

Agricultural Facility: A Case Study of Akole Tahsil in Ahmednagar District

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Abstract: Normally, groundwater and surface water are used for irrigation and when available water in these sources is taken away by artificial means to supply for the crops, it is called irrigation. Ground water has emerged as the prime source of drinking and irrigation. More than 90 percent, present ground water withdrawal is being used for irrigation purpose thus, contributing largely in food security of the study area. Various types of irrigation techniques different in now, the water obtained from the source is distributed within the study area. In general, the goal is to supply water to the entire field uniformly, so that each plant will get sufficient water, neither too much nor too little. Out of the total geographical area of 1, 49,990.31 hectare of the Tahsil, the landuse statistics are available for about 1, 49,942.43 hectare, constituting 99.96% of the total area. According to the 2015-16, the area under dense vegetation or forest land accounted for 12.11% of the total area, sparse vegetation or forest land at 5.54%, Shrubs or low vegetation 19.29%, Agricultural land at 22.61%, Barren land at 35.00%, Shadow land at 0.27%, Settlement land at 3.22% and area under Water bodies land was accounted at 1.96%.

Keywords: Irrigation System, Types of Irrigation, Sources of Irrigation, Agricultural Facilities And Tribal Area.

1. STUDY AREA

Akole is a Tahsil place in Ahmednagar district of Maharashtra state. It is well surrounded with the mountains of Sahyadris. Its latitudinal extent is between 19° 15' 14" North to 19° 44' 59" North and longitudinal extent is from 73° 37' 00" East to 74° 07' 24" East. Total Villages are 191 and 4 (Four) **Revenue Circles** namely **Rajur, Akole, Samsherpur** and **Kotul**. Total Geographical area of Tahsil is **1, 49,990.31 hector**. The study area occupies 8.73 percent areas of the district respectively and area under the forest is 41,698 hectares. Agriculture land is 98,712 hectares.

2. OBJECTIVE

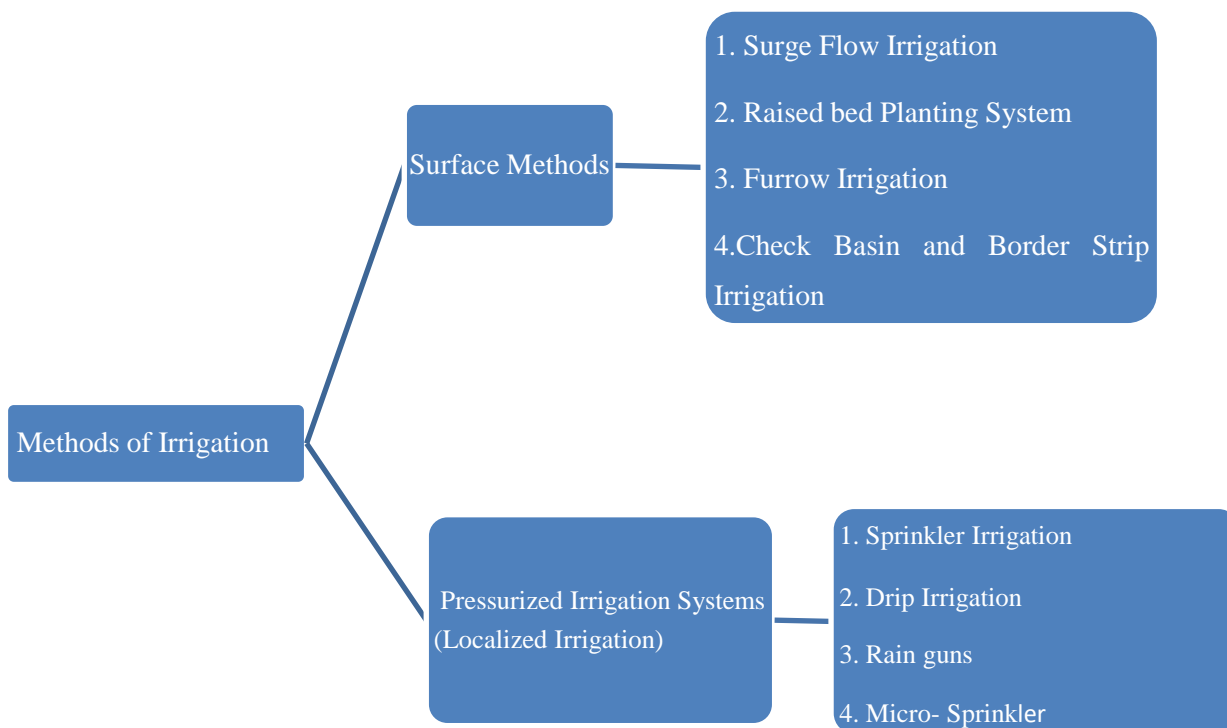
- a. To study Agricultural Facilities in Akole Tahsil.
- b. Examine the current situation of study area.

3. INTRODUCTION

Water is necessary for the very existence of man who appeared on the earth in early Pleistocene Two to Three Million years ago. However, due to rapid growth of population and increased needs for agricultural and industries, water it is many areas a critical factor. Therefore, not only sustainable development of potential sources of water, but also to augment, conserve and manage these resources through improvement in water storage, conveyance, application and crop-water-use efficiencies, without detriment to environment and natural resource base is imperative, hence enhanced effort and support is needed. Next to water, nutrients are an important input for guiding sustainable growth of agriculture.

a. Methods of Irrigation System:

Irrigation is the artificial application of water to partially meet the crop evapo transpiration requirements. It is essential for sustaining crop productivity in many regions of the country, mainly because of the rainfall is inadequate and unevenly distributed to meet crop-water demands. Hence, efficient water application methods such as furrow, sprinkler and drip irrigations needed to be recommending to minimize wastage of stored water and to bring more area under command.



i. Surface Methods:

Surface irrigation can be subdivided into furrow, border strip or basin irrigation. It is often called flood irrigation when the irrigation results in flooding or near flooding of the cultivated land. This is often seen in terraced rice fields (rice paddies), where the method is used to flood or control the level of water in each distinct field. In some cases, the water is pumped, or lifted by human or animal power to the level of the land.

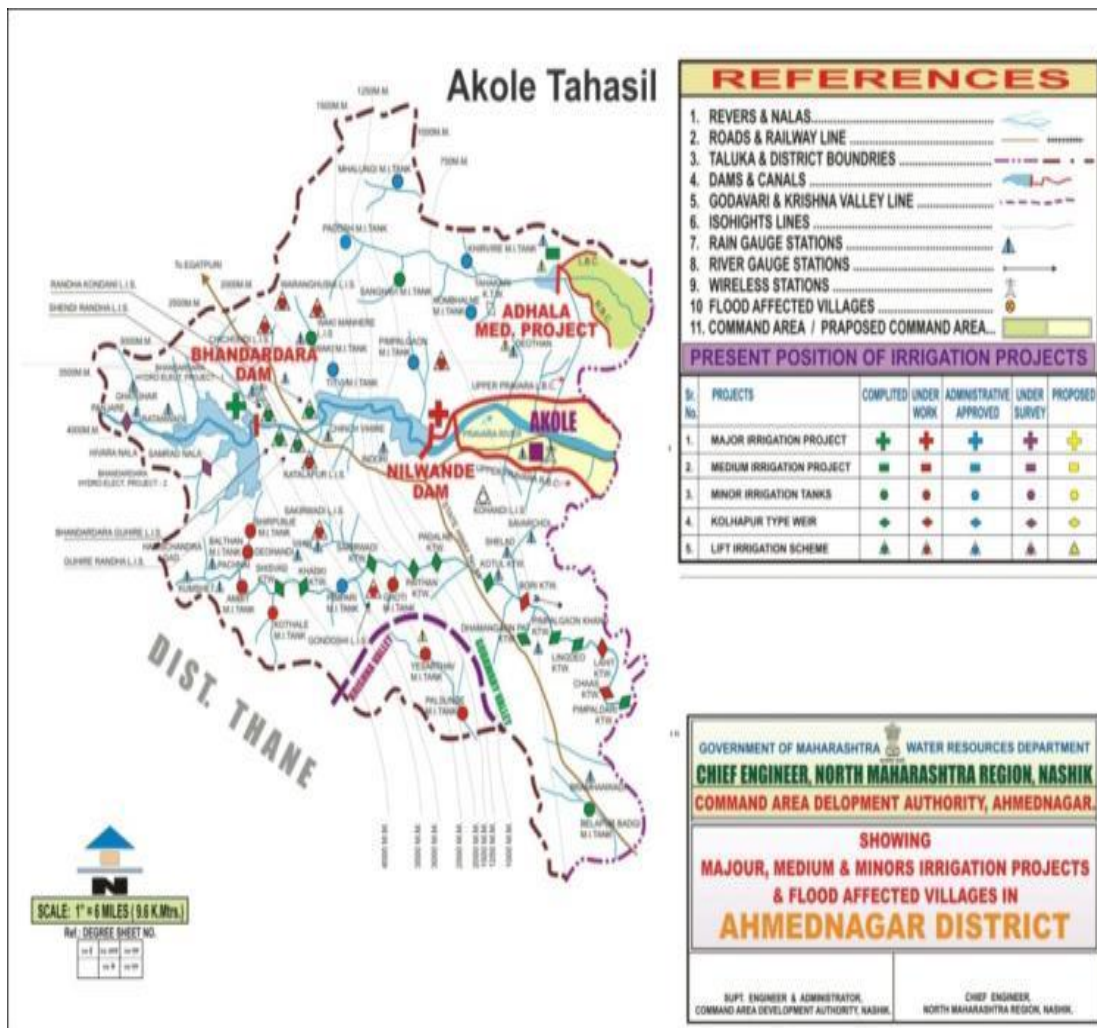
ii. Pressurized Irrigation Systems (Localized Irrigation):

Localized irrigation is a system where water is distributed under low pressure through a piped network, in a pre-determined pattern and applied as a small discharge to each plant or adjacent to it. Drip irrigation, spray or micro-sprinkler irrigation and bubbler irrigation belong to this category of irrigation methods.

b. Sources of Irrigation:

The sources of irrigation are greatly affected by the geological, physical and climatologically conditions. Irrigation is available from various sources. The important sources of available in the irrigation shows in the Tahsil are canals, dams, rivers, wells, tube wells, tanks, lifts and other [Irrigation Maps No.1]. Shows the sources of irrigation in the study area.

▪ Sources of Irrigation in the study area:



Map No.1

At present the **Dam irrigation** system is confined only to the north east (Adhala dam) and central part (Bhandardara and Nilwande dam), the **River, Well and Tubewell irrigation** is widespread to the north (Mhalungi and Adhala river basin), central part (Pravara river basin) and south part (Mula river basin), **Tank irrigation** is to the north central and south part, the pre-ponderance of **lift irrigation** is Mula river basin in the Tahsil map no.1.

▪ **Other Irrigation:**

Local sources of irrigation refer here to the surface water schemes such as small stream diversion. The percolation tanks constructed for conserving moisture and replenishing groundwater also include under this source. Based on co-operative spirit, the local people are involved in this percolation tank irrigation system. After rainy season, every year, the seasonal flow of streams is diverted by constructing small earthen dams. Obviously these local sources play significant role in irrigation of surroundings lands for kharip season only. Moreover, these sources of irrigation have the great advantages as these schemes can be completed quickly by using local talents and small capital. The maintenance and operation costs are also very low.

▪ **Sprinkler Irrigation:**

Sprinkler irrigation is an important method of saving water and reducing land costs involved in the construction of water courses by the use of sprinklers. These can be used on all soils except heavy clay soils and all types of crops except rice. Another advantage of this irrigation is that land need not be leveled as in gravity irrigation and the method in fact is best suited to irregular topography.

▪ **Drip Irrigation:**

Drip irrigation, also known as trickle irrigation, function as its name suggests. Water is delivered at or near the root zone of plants, drop by drop. This method can be the most water-efficient method of irrigation, if managed properly, since evaporation and runoff are minimized. In modern agriculture, drip irrigation is often combined with plastic mulch, further reducing evaporation, and is also the means of delivery of fertilizer.

4. CONCLUSION

The predominant irrigation systems are canals, wells and tube-wells. During the study period, while areas under irrigation by wells and tube-wells had increased. The wells ranked 1st canal and dam 2nd and other irrigation are 3rd ranked. Crops like sugarcane and rice needs larger quantities than wheat and other cereal crops. Irrigation in the study area has been practiced since old time but its development has been very fast after construction in the Bhandardara Dam. As such, lift irrigation a pre-dominant source, shares about more than 50% of the total irrigated area is developed particularly on river banks. This is followed by dominance of well irrigation in the north and eastern parts of the Tahsil and canal irrigation in the northern, middle and southern part of the Tahsil. The percolation tanks have become new phenomena in the eastern part of the Tahsils which helped indirectly to increase the water table of wells. The river Pravara, Mula, Adhala and Mhalungi then Bhandardara, Nilwande and Adhala dam are important sources of surface water which have facilitates canal and lift irrigation. This facilitates methods of irrigation also vary according to the Topography, Soil type and Climatic conditions. The variation in the regional pattern of irrigation and its intensity which in turn influences the adoption of agricultural technology, crop pattern, crop yield, productivity and intensity are increased. The significant correlation is also noted in case of fertilizers consumption and irrigated area. The application of fertilizers is high in irrigated areas devoted to cash crops. The irrigation faculties enable the farmers to cultivate high yielding varieties.

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