Anekant Journal of Humanities and Social Sciences
A Half Yearly and Peer Reviewed Open Access Print and Online Journal
http://www.humanitics.org/

RESEARCH ARTICLE **Vol.III, Issue I, August, 2020**

A CASE STUDY OF WATER CONSERVATION IN BARAMATI TAHSIL, PUNE DISTRICT

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Introduction

Water is one of the most important and priceless gifts of nature and an essential need for sustenance of life and civilizations in the world. Most of the wars in the world have, historically been fought for territory and land. This may change in the present century. It is believed that perhaps the wars of the 21st

In India, availability of water resources is high but there is lack of water conservation and management. Only 10 percent of rainfall water is used for purposes of agriculture. Agriculture in India is known as a gamble of the monsoon rains. Owing to deforestation and soil erosion a large portion of water runs off. As the number of tube wells is ever increasing uncontrollably, ground water has depleted to an extent where it cannot be recharged. Therefore, ground water conservation becomes an indispensable part of water conservation to counter the drought situation.

In Maharashtra we receive maximum rainfall from June to September each year. There is uncertainty and uneven distribution of rains in the State. We get maximum rainfall in July. Rainfall decreases if we move towards the eastern part of Sahyadri. Central Maharashtra is known as the drought-prone area and as we move towards east rainfall increases. The districts of Dhule, Jalgaon, Pune, Satara, Sangli, Ahmednagar, Solapur, receive 400 to 500 mm rainfall.

The eastern parts of Pune district like Shirur, Daund, Purandar, Baramati, Indapur, receive up to 300 to 400 mm rainfall. These parts fall in the drought-prone region. Baramati Tahsil is known as a drought - prone tahsil. Geographically, Baramati tahsil has small hills and hill ranges, a major part of which are plains.

The major river in Baramati Tahsil is Nira. Karha is also one of the sub rivers of the region. Many small or big flows join these rivers. These streams have created many small gullies. Owing to this some parts of land become a barrier. The northern parts of Baramati tahsil are the most drought-prone, even though there is a tremendous watershed in the region. As rain falls on the ground it flows along the slope of the ground and joins the streams, which flow into major rivers. This is known as a watershed region. The run-off of this region joins the Karha river and flowing southwards finally joins the Nira river. There is no adequate economic management or means to use and utilize this water. Naturally, therefore, there are difficulties in developing ground water table. Owing to uncertainty and uneven distribution of rainfall water conservation and water management are the need of this region.

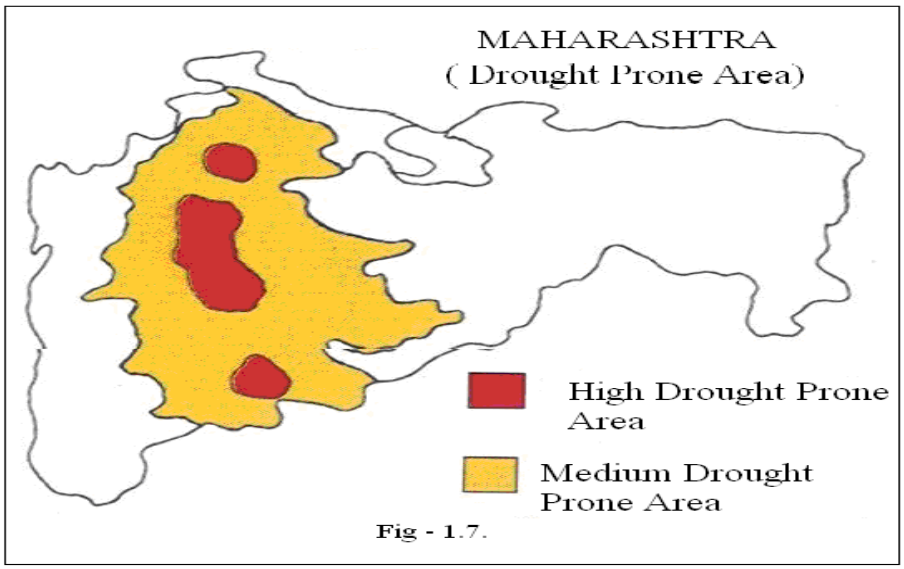


Fig - 1.7.

Study Area

Baramati Tahsil lies between 18°3' to 18°12', north latitudes and 74° 13' to 74° 30' east longitudes. It is located at an altitude of 538 metres above mean sea-level. The Tahsil lies in the eastern part of Pune district of Maharashatra. The river Nira flows west to east forming the southern boundary of the Tahsil and the district. The river Karha flows northwest to south – east.

Baramati Tahsil is bounded by Indapur Tahsil towards the east, Satara district towards the south, Purandar Tahsil towards the west and Daund Tahsil towards the north. Baramati city covers an area of 4.35 sq km (Census.2001) (excluding 824.8 hectares of land of Baramati M. I. D. C. and Industrial estate). The area of Baramati Tahsil is 1382 sq km. The distance between Mumbai and Baramati is 260 km by road and between Pune and Baramati it is 100 km by road and railway. Baramati Tahsil is somewhat rectangular in shape.

Hypothesis

Latest water conservation techniques have proved to be very effective in the development of drought-prone area. These techniques have demonstrated positive increase in the standard of living of farmers due to change in the cropping pattern, conservation methods and allied activities. This socio-economic change is realized only if farmers, government agencies and financing agencies are in perfect co- ordination. This has been proved in various parts of the world, especially, in drought-prone areas **Objectives**

The objectives of this research work are as follows:

1) To study the topographical factors responsible for water conservation;

2) To study the effect of water conservation on yield of crop and

distribution;

3) To study the suggestions given by government on water conservation;

4) To study the impact of irrigation on socio- economic development

Data base and Methodology

The present study has been carried out with the help of data collection, compilation, tabulation, computation, analysis and interpretation of the basic data regarding water resource. Various relevant aspects have been collected from secondary sources of information i.e. tahasil office, Agricultural trust Baramati, census handbook of Pune district, socio-economic reviews, district statistical abstract and various published reports. Thus, the present work has been accomplished with the help of descriptive interviews and data collected from officials, supervisors and farmers which are secondary data.

The collection, compilation of data, computation, rearrangement of data in tabular form, the analysis of the interpretation of data, comprise both the empirical and theoretical approaches. Various statistical methods have been used for analytical purposes in the present study.

Arrangement of Text

The proposed study has arranged in to five chapters, The opening chapter put froths objectives of the study, review of literatures, sources of data and methodology, profile of study region on location, physiography, climate, drainage pattern, soil, vegetation, irrigation, population, occupation, agriculture, transportation etc. The chapter second has attempted to presents the History of water conservation in Baramati Tahsil. The chapter three presents irrigation systems in the study region. The chapter four attempted to study irrigation and socio-economic development. The last chapter presents the problems, suggestions and conclusion.

Interpretation

Baramati Tahsil is known as drought-prone area in Pune district. It is always known as a region of scarce rainfall in Maharashatra. Geographically, there are small hills around Baramati. There are two rivers in Baramati, of which Nira river is the main river. The other river is Karha. There are some water streams in both the rivers. Because of water streams there are small gullies. There is highest rainfall in the north of Baramati. There is tremendous watershed in these regions. There is availability of water in the monsoon. There is no adequate strategy for the management of water. Owing to lack of rainfall there is need of restoring and maintaining water.

In Baramati Tahsil, out of 117 villages 38 villages that is 1/3 area gets the benefit of Nira Left canal and the remaining 79 villages, that is 2/3 of the area, depend on uneven rainfall. All these villages fall under the drought-prone area. Nira and Karaha river are the main sources of water for these regions. Many small or big flows join these rivers. These streams have created may small gullies. Owing to this some part of land serves as a barrier. The northern parts of Baramati tahsil are the most drought-prone, even though there is tremendous watershed in the region.

There are many natural restorations regarding storage of ground water. There is uncertainty and uneven distribution of rainfall in this region. Owing to this irrigation has been an important factor.

In Baramati Tahsil, with the help of Maharashtra government, integrated watershed development programme was started in 1992. Every year Baramati Tahsil has to face new challenges due to low availability of water and failure of monsoon. When we made a survey of Baramati Tahsil in the last ten years, we came to know that three years out of eight years were hit. For two years there has been excess of rainfall .This year during monsoon these areas have been totally ignored. In Baramati Tahsil 57 villages are always known as drought-prone area.

A study of the total area under irrigation in the years 2005 -06, revealed that 11.82 per cent is irrigated by canals, 1.68 per cent by tanks, 68.25 per cent by wells and the remaining 18.25 per cent through other sources.

Irrigation is wholly responsible for Socio- economic development of people of drought-prone area in Baramati Tahsil. The Nira left Canal, Khadakwasla Canal, Nazare sub- Canal, Janai – Shirsai lift Irrigation project, Karha and Nira river k.t.weir, Veer, Bhatghar, Ujani and Khadakwasla Dams are the sources from which Baramati gets water to a large extent for drinking and Agriculture. These water supply systems contrubute to socio-economic development. Baramati has a continuous increase in educational institutions, Industrial units, Transportation facilities, Trade and agro-based Industries.

Today, Baramati has earned the distinction of being an educational and industrial hub.

Suggestions

- Carrying out water conservation through Local and Government project.

a) Watershed Concept.

b) Continuous Contour Trench.

c) Vegetable Contour and Graded Bunding .

d) Recharging Trench.

e) Earthen Nala Bunding.

f) Cement Nala Bund.

g) Janai – Shirsai lift Irrigation project is life line for 57

(Census 2001) drought-prone villages on Baramati Tahsil

h) The construction of Nazare Sub canal must be completed.

i) Minor dam should be constructed on Nira river.

Concluding Remarks

Drought is a climatic anomaly characterized by deficient supply of moisture resulting either from sub-normal rainfall, erratic rainfall distribution, higher water need or a combination of all the factors.

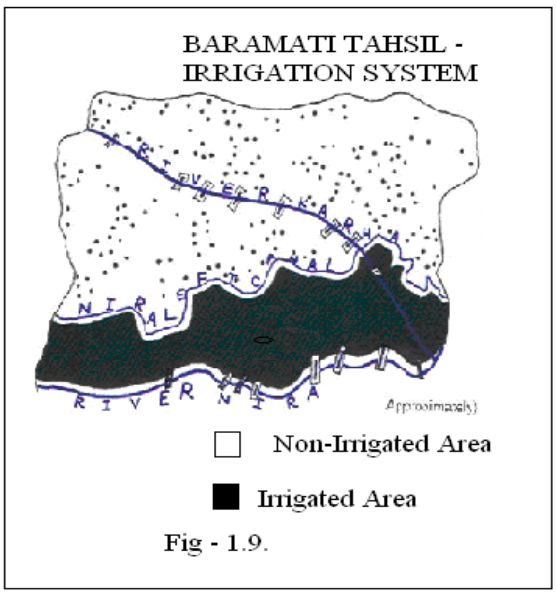
Droughts are the resultant of acute water shortage due to lack of rains, over extended periods of time affecting various human activities and this leads to problems like widespread crop failure , unreplenished ground water resources, depletion in lakes/reservoirs, shortage of drinking water and reduced fodder availability etc. Thus, the only remedial measure to mitigate drought is water conservation.

From the data analysis , we find that as Baramati Tahsil is located on the leeward side of Sahyadri mountain ranges, it falls in the rain-shadow region. There is acute water scarcity due to low precipitation. So it is a prominent drought hit region.

Owing to topographical reasons there is huge scope for watershed development in northern parts of Baramati. As there are two rivers flowing within the tahsil, there is greater scope for arresting the water by building K.T. weirs and weirs across the rivers.

It can be clearly seen that the southern parts of Tahsil are not affected by drought because they are supplied with water for agricultural and other purposes by Nira- left bank canal. This area also has many water conservation projects in the working stage.

Drought can be completely eliminated by implementing water conservation projects like integrated watershed development and the rain water harvesting etc



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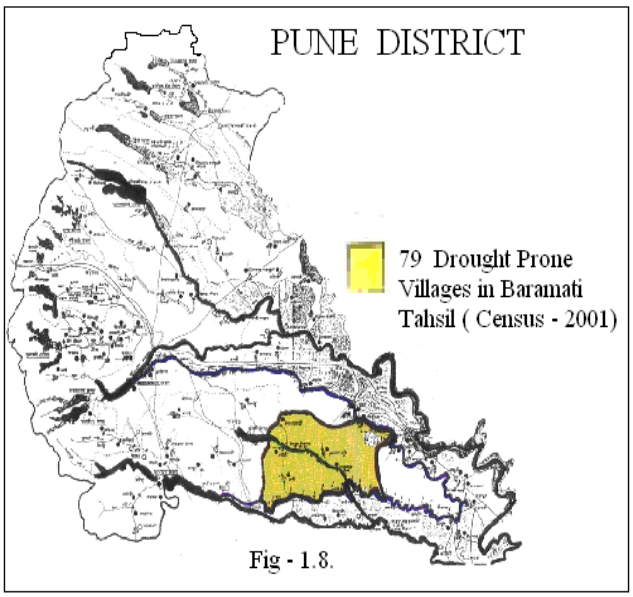

Fig - 1.8.

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