information	18	51.42
2.	Targets restrict the work progress	21	60.00
3.	Market competition	27	77.14

3.5. Constraints faced by Owners of agro-service providers

The table 5 indicates that the Agro-service providers faced challenges, *short supply of inputs critical time* (80.00%) ranking as the top constraint, alongside *absence of government assistance* (75.71%) and *inadequate training for the input dealers* (72.85%). The similar findings was found in Kambhala (2020), and Kumar and Kumar (2021).

3.6. Constraints faced by Progressive farmers

Progressive farmers, on the other hand, reported that *improved/ latest farm equipment are expensive* (94.28%) and *lack of location-specific scientific technology* (88.57%) were their major constraints, while a considerable proportion also pointed out the issue of *farmers getting less price of product as compare to MSP* (31.42%) (table 6). The similar findings are found in Sunanda et al. (2021), Ankita et al. (2025), and Chaudhri et al. (2023).

Overall, the findings reveal that while researchers, extensionists, NGOs, managers, agro-service providers, and progressive farmers face distinct constraints, there is a common thread of financial limitations, weak institutional support, and restricted access to modern technology, which collectively hinder the effective functioning of the agricultural innovation system.

Table 5. Constraints faced by Owners of agro-service providers in Agricultural Innovation System

S. no.	Constraints faced by Owners of Agro-service providers (n=70)	Frequency	Percentage
1.	Absence of government assistance	53	75.71
2.	Inadequate training for the input dealers	51	72.85
3.	Short supply of inputs in a critical time	56	80.00

Table 6. Constraints faced by Progressive farmers in Agricultural Innovation System

S. no.	Constraints faced by Progressive farmers(n=70)	Frequency	Percentage
1.	Farmers are getting a lower price for their product compared to the MSP	22	31.42
2.	Improved/ latest farm equipment is expensive	66	94.28
3.	Lack of location-specific scientific technology	62	88.57

Conclusion

The present study clearly highlights that stakeholders across the Agricultural Innovation System (AIS) encounter a range of interrelated constraints that limit their ability to effectively contribute to agricultural development. Researchers are hindered primarily by limited access to funding for high-tech research and complex administrative procedures, whereas extensionists struggle with poor participation of farmers in extension activities and higher workload due to non-mandatory activities. NGO in-charges face challenges of not aware of advanced/ improved technology and financial status, while managers of supporting institutions are constrained by market competition and target restrict the work progress. Agro-service providers reported a short supply of input in a critical time, inadequate training for the input dealers, and absence of government assistance as major barriers. Progressive farmers, on the other hand, emphasized the lack of location-specific scientific technologies, alongside concerns lack of location specific scientific technology.

References

Ankita, K., Sharma, K., Chauhan, M., Singh, R., Alam, M. S., & Devi, T. (2025). Constraints faced by farmers in utilization of extension services provided by KVK in Kangra District of Himachal Pradesh. *International Journal of Agriculture Extension and Social Development, 8*(7), 168–171.

Chaudhari, H. A., Patel, G. R., & Chaudhary, P. B. (2023). Constraints faced by the stakeholders and suggestion given by them to overcome constraints in agricultural innovation system. *The Pharma Innovation Journal*, *12*(12), 1192-1195.

Ifeanyieze, F. O., Nwarieji, F. E., & Aneke, C. U. (2017). Linkages of research agencies in technology transfer for sustainable agricultural development in south east Nigeria. *African Journal of Agricultural Research*, *12*(24), 2063-2069.

Kamara, L. I., Lalani, B., & Dorward, P. (2023). Towards agricultural innovation systems: Actors, roles, linkages and constraints in the system of rice intensification (SRI) in Sierra Leone. *Scientific African*, *19*, e01576.

Khambhala, K. A., Chavda, V. N., Parmar, S. J., & Jadeja, K. M. (2024). The Study of Profile Characteristics of Agro-Input Dealers Towards Agro Services in Junagadh District of Gujarat State. *Journal of Agriculture and Ecology Research International*, *25*(2), 15-19.

Kumar, A., Sumit, Y. M., & Rohila, A. K. (2019). Constraints faced by the farmers in production and marketing of vegetables in Haryana. *Indian Journal of Agricultural Sciences*, *89*(1), 153-60.

Kumar, P., & Kaur, P. (2015). Constraints faced by the subject matter specialist of selected Krishi Vigyan Kendras of Northern India. *Journal of Krishi Vigyan*, *4*(1), 10-17.

Kumar, S., & Kumar, S. (2021). Constraints faced by agro-input dealers in dissemination of information to farmers. In *Biological Forum* (Vol. 13, pp. 643-648).

Murthati, M., Thakkar, M. G., & Sharma, S. S. (2025). Socio-economic determinants and constraints in buying insecticides: Empirical study of farmers in Kurnool district of Andhra Pradesh. *International Journal of Agriculture Extension and Social Development, 8*(8C), 178–183.

Nair, N. B., & Jahagirdar, K. A. (2022). Constraints Faced by the Extension Personnel in Exerting their Professional Compe-

tence. *Asian Journal of Agricultural Extension, Economics & Sociology*, *40*(10), 982-985.

Patel, J. P., Prajapati, R. S., & Dodiya, H. D. (2017). Roles performed by the men and women gram panchayat members. *Guj. J. Ext. Edu*, *28*(1), 204-207.

Ramannanavar, A., & Nagnur, S. (2019). *Job stress and constraints of subject matter specialists (SMSs) of Krishi Vigyan Kendras*. *Journal of Pharmacognosy and Phytochemistry, 8*(1), 2317-2320.

Roseboom J. Supranational collaboration in agricultural research in sub-Saharan Africa. International Food Policy Research Institute (IFPRI); Forum for Agricultural Research in Africa (FARA); c2015.

Sinah, M., & Oladele, O. I. (2016). Management of collaboration for agricultural innovation systems: a case of constraints among stakeholders in the North West Province, South Africa. *Problems and perspectives in management*, (14, Iss. 1), 16-22.

Sofi, F., Kubrevi, S. S., Peer, Q. J. A., Hussain, S., Bashir, M., & Mir, M. U. R. (2025). Constraints faced by self-help group members of Kupwara District, Jammu and Kashmir. *International Journal of Agriculture Extension and Social Development, 8*(7A), 1–6.

Sunanda, L. O. V., & Mazhar, S. H. (2021). Constraints faced by Progressive Farmers for Effective Utilization of Information through ICT and Suggestions for Better ICT Services in Kurnool District of Andhra Pradesh.

World Bank. Agricultural Innovation Systems: An Investment Source Book. Washington, World Bank; c2012. p. 660.