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Strategies for effective sustainable tank irrigation management under Mission Kakatiya in Telangana

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Abstract

The study was conducted in Telangana to assess the impact of the Mission Kakatiya programme from 2016 to 2021. A quasi-experimental research design was used for the investigation, which took place in the districts of Karimnagar, Kamareddy, Mahabubnagar, Nalgonda, Siddipet, and Badradri Kothagudem in Telangana. One mandal was randomly selected from each district, and from each mandal, one village was chosen randomly to represent both beneficiary and non-beneficiary groups. A total of 30 farmers were randomly selected from each village, resulting in a sample size of 180 farmers from beneficiary villages and 180 from non-beneficiary villages. Data was gathered on the problems and suggestions related to effective tank irrigation management from both farmers and officials. Based on this, a strategy was developed for sustainable tank irrigation management under Mission Kakatiya in Telangana, covering aspects of tank management, irrigation management, and group management.

Keywords: Strategy, tank irrigation management, tank management, group management.

Introduction

The Telangana government launched the restoration of minor irrigation tanks, which have been crucial to the region for centuries but are gradually deteriorating due to neglect and urbanization. These tanks, present in every village, not only serve agricultural purposes but also help recharge groundwater, provide domestic water, support livestock, and facilitate fish farming. They play a vital role in maintaining ecological balance and serve as centers for socio-economic and religious activities within communities. Tanks are particularly important in ensuring a reliable water supply, protecting agriculture from natural uncertainties, and promoting food security, especially in drought-prone areas. However, the minor irrigation tanks in the state have lost much of their capacity due to aging and sedimentation. Recognizing the significance of restoring these tanks, the Telangana government initiated the "Mission Kakatiya" programme, aiming to restore all 46,531 tanks across the state at a rate of 9,350 per year over five years, starting in 2014-15. The objective of Mission Kakatiya is to improve agricultural income for small and marginal farmers by enhancing minor irrigation infrastructure, strengthening community-based irrigation management, and restoring tanks through a decentralized, sustainable approach. The expected benefits of the programme include increased

water retention capacity in the soil and tanks, higher farm yields, improved productivity, and better cropping patterns and intensity. This study aimed to identify effective strategies for managing tank irrigation.

Methodology

Research Design

A quasi-experimental approach was employed for this study. Unlike true experiments, quasi-experiments do not randomly assign subjects to conditions, and can include pre- and post-tests as well as post-only designs. The experimental group receives the treatment (Creswell, 2009) [3].

Sampling Procedure

- **Selection of the State:** Telangana was purposively selected as the study area since the Mission Kakatiya programme is implemented exclusively in this state.
- **Selection of Districts:** Two districts from each zone were chosen based on the highest number of tanks covered in the first phase of the Mission Kakatiya programme, leading to the selection of six districts.
- **Selection of Mandals:** One mandal was randomly chosen from each district.

- **Selection of Villages:**

- a. **Beneficiaries:** One village from each mandal where the Mission Kakatiya programme had been implemented during the first phase was selected, resulting in six beneficiary villages.

- b. **Non-beneficiaries:** One village from each mandal where the programme had not been implemented was selected, resulting in six non-beneficiary villages.

- **Selection of Respondents:**

- a. **Beneficiaries:** Thirty beneficiaries were randomly selected from each village, totaling 180 beneficiaries.

- b. **Non-beneficiaries:** Thirty non-beneficiaries were randomly selected from each village, also totaling 180 non-beneficiaries.

Results and Discussion

Based on the results of the study, the following strategies suggested by the researcher for effective sustainable tank irrigation management. The following interventions are drawn based on findings of the study.

Strategy for effective sustainable tank irrigation management

1. Tank management

1. Department of Agriculture should create awareness on control of weeds in tanks by distribution of extension literature and Irrigation Department also create awareness with the help of mass media. NSS students of nearby educational institutes can also be utilized for this purpose.
2. Department of Agriculture should improve farmers knowledge by conducting training programmes on management of weeds in tanks.
3. Department of forestry should create awareness on benefits of afforestation and also motivate farmers to plant saplings on tank bunds.

Government

1. Government should provide funds to irrigation department for proper desilting of tanks
2. Government should recruit sufficient staff for effective planning and execution of tank irrigation management activities. Farmers associations can also be formed.
3. Government should take the steps to reduce the workload of officials of various line departments from attending other works thereby they could be able to bestow much attention on tank irrigation management activities.
4. Provide incentives or appreciation occasionally to motivate officials for additional work.
5. Formulate guidelines for initiating mechanisms for coordination among Irrigation Department, Agriculture and allied sector departments for effective tank irrigation management and promotion of sustainable livelihood for farmers of tank command area.

Revenue Department

1. Revenue department should pass rules and regulations to avoid the assigning of tank area to poor people and also strictly enforce the rules.

Tank irrigation management

1. Department of Agriculture, Krishi Vigyan Kendras (KVK) and District Agricultural Advisory and Transfer of Technology centres (DAATTC) should create awareness among farmers through extension literature and mass media on recommended cropping pattern and crop planning for effective utilization of water, and also trainings.
2. Department of Agriculture, KVKs and DAATTCs should organize method demonstrations on water saving technology i.e. Alternate Wetting and Drying (AWD) in order to avoid the over utilization of water.
3. Farmers have to be educated by taking them on field visits to successfully managed tanks and irrigation.
4. Officials of Department of Agriculture should create awareness among farmers on benefits of silt application.
5. Research scientists should develop suitable technology/machinery for weed removal in tanks.

Group management

1. KVKs and DAATTCs should involve and facilitate in formation of specific tank water user groups as Kakatiya Tank Users Association / groups for effective tank irrigation management
2. KVKs, DAATTCs, Department of Agriculture, Irrigation Department and local Non Government organizations should involve Farmer Producer Organizations to create awareness about the roles of leaders and members through different media.
3. KVKs, DAATTCs, Department of Agriculture, Irrigation Department and local Non Government organizations should organize capacity building programmes for farmers on group dynamics and team management for effective tank irrigation management. NABARD can be approached for funding.

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