

Tehsil-wise Irrigation Projects Capacity and their Intensity in the drought-prone area of Satara district

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Article Info	ABSTRACT
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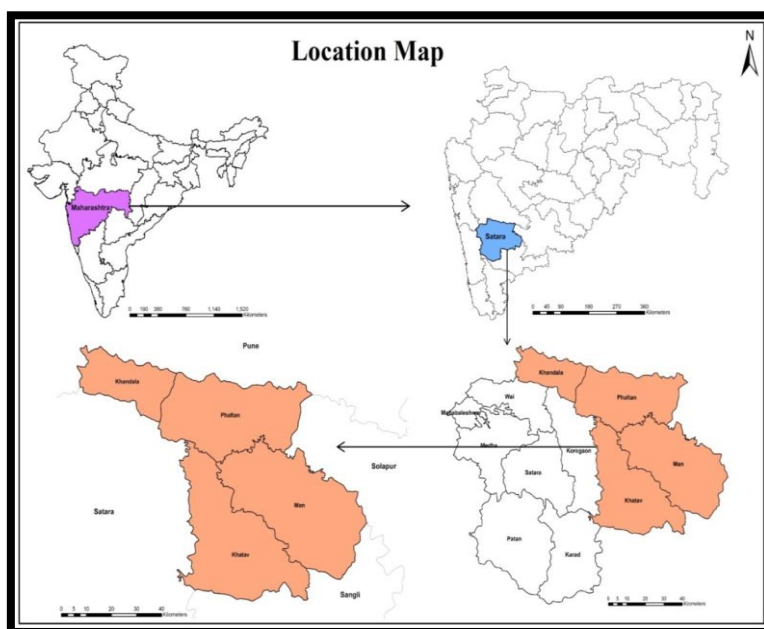
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Introduction:

The need for water is very important and its major source forms the rainfall. But the study area falls into the drought prone zone so the irrigation has a vital role in the socio-economic development of concern area. The irrigation water is not just an economic proposition. Its social aspect is also important. Irrigation water should be made available to marginal and small farmers and the water be made available to farm family for two-season farming so as to enable it to get established in the farm business. This is the social objective. Such a farmer is also a consumer of irrigation service though he is not economically sound. Hence he cannot be dealt with entirely on economic principles. Therefore, while taking a decision about commissioning and management of irrigation project.

Study Area:

Satara district drought prone area is situated between 17°39' N to 18°03' N latitudes and 74°01' E to 74°54' E longitudes. It covers four tehsils namely 1. Khatav 2. Man 3. Phaltan and 4. Khandala. The study area has occupied 4537.73 sq. km area.

**Objectives:**

1. To study the Major and Minor irrigation Projects and their capacity of the Study area.
2. To Calculate Tehsil-wise Irrigation intensity in the Drought Prone Area of Satara District.

Methodology:

Statistical methods, cartographic techniques are used as per availability of data and requirement. Collected information is tabulated, analysed and conclusions have been drawn. Research methodology is a way to systematically solve the research problems.

The secondary data regarding Irrigation projects, mode of irrigation, types of crops and other facilities were collected from the govt. publications, Agricultural offices and IMD.

1. Types of Irrigation Projects in the Study Area:

The study area comes under the rain shadow zone in the eastern part of the Western Ghats, where rainfall is received inadequate and uncertain. The rivers and streams get dried in summer. As the remedies on this situation, the government has built some minor and medium irrigation projects in the

study area. At present, there are five medium and 27 small irrigation projects in the study area. The following types of irrigation projects are used for irrigating the agricultural land.

a. Medium Irrigation Projects in the Study Area:

Irrigation projects with a cultivable command up to ten thousand hectares are known as medium irrigation projects. There are 05 medium irrigation projects in the study area. Table 5.2 reveals the tahsil wise distribution of medium irrigation projects. It is observed that the medium capacity of irrigation projects is found in Yeralwadi Dam (Khatav Tahsil) and Mahswad Tank (Man Tahsil) lowest in Andhali and Ranand Tank.

Medium Irrigation Projects in the Study Area

Sr. No.	Name of Medium Irrigation Projects	Irrigation Capacity in Ha,
1	Ner Tank	2,636
2	Yeralwadi Dam	4,037
3	Andhali Dam	1,498
4	Ranand Tank	1,093
5	Mahswad Tank	4,049
Total		1,33,13

Source: Annual booklet on Present Status of irrigation projects in Satara district published by irrigation Department Govt. of Maharashtra 2018-19

There are five medium irrigation projects which are completed various five year plans up to 1 June 2014. These projects are Ner Tank, Yeralwadi Dam, Andhali Dam, Ranand Tank, and Mahswad Dam. These Projects have created total of 1,33,134 ha. irrigation Capacity in the study area.

b. Minor Irrigation Projects in the Study Area:

All groundwater and surface schemes having cultivable command area up to two thousand hectares individually are classified as minor schemes. These include construction of open wells, private shallow tube wells, deep public tube-wells, and small bandhares on tributaries of rivers, rain storage in the small catchment, and lift irrigation. The central government is providing loan assistance under Accelerated Irrigation Benefit programme for minor irrigation projects of drought prone district of the country. The Government of Maharashtra has given more attention to minor irrigation schemes. The whole irrigation potential of minor plans was 9618 hectares in 2014-15. In the study area, three types of small irrigation projects can be seen, i.e., Minor Irrigation Tanks (MIT), Kolhapur Type Weirs (KT Weirs) and Percolation Tank.

Minor Irrigation Projects in the Study Area

Sr. No.	Name of Tehsils	Minor Irrigation Tanks (MIT)	Others Tanks
1	Maan	9	
2	Khatav	9	02 Kolhapur Type Weirs (KT Weirs)
3	Phaltan	11	02 Percolation Tank (PT)
4	Khandala	04	
Total		33	04

Source: Annual booklet on Present Status of irrigation projects in Satara district published by irrigation Department Govt. of Maharashtra. 2018-19

It can be seen from Table 5.3 that, a total of 37 minor irrigation projects are in the study area. Out of the total irrigation projects, 31 MIT, only 02 KT Weirs and 02 PT in the study area. In Man Tahsil 9 MIP, Khatav -11, Phaltan- 13, and in Khandala-4, projects are located. These tahsils are leading in MIT. But all tahsils in the study area are lagging behind in Kolhapur Type Weirs (KTWeirs) and Percolation Tank (PT) construction.

c. Irrigation Capacity of Minor Irrigation Projects (In Ha.):

The contraction of minor irrigation projects is beneficial for the irrigation purpose. But it has not proper guidance about the use of water for the agriculture so there are many projects are useless as today's. the following table shows the irrigation projects and their irrigation capacity.

Minor Irrigation Projects Capacity (In Ha.)		
Sr. No.	Name of TehsilS	Minor Irrigation Project Capacity in Ha.
1	Maan	2496
2	Khatav	2617
3	Phaltan	3523
4	Khandala	982
Total irrigation capacity Created (In Ha.)		9618

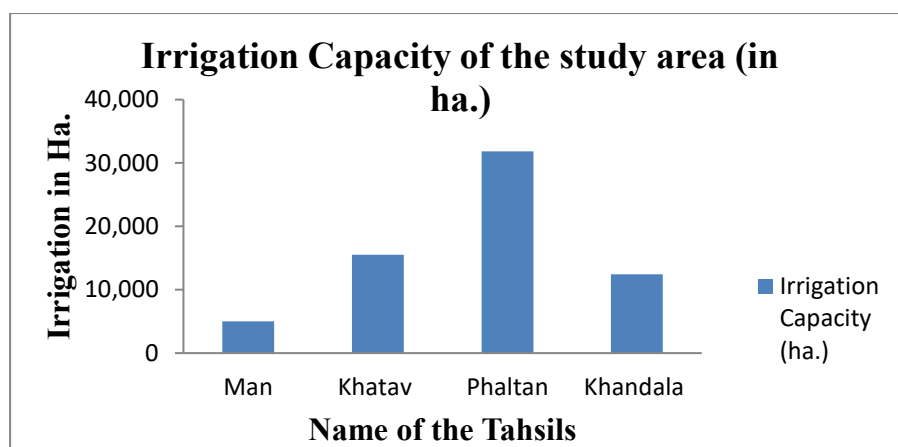
From Table 5.3 it can be seen that the 37 minor irrigation project created an irrigation potential of 9618 ha. In the study area, Out of the total irrigated area, Minor Irrigation Tanks (MIT) covered 9032 ha., Kolhapur Type Weirs (KT Weirs) 324 ha. and percolation Tank 262 ha. in the study area. The minor tanks cover maximum irrigation but this type of irrigation is not available in the whole year.

d. Tahsil-Wise Irrigated Capacity of the Study Area:

In the study area, the State Government completed different irrigation projects in the study area. The total irrigation capacity of the study area was 64,765 ha. In the Phaltan tahsil acquired the highest irrigation capacity and on the other tahsils of the study area were not beneficially properly.

Tahsil-Wise Irrigated Capacity in the Study Area		
Sr. No.	Name of Tehsils	Irrigation Capacity in Ha.
1	Maan	5,016
2	Khatav	15,500
3	Phaltan	31,827
4	Khandala	12,422
Total irrigation capacity (In Ha.)		64,765

Source: Annual booklet on Present Status of irrigation projects in Satara district published by irrigation Department Govt. of Maharashtra.2018-19



The irrigation projects are mainly depending on the rainfall of the study area. But the rainfall is a very short and inadequate supply of the water these irrigation projects are not properly functioning in the study area. In the Man tahsil nine irrigation projects are constructed but the capacity of irrigation only 5016 ha. The Phaltan tahsil is more irrigated as compare to other tahsils of the study area. Thirteen irrigation projects are completed in this tahsil. Hence, irrigation capacity of this tahsil is more than other tahsils.

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2. Irrigation Intensity of the Study Area:

The present Irrigation intensity is the area under cultivation and area under the irrigation. The average irrigation intensity of study area is 53.06 percent in 2015. This is calculated through the following formulas:

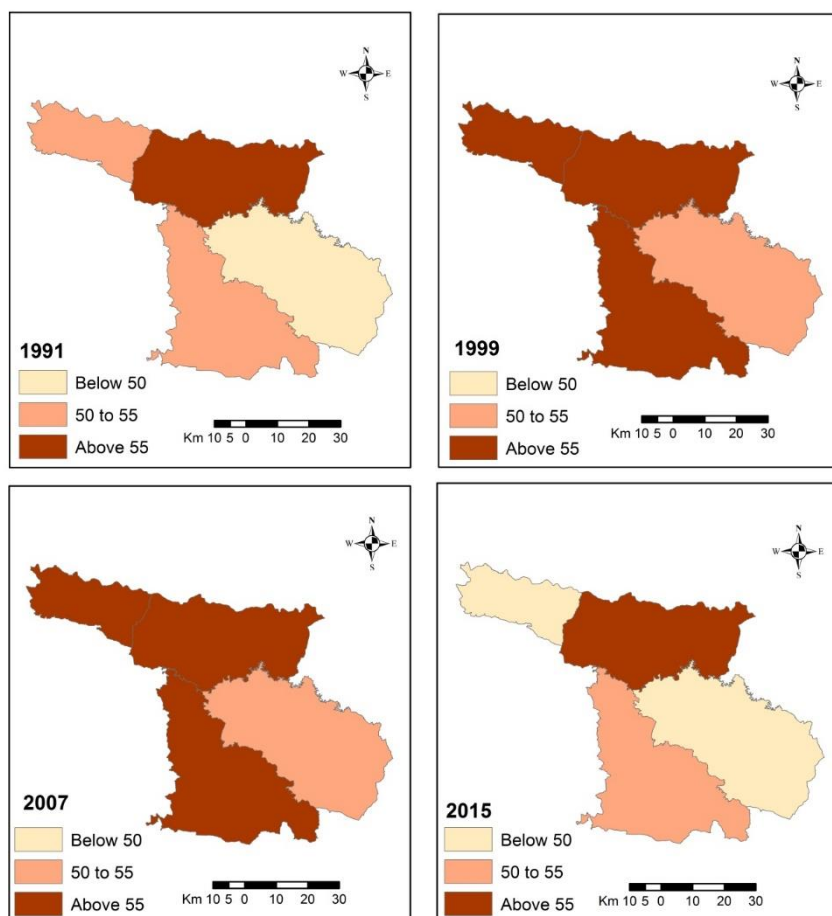
$$\text{Irrigation Intensity} = \frac{\text{Total Irrigated Area}}{\text{Total Cropped Area}} \times 100$$

Irrigation Intensity of the Study Area (In Percent)

Sr. No.	Tahsil Name	1991	1999	2007	2018
1	Man	48.33	50.12	52.68	45.30
2	Khatav	54.60	55.68	58.24	50.53
3	Khandala	54.20	55.98	57.23	40.98
4	Phaltan	76.83	77.65	78.89	64.64
Study area		58.49	63.15	65.54	53.06

Source- Compiler by researcher

IRRIGATION INTENSITY



Above all discussion reveals that the irrigation intensity was decreased due to increased agriculture landuse area but it is the rainfed area which has not possible to irrigate every time. It depends on the rainfall and the irrigation project for the development of irrigation as well as the construction of dams, canal, farm pound, KT ware, and other irrigation facilities in the study area. The rainfed area more increased in the study area upto 2018. So the intensity of irrigated reduced in the study area but the area in hector has been increased in all the tahsil of the study area.

Conclusion:

In the above discussion, development of irrigation and storing techniques are used by farmers of this area like farm pond, drip irrigation, sprinkler irrigation. The present study accepts advanced methods of irrigation with using agricultural techniques, pomegranate and new commercial crop like vegetables and other fruits on a profitable basis in order to get more income from a small area of and increasing the duration of water availability in the study area.

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