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Knowledge level of farmers regarding tank irrigation management and suitable cropping patterns in Telangana state under mission Kakatiya programme

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Abstract

The present study was undertaken in Telangana to assess farmers' knowledge regarding tank irrigation practices and appropriate cropping patterns under the Mission Kakatiya programme. A quasi-experimental research design was adopted. The study covered six districts—Karimnagar, Kamareddy, Mahabubnagar, Nalgonda, Siddipet, and Bhadrachalam. From each district, one mandal was selected, and from each mandal, one beneficiary and one non-beneficiary village were chosen randomly. A total of 360 respondents (180 beneficiaries and 180 non-beneficiaries) were selected. The findings indicated that among beneficiary farmers, 50% had a medium level of knowledge, followed by 27.78% with high and 22.22% with low knowledge. Among non-beneficiaries, 47.22% had medium knowledge, while 27.78% and 25.00% fell into low and high categories, respectively. The calculated Z-value (4.22) was statistically significant at the 0.05 level, indicating a meaningful difference between the two groups. Thus, beneficiaries exhibited relatively higher knowledge compared to non-beneficiaries.

Keywords: Knowledge, tank irrigation, cropping patterns, beneficiaries, non-beneficiaries

Introduction

In Telangana, irrigation tanks have historically played a vital role in agriculture and rural livelihoods. Over time, these tanks have deteriorated due to neglect and increasing urbanization. Apart from irrigation, tanks contribute to groundwater recharge, livestock water supply, fisheries, and ecological balance. They also support social and economic activities in rural areas. Recognizing their importance, the Government of Telangana launched the Mission Kakatiya programme to restore minor irrigation tanks. The initiative aims to rejuvenate approximately 46,531 tanks in a phased manner starting from 2014-15. The programme focuses on improving water storage capacity, enhancing agricultural productivity, and promoting sustainable irrigation management. This study was conducted to evaluate farmers' knowledge of tank irrigation management and suitable cropping systems under this programme.

Methodology

Research Design

A quasi-experimental approach was used. Quasi-experiments are non-randomised experiments conducted in non-laboratory situations. These differ from true experiments as subjects are not randomly assigned to conditions. It has both pre, post, as well as post only test

designs. Only the experimental group receives the treatment (Creswell, 2009) [2].

Sampling Procedure

Telangana was purposively selected since Mission Kakatiya is implemented only in this state. Six districts were chosen based on maximum tank restoration in Phase I. One mandal per district and one village each for beneficiaries and non-beneficiaries were randomly selected. From each village, 30 farmers were selected, resulting in 180 beneficiaries and 180 non-beneficiaries.

Results and Discussion

Knowledge level of farmers regarding tank irrigation management and suitable cropping patterns

Table 1: Distribution of respondents according to their level of knowledge on tank irrigation management and suitable cropping patterns, N=360

	Beneficiaries (n=180)			Non beneficiaries (n=180)		
Category	Low (18-23)	Medium (23-28)	High (28-33)	Low (15-21)	Medium (21-27)	High (27-33)
Frequency	40	90	50	50	85	45
Percentage	22.22	50.00	27.78	27.78	47.22	25.00

The distribution of the farmers according to their knowledge level on tank irrigation management and suitable cropping patterns are presented in Table 1. It reveals that majority (50%) of the beneficiary group respondents had medium level of knowledge followed by high (27.78%) and low (22.22%) knowledge on tank irrigation management and suitable cropping patterns. In case of non-beneficiary group, majority (47.22%) of the beneficiary group respondents had medium level of knowledge followed by low (27.78%) and high (25.00%) knowledge on tank irrigation management and suitable cropping pattern.

In order to study the significant difference in their level of knowledge on tank irrigation management and suitable cropping patterns between beneficiaries and non-beneficiaries, the data were subjected to 'Z' test and the results are furnished in Table 2.

Table 2: Significance of difference in respondents on tank irrigation management and suitable cropping patterns

Knowledge	Beneficiaries	Non beneficiaries
Mean	25.36	23.52
Variance	12.86	21.13
Observations	180	180
Z calculated value	4.22*	
Z critical two-tail	1.96	

* Significant at 0.01 level of probability

It could be clearly observed from the Table 2, the Z-calculated value of level of knowledge of respondents on tank irrigation management and suitable cropping patterns was equal to 4.22 and z critical two-tail value equal to 1.96.

A.H.: There will be significant difference between beneficiaries and non-beneficiaries with regard to level of knowledge on tank irrigation management and suitable cropping patterns.

N.H.: There will be no significant difference between beneficiaries and non-beneficiaries with regard to level of knowledge on tank irrigation management and suitable cropping patterns.

To test the difference between the two groups, a Z-test was applied. The calculated value (4.22) exceeded the critical value (1.96), indicating statistical significance.

Thus, the null hypothesis was rejected, and the alternative hypothesis was accepted. This confirms a significant difference in knowledge levels between beneficiaries and non-beneficiaries. The probable reason for this might be the increased water storage capacity of tank and ground water level, and medium to high level of extension contact of the beneficiaries resulted in significant difference between beneficiaries and non-beneficiaries knowledge on tank irrigation management and suitable cropping patterns.

Conclusion

The study concludes that majority of the farmers, both beneficiaries and non-beneficiaries, fall under the medium knowledge category. The computed 'z' value was found to be positive and significant at 0.05 level of probability for level of knowledge on tank irrigation management and suitable cropping patterns. So it could be concluded that there was a positive and significant difference between

beneficiaries and non-beneficiaries in level of knowledge on tank irrigation management and suitable cropping patterns. These findings highlight the importance of extension services and targeted interventions in improving farmers' knowledge and promoting sustainable agricultural practices in tank-irrigated areas.

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