Research Note

Indian Journal of Extension Education
Vol. 59, No. 3 (July–September), 2023, (153-155)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Analysis of Constraints Affecting Beneficiaries under *Pradhan Mantri Krishi Sinchayee Yojana* in Odisha

Maitreyee Tripathy[1]*, Bishnupriya Mishra[2], Guru Prasad Satapathy[3] and Sarbani Das[4]

[1,3]Ph.D. Scholar, [2]Professor, [4]Assistant Professor, Odisha University of Agriculture and Technology, Bhubaneswar-751003, Odisha, India
*Corresponding author email id: tripathymaitreyee61@gmail.com

ARTICLE INFO

Keywords: PMKSY, Garrett's ranking, Farmers, Constraints

http://doi.org/10.48165/IJEE.2023.59330

Conflict of Interest: None

ABSTRACT

The study was conducted in 2021 in the Jharsuguda district of Odisha to identify the constraints affecting beneficiaries under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). The study used a random sampling procedure and collected data through personal interviews with 60 respondents. Garrett's ranking technique was employed to analyze the constraints as perceived by farmers. The findings revealed that medium and large landholding farmers availed the maximum limit of subsidy, and non-availability of spare parts in the local area, tedious procedures to obtain the benefit of PMKSY, and frequent equipment repairs were the major challenges hindering the performance of beneficiaries under PMKSY. Therefore, key stakeholders must take suitable steps to remove the identified constraints. It is imperative to address these challenges to improve the performance of farmers in Odisha.

INTRODUCTION

Agriculture is not only a crucial contributor to the Indian economy but also shapes the fabric of society, especially in developing countries like India. In the past, subsistence farming was the norm, and farmers produced crops mainly for self-sufficiency in terms of food production. However, this was insufficient to feed the entire nation (Wani et al., 2016). To overcome this challenge, the green revolution began in the 1960s, which involved the adoption of high-yielding varieties, fertilizers, and irrigation. The green revolution led to significant improvements in crop production in India, but much of it was based on over-exploitation of natural resources (Malhotra, 2017). Water, being the "elixir of life," is the most critical natural resource. Although the planet is covered by 70 per cent water, its usage for human beings is meager (Rasouliazar, 2011). Low and uneven distribution of rainfall, rapid industrialization, and a growing population have contributed to a shortage of water for agriculture (Yadav et al., 2020). The availability of water for irrigation depends on various hydro-meteorological factors, and effective utilization of available water is essential for sustainable agriculture (Kaur & Sharma, 2022). Modern cultivation practices and technological interventions are necessary for improving and supervising water use. The Pradhan Mantri Krishi Sinchai Yojana (PMKSY), an agriculture irrigation scheme, is the latest catchphrase of the central government. Its aim is to achieve "Per Drop More Crop" by promoting micro-irrigation. The adoption of micro-irrigation, such as drip and sprinkler systems, is expected to save water and improve crop yields. By 2016, the area covered by micro-irrigation in India was 81.46.172 ha, with 9.05.802 ha in Karnataka (Anon, 2016).

Proper utilization of available water for irrigation is crucial, but it remains a major challenge. The lack of water availability has led to the over-extraction of groundwater resources and the development of inefficient irrigation practices (Mukherjee et al., 2022). Therefore, it is essential to adopt modern cultivation practices and technological interventions to improve water-use efficiency in agriculture. Water being a valuable resource for farming, every drop of water available in the distribution system must be used effectively to enhance overall farm production. PMKSY aims to achieve this by providing financial assistance to farmers for the

Received 09-05-2023; Accepted 06-06-2023

development of irrigation facilities, including micro-irrigation, which has proven to be an efficient method of water use. The adoption of micro-irrigation systems, such as drip and sprinkler systems, has led to a significant improvement in water-use efficiency and increased crop yields (Satapathy et al., 2022). However, there has always been constraints in adoption of modern technologies and many authors like Gupta et al., (2013); Das et al., (2014); Paul et al., (2015); Gireesh et al., (2019); Yadav et al., (2019); Kobba et al., (2020) attempted to analyse the constraints in different setting. Although, it is also essential to adopt water management strategies such as rainwater harvesting and re-use of treated wastewater in agriculture to ensure sustainable water use, it is essential to look into the constraint part also. In conclusion, the adoption of modern cultivation practices and technological interventions, along with the implementation of water management strategies, is essential for achieving sustainable agriculture and ensuring food security in India.

METHODOLOGY

The study was conducted in the Jharsuguda district of Odisha, which was chosen purposively due to its high irrigation area. Four blocks were selected based on the funds allotted and utilized for micro-irrigation under *the Pradhan Mantri Krishi Sinchayee Yojana* (PMKSY), with two having the highest fund utilization i.e., Laikera and Orient and two having the lowest i.e., Badmal and Brajarajnagar. Ten villages were selected randomly from the district, and six beneficiary farmers were selected randomly from each village, making a total sample size of 60. A structured, pretested interview schedule was used to collect relevant information from PMKSY beneficiary farmers. The interview aimed to gather information related to the problems faced by the beneficiaries under PMKSY in Odisha. Constraints were identified, and farmers were asked to rank the problems proposed to them. The Garrett Ranking Technique is a method for assigning numerical scores to the orders of constraints. It is advantageous over simple frequency distribution because it arranges the constraints based on their severity from the respondents' point of view. This means that two or more constraints with the same number of respondents may be given different ranks. To convert ranks into percentages using Garrett's method, the formula is as follows:

$$\text{Percent position} = 100 * (R_{ij} - 0.5)/N_j$$

Where, R_{ij} = rank given for i^{th} constraint by j^{th} individual; N_j = number of constraints ranked by j^{th} individual.

Firstly, the percent position of each rank will be converted to scores using the table provided by Garrett & Woodworth (1969). These scores will then be summed for each factor, and the resulting total will be divided by the number of respondents to calculate the mean score for each factor. Next, the mean scores for all constraints will be arranged in descending order to determine their relative importance.

RESULTS AND DISCUSSION

Garrett ranking technique was used to analyse various challenges affecting the beneficiaries of *Pradhan Mantri Krishi Sinchayee Yojana* by the respondents. The respondents were asked to rank the ten factors identified for the purpose of this studies as 1, 2, 3, 4, 5, 6, 7 in order to know their preference in the selection of constraint. The calculated percentage position for the rank 1, 2, 3....7 and their correspondent Garrett table as show in Table 1, For factors, the total score is calculated by multiplying the number of respondents ranking that factor as 1, 2, 3.... and 7 with the respective Garrett table values (Garrett & Woodworth, 1969).

The ranking of constraints associated with Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) presented in Table 2 sheds light on the factors perceived as significant constraints by farmers. The analysis of the table suggests that medium and large land-holding farmers availing the maximum limit of subsidy, followed by non-availability of spare parts, frequent equipment repair, and the tedious procedure to obtain the benefits of PMKSY are the most significant constraints perceived by farmers. These findings are important as they indicate that small farmers are at a disadvantage due to the subsidy allocation process, and there is a need to simplify the application process and ensure that farmers receive timely maintenance and repair services.

In contrast, inadequate publicity and low awareness about PMKSY, and high initial costs for the installation of micro-irrigation systems were perceived as relatively less significant constraints. Although policymakers should increase awareness about PMKSY

Table 1. Percentage positions and their corresponding Garrett Table values

Rank	Percent position		Table value
1.	100(1-0.5)/7	7.14	79
2.	100(2-0.5)/7	21.42	66
3.	100(3-0.5)/7	35.71	57
4.	100(4-0.5)/7	50.00	50
5.	100(5-0.5)/7	64.28	43
6.	100(6-0.5)/7	78.57	34
7.	100(7-0.5)/7	92.85	22

Table 2. Constraint associated with *Pradhan Mantri Krishi Sinchayee Yojana*

S.No.	Factors	Total score	Average score	Final ranks
1	Non-availability of spare parts in local area	3562	59.36	II
2	Frequent repair of equipment	3446	57.43	IV
3	Delay in the process and short listing of application	3241	54.01	V
4	Tedious procedure to obtain benefit of Pradhan Mantri Krishi Sinchayee Yojana	3484	58.06	III
5	Inadequate publicity and low level of awareness about Pradhan Mantri Krishi Sinchayee Yojana	2471	41.18	VI
6	Medium and large land holding farmers avail maximum limit of subsidy is 45 per cent.	3568	59.46	I
7	High initial cost for installation of micro irrigation system	2463	41.05	VII

through effective publicity campaigns, the findings suggest that this constraint should receive less priority compared to others. Furthermore, the fact that the high initial cost of installation was perceived as the least significant constraint is a positive development, indicating that farmers are willing to invest in adopting micro-irrigation systems. However, policymakers should continue to explore ways to reduce the cost of installation to encourage more farmers to adopt this technology. Overall, the study highlights the need to address the constraints associated with PMKSY to ensure that the scheme's benefits reach all farmers equitably.The findings of the study get the support by Barse et al., (2013) & Bhuriya et al., (2015).

CONCLUSION

The study's findings indicate that medium and large land-holding farmers availing the maximum limit of subsidy, followed by non-availability of spare parts, frequent equipment repair, and the tedious procedure to obtain the benefits of PMKSY are the most significant constraints perceived by farmers. These constraints are particularly disadvantageous to small farmers, highlighting the need to simplify the application process and ensure that farmers receive timely maintenance and repair services. Overall, the study underscores the importance of addressing the constraints associated with PMKSY to ensure that the scheme's benefits reach all farmers, particularly small farmers. Policymakers should prioritize addressing the constraints highlighted in this study to promote the sustainable development of agriculture and enhance farm productivity.

REFERENCES

Barse, K. N., Gohad, V. V., & Lunge, M. R. (2010). Adoption of drip irrigation system by orange growers in Amravati taluka. *Agriculture Update*, *5*(3), 346-348.

Bhuriya, R., Sandhya, C., & Swarnakar, V. K. (2015). Study of adoption behavior of drip irrigation system on chili crop in Barwani district of M.P. (India). *International Organization of Scientific Research Journal of Agricultural and Veterinary Sciences*, *8*(12), 12-14.

Das, L., Nain, M. S., Singh, R., & Burman, R. R. (2014*).* Constraints in marketing of fruits as perceived by the fruit growers and NERAMAC in Assam. *Journal of Community Mobilization and Sustainable Development, 9*(2), 114-117.

Deepa, N. (2019). A study on awareness and extent of utilization of crop insurance scheme in Chitradurga district of Karnataka. *M.Sc. thesis*, Professor Jayashankar Telanagana State Agricultural University. Retrieved from https://krishikosh.egranth.ac.in/handle/1/5810153163

Deepak, C. K., & Mane, S. P. (2019). A study of irrigation intensity of different sources in Malshiras Tahsil. *International e-Research Journal of Interdisciplinary & Multidisciplinary Studies*, 6.261, 3.452, 0.67.

Ghintala, A. (2013). Knowledge and adoption of sprinkler irrigation system by the farmers of Banaskantha district of North Gujarat. *Indian Journal of Extension Education and Rural Development, 21*, 26-29.

Gireesh, S., Kumbhare, N. V., Nain, M. S., Kumar, P. & Gurung, B. (2019). Yield gap and constraints in production of major pulses in Madhya Pradesh and Maharashtra. *Indian Journal of Agricultural Research, 53*(1), 104-107.

Gowtham. (2016). Studied on Impact of drip irrigation on grape and sugarcane growers in north Karnataka, *M.Sc.* thesis. University of Agricultural Sciences, Dharwad. Retrieved from http://researchjournal.co.in/online/AU/AU%2011(4)/11_427-429_A.pdfS

Gupta, B., Kher, S. K., & Nain, M. S. (2013). Entrepreneurial behaviour and constraints encountered by dairy and poultry entrepreneurs in Jammu Division of J&K State. *Indian Journal of Extension Education, 49*(3&4), 126-129.

Kaur, M., & Sharma, K. (2022). Rice productivity and water use efficiency under different irrigation management system in North-Western India. *Indian Journal of Extension Education*, *58*(2), 65–68.

Kobba, F., Nain, M. S., Singh, R., Mishra, J. R., & Shitu, G. A. (2020). Entrepreneurial profile and constraint analysis of farm and non-farm sectors entrepreneurial training programmes in *krishi vigyan kendra* and rural development & self-employment training institute. *Indian Journal of Extension Education, 56*(3), 17-26.

Meti, C. B. (2013). Benefits of drip irrigation and constraints in drip irrigation adoption in Dharwad district of Northern Karnataka. *Environment and Ecology, 31*(2A), 632-636.

Mukherjee, S., Roy, A., & Ghosh, S. (2022). Performance of groundwater irrigation system as perceived by farmers in West Bengal. *Indian Journal of Extension Education*, *58*(3), 157–162.

Padmaja, B. (2018). Usage and opinion of farmers towards soil health card, *M.Sc.* thesis, University of Agricultural Sciences, Dharwad. Retrieved from http://14.139.185.57:8080/jspui/bitstream/123456789/9702/1/174837.pdf

Paul, N., Slathia, P. S., Kumar, R., & Nain, M. S. (2015). Training needs and constraints of extension officers in transfer of agriculture technology. *Journal of Community Mobilization and Sustainable Development, 10*(1), 24-28.

Rasouliazar, S., & Saeidfel, A. (2011). Effective factors on discontinuance of sprinkler irrigation systems among farmers in West Azerbaijan province of Iran. *Journal of American Science, 7*(2), 584-590.

Rudroju, V. (2013). Awareness, accessibility and utilization pattern of information and communication technology (ICT) projects by farmers of Belgaum district, *M.Sc*. thesis, University of Agricultural Sciences, Dharwad. Retrieved from https://www.semanticscholar.org/paper/b2dc77574f6b0f0a54adc4947328d0e1042d536f

Satapathy, G. P., Dolli, S. S., Gowda, R. D. & Jayasingh, D. K. (2022). Knowledge of Farmers About Farm Pond Covered Under Krishi Bhagya Yojane in Karnataka. *Indian Journal of Extension Education*, *59*(1), 158–161.

Vasanthi, C. (2017). Knowledge impact and coping mechanism to climate change by farming community of Chitradurga district, *M.Sc*. thesis, University of Agricultural Sciences, Shivamogga. Retrieved from https://core.ac.uk/download/pdf/10652941.pdf

Vinayakumar, H. M., Mahatabali, K. M., Sujaykumar, S., Ramanna, K. N., & Gowda, G. V. (2013). Personal and socio-psychological characteristics of the beneficiary farmers of community-based tank management project and their relationship with socio-economic status. *International Journal of Advanced Biological Research*, 3(2), 184-187.

Yadav, S., Godara, A. K., Nain, M. S., & Singh, R. (2018). Perceived Constraints in Production of Bt cotton by the Growers in Haryana. *Journal of Community Mobilization and Sustainable Development, 13*(1), 133-136.