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## ECONOMIC DEVELOPMENT OF RURAL HOUSE HOLDS THROUGH MINOR IRRIGATION PROJECT - A STUDY IN TELANGANA STATE

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### Abstract

India is a country of villages and its development is synonymous with the development of the people living in rural areas. India is a vast and second most populated country of the world. But a big part of this population has been leading an uncertain economic life due to non-synchronization of employment opportunities in agriculture sector because of the fast-growing population. Minor irrigation is the flagship program of government of Telangana, a state whose formation itself was catalysed by perceived regional injustices in water distribution for irrigation. Irrigation projects aims to harness benefits to kinds of various people. Horticulture, fisheries are provided water supply for irrigation and opportunities for agriculture. Based on multiple field studies, this Highlight presents a midterm assessment of the project's impact on increasing water flow, some irrigation projects water level increases which leads fisheries agriculture and besides horticulture who developed by the surroundings of irrigation projects by growing horticulture.

**Keywords:** Rural Households, Minor Irrigation, Fisheries, Agriculture, Horticulture.

### Introduction

Over the last half-century, minor irrigation has taken a back seat in peninsular India's minor irrigation landscape with tube wells revolutionizing the way farmers irrigate their land. Peninsular India sits on hard-rock formations, primarily Deccan trap basalts and granitic basement complex; yet extensive areas are irrigated with groundwater. Where tank irrigation dominated in the earlier century. The Kakatiyas were a prominent dynasty in south India that shaped the history of Telangana between the 12 and 14 th century from their capital in present day Warangal. The Kakatiya rulers-built thousands of small reservoirs or tanks across Telangana to store rain water and make it available to people and their farms in the dry season (Kothavade 2017). Often built in a cascade. The tradition was to de-silt the water bodies in summer and apply the silt on farm lands to maintain and improve land productivity. The fifth Minor Irrigation Census (GoI 2017; reference year: 2013-14) reports 46,531 such decentralized storages or tanks in Telangana. The state government in (undivided) Andhra Pradesh too recognized challenges surrounding the lack of access to irrigation in the Telangana region, but it took a state reorganisation to germinate a comprehensive project aimed at reviving Kakatiya tanks to improve access to irrigation. The five-year long program intends to uphold the vision of Kakatiyas through revival and restoration of minor irrigation sources to their original capacity by effectively utilizing 265 billion cubic feet (7.5 BCM) of water allocated for minor irrigation sector under Godavari and Krishna River basins, achieving the basins' irrigation potential of twenty lakh acres.

Over two billion people around the world depend on irrigated agriculture for sustenance. While groundwater has become popular for irrigation, it is becoming increasingly difficult to source groundwater as water tables decline from potential over-consumption. Water tank rehabilitation is a potentially attractive alternative to reduce overuse of groundwater and improve climate adaptation, water management, and sustainable agriculture. The Government of Telangana is partnering with researchers to determine the impact of restoring water tanks for irrigation on water management, agricultural output, and farmers' income.

### Major Research Works Reviewed

An attempt has been made in this chapter to examine earlier literatures relating to the Minor Irrigation Projects, Irrigation and Agricultural Development. The present chapter deals with the Research Articles in the Journals, Study Reports, Magazines, Books and some M.Phil and Ph.D thesis related to the research problem.

Changes in the catchment, encroachments, and overuse of water are issues that are common in inland fresh water wetlands in India in general, according to **Bassi et al (2014)**.

Another example of an activity affecting the state of tanks is pressure from different groups to deliver more water to them, for instance in order to cultivate bananas (**Gomathinayagam, 2012**). These are examples of factors that directly affect tanks negatively and can be possible causes for the deterioration of tanks, and the examples are often related to an inadequate management.



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A reason for why there is a lack of funds even though revenue is collected from the tanks could therefore be that revenue collected from a particular tank is not invested back into that tank but goes through the government, and that several government bodies are involved in this in different tanks making it less clear. But not only the government is part of the problem, there is supposedly a low collection of fees from members by WUAs (Chun, 2014).

Narain and Vij (2016) has studied common property resources in India, irrigation tanks are included since they are managed by communities to some extent today and more so earlier. They find that common property resources in India have been declining for a long time, and that there are some large-scale driving forces responsible for this in different time periods: Urbanization is threatening common property resources through conversion of land, and through resource need for urban areas and industry.

Karthikeyan et al (2009) showed that farmers are willing to pay more for tank management than what they currently do. Negative effects from well irrigation are also an issue that is repeated in the literature.

### Objectives of the Study

The following are the main objectives of the study:

1. To study the Minor Irrigation Projects on agriculture allied activities in Telangana State.
2. To examine the role of Minor Irrigation Projects on the farmers.
3. To study the socio-economic development of communities nearby the projects.
4. To analyse the impact of beneficiaries of Minor Irrigation Projects.
5. To suggest the farmers of resides in projects.

### Major Research Question/Hypotheses

1. Irrigation increases agricultural productivity, allied artisans
2. The impact of minor irrigation on artisans economic in terms of farm income.
3. The impact of minor irrigation is more on the development artisans.

### Methodology

This study is modest attempt to find out various socio economic and push and full factors of minor irrigation projects. This study adopted the following objectives, hypothesis, source of data.

### Importance of Allied activities

The sector comprises agriculture proper, livestock and livestock products and operation of irrigation system. The economic activities included in agriculture proper are (i) growing of field crops, fruits, nuts, seeds and vegetables, (ii) management of tea, coffee and rubber plantations, (iii) agricultural and horticultural services on a fee or on contract basis such as harvesting, baling and thrashing, preparation of tobacco for marketing, pest control, spraying, pruning, picking packing, and (iv) ancillary activities of cultivators such as gur making, transportation of own produce to primary markets, activities yielding rental income from farm buildings and farm machinery and interest on agricultural loans. Livestock and livestock products include breeding and rearing of animals and poultry besides private veterinary services, production of milk, slaughtering, preparation and dressing of meat, production of raw hides and skins, eggs, dung, raw wool, honey and silk worm cocoons etc. Operation of irrigation system comprises supply of water through various Government channels to the agriculturists. Agriculture and livestock activities go together and it is not always feasible to segregate the various inputs like livestock feed, repairs and maintenance costs, CFC etc., into those used in agricultural and livestock production.

### Fish Harvesting

Harvesting fish in irrigation systems, sometimes involving some form of husbandry or even culture, is a practice which dates back at least two millennia. Although seldom recorded, it seems to have been widespread in the tropics and subtropics, especially in rice fields. In the present century, improved management for land-based crops and the demands for the successful raising of aquatic organisms were not generally compatible, but with the advent of integrated crop protection, this situation has changed drastically. Moreover, irrigation systems using stored or diverted water have increased exponentially during the past 50 years, but fish farming within these irrigated systems has not expanded equally, and therefore, there is now a huge potential for this integrated enterprise. A systematic approach to fish farming development at irrigation system level which will make this integration a viable enterprise is proposed. The whole range of aquatic habitats created by irrigation systems can be integrated with fish farming. Small and large irrigation reservoirs, the extensive network of irrigation canals, the irrigated fields themselves, as well as adjacent ponds or aquatic



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refuges of various sorts are all potential sites for nursing or grow-out of fish. In many countries, there is now relatively easy access to fish seed, even in inland areas.

Permanent water bodies should be stocked with a central pool of culture species harvested from short-lived habitats which serve as nurseries. A flexible system of moving culture fish within the system of habitats should be feasible. For example, stocking material for reservoirs can be obtained from irrigated rice fields where the short maturation period of the crop only permits the harvest of fingerlings. If a pragmatic and flexible approach is made to use all habitats for fish production, there could be a year-round supply of fish and a minimum wastage of stocks of cultured fish. The use of high-yielding fish of good quality is essential for economic viability. In areas where a high diversity of fish with a requisite biomass of desirable species already exists, these indigenous fish can be harvested, but their yields may only be adequate for low-income rural areas. Common carp, *Cyprinus carpio* L., has traditionally been a preferred cultured species. Tilapia are proposed as an alternative because these fish are cheap to raise, give high yields and are also quite palatable. Aside from economic revenues, this type of integration also involves ecological and social benefits. High densities of fish in irrigation systems enhance the yield of land crops, alleviate the pressure of terrestrial and aquatic pests, and lower the populations of vectors of diseases of man and domestic animals.

## Horticulture

Efficient water utilization is a key point toward the success of agricultural development especially for farming in dry lands where water shortage is a major problem. In a developing state Telangana, farming in dry lands is subjected to many problems, which vary from lack of knowledge and experience of how to use available water efficiently to social aspects because the farmers are almost living in poverty. These problems have caused some technical assistants to improve farming systems with utilizing new technologies failed because the farmers could not manage them by themselves. This study describes another option of appropriate technology that is designed in a such way that the farmers can understand easily all the principal aspects and the important thing is, they can afford to utilize and manage it in their own lands by themselves. The option is called here as a pitcher irrigation system, which utilizes a bottle-like emitter made of baked clay added with sand and saw ash. The farmers could easily find and prepare all supporting materials for the construction and installation, and after given a little assistant in the beginning, they could do operation and maintenance without any difficulty. The system has been applied successfully to grow horticulture i.e., chilies, tomatoes, grapes and mangos in a greenhouse as well as in fields.

## Importance of Minor Irrigation Project

Returns from Irrigation Project while considering the proposals of irrigation projects in the State, the benefit cost ratio should be worked out. If this ratio is more than one, then only such projects should be approved, as they are economically viable. While working out the benefit cost ratio relating to such projects, the benefits considered are mainly from the additional production due to irrigation facility created. In this calculation, benefits from supply of water for domestic use, industries, generation of electricity, etc., are not considered, but should be considered. Because, as mentioned earlier, while undertaking irrigation project, no survey is carried out to ascertain the demand for other purposes except that for the requirement of irrigation water within the project area. It means planning is restricted only to expenditure, but there is no planning about the Inherits. As of today, the priority being given to the allocation of water available from irrigation projects is as follows: 1. Allocation of water for domestic use. 2. Supply of water for irrigation. 3. Supply of water for industries.

Detailed information about the requirement of water for irrigation is collected and estimates of the water requirement are arrived at. However, the requirement of water for domestic and industrial use is very broadly worked out. Water available from irrigation projects is used for different purposes and income accrued therefrom is classified as shown hereunder: 1. For the purpose of irrigation (sale of water for irrigation). 2. Sale of water for domestic use. 3. Sale of water for other purposes. 4. Income from sale of production from canal cultivation. 5. Revenue receipts from navigation. 6. Hydro-electricity. 7. Sale of electricity. 8. Indirect revenue receipts - receipts of land revenue accruable due to irrigation. 9. Irrigation cess. 10. Betterment levy. 11. Deduction on account of expenditure on recovery, in urban areas. 12. Other revenue receipts. 13. Local cess on water charges. 14. Revenue receipts from auction of fishery rights. Income from irrigation projects is derived under the aforementioned fourteen sub-heads.

## Conclusion

As the water crisis manifests itself in the form of depleting water tables and water related conflicts between states, it is high time that water use efficiency becomes a focal agenda in the irrigation management Policy of India. Proper management of existing irrigation systems is critical for the success of this agenda. It would also require integration and adoption of multidimensional approaches that can manage demand by increasing water use efficiency in agriculture. While the most obvious way to increase water



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use efficiency would be to increase crop Yields through development of high Yielding varieties and efficient use of farm inputs, revision of electricity pricing to farming sector and reuse of waste water in agriculture can be also looked upon. The present level of efficiency of the irrigation system in India is relatively low and there is considerable scope for improvement. Measures such as proper operation and maintenance, extension, renovation and modernization of projects, repair, renovation and restoration of water bodies on the one hand and use of agricultural practices such as moisture conservation, micro-irrigation etc. on the other hand are required to be adopted urgently.

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