



WATER SCARCITY PROBLEMS IN MAHARASHTRA: A GEOGRAPHICAL STUDY

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ABSTRACT:

Maharashtra is the most developed State in India. It has enriched tradition of socio-economical, educational and co-operative movements. It is also being recognized as industrial state of the country. But unfortunately since last decade this state is severely suffering from water scarcity problem. The main objective of this paper is to study the causes of water scarcity problems in Maharashtra. The present study is entirely based on secondary data. The collected data analyzed and suitable cartographic techniques are used for presentation of data. This problem can be solved by proper management. The remarkable solutions are suggested to solve these problems.

Key words: *Water scarcity, socio-economic, co-operative, development, water management.*

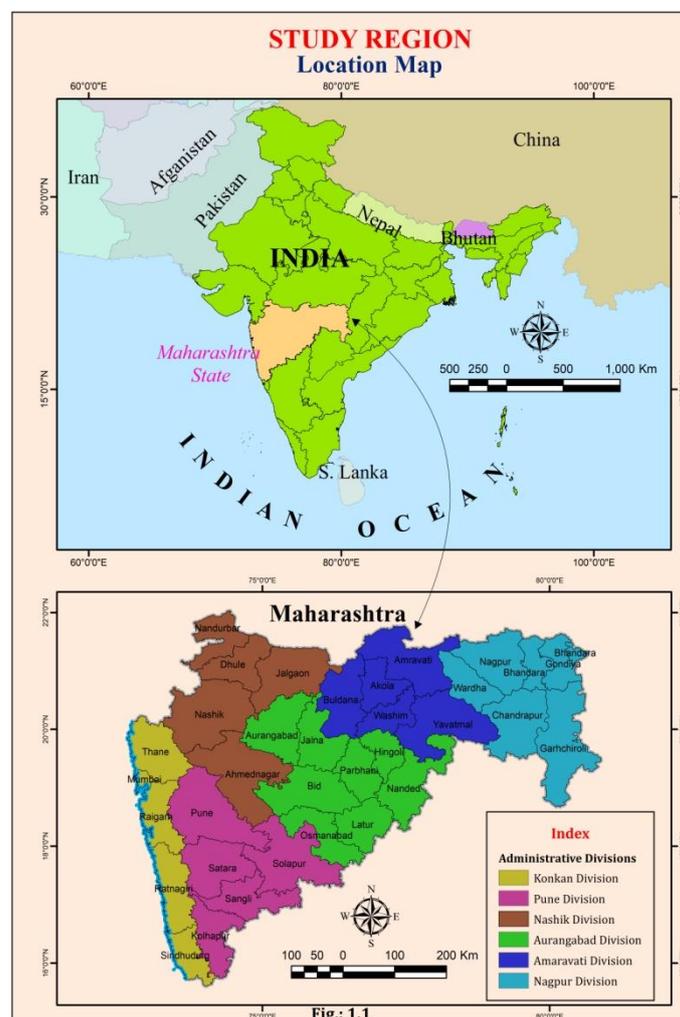
INTRODUCTION:

The role of water is having great significant in the development of any region. Some part of the state is suffering from water scarcity problem. Therefore serious measures should be adopted to solve this problem. Some parts of state are suffering from frequent drought while some districts are now having water scarcity problem throughout the year. There is serious problem of fresh drinking water in almost in rural area as well as in urban area. The water scarcity problem is not restricted at drinking water level only but irrigation of state also badly affected. Consequence of this was really come up in the year 2019, where only 123 sugar industries could be operated successfully out of 147 sugar industries. Ground water level in some of parts of the state has been drastically decreased up 400 to 500 feet's. With ever increasing pressure of population and

its ever increasing demand for agriculture, industries and domestic purpose, water becomes scare resource in real sense.

STUDY REGION:

The state of Maharashtra is one of the 28 states of Indian Union. The state was formed 1st May 1960. The state is about 800 Km from east to west and 700 km north to south. It is third largest state in India in respect of area and second in population. The study region lies between 15^o North to 22^o 1' North latitude and 72^o 6' east to 80^o 45' east longitude. It is bounded by Arabian Sea on the west, Gujarat in north-west, Madhya Pradesh in the north, Chhatisgarh in east. Telangana in south- east and Karanataka, Goa in the south. The geographical area of the state is 3,07,713 sq.km. which is one tenth area of the Indian Union. The total population of the state 11,23,74,333 and is about 9.28 percent of country's total population.



OBJECTIVES:

1. To study the different factors responsible for water scarcity problems in Maharashtra.
2. To suggest solution for the water scarcity problem in the study region.

DATA SOURCE AND METHODOLOGY:

The present study is entirely based on secondary data. The required data has been collected from the following sources:

1. Census report published by the Govt. of India
2. Vital Statistics
3. Report published by the Govt. of Maharashtra
4. Yojana Magazine published by planning commission of India.

Besides above, some information is taken from the dissertations, books, newspapers journals and Google websites. The collected data analyzed.

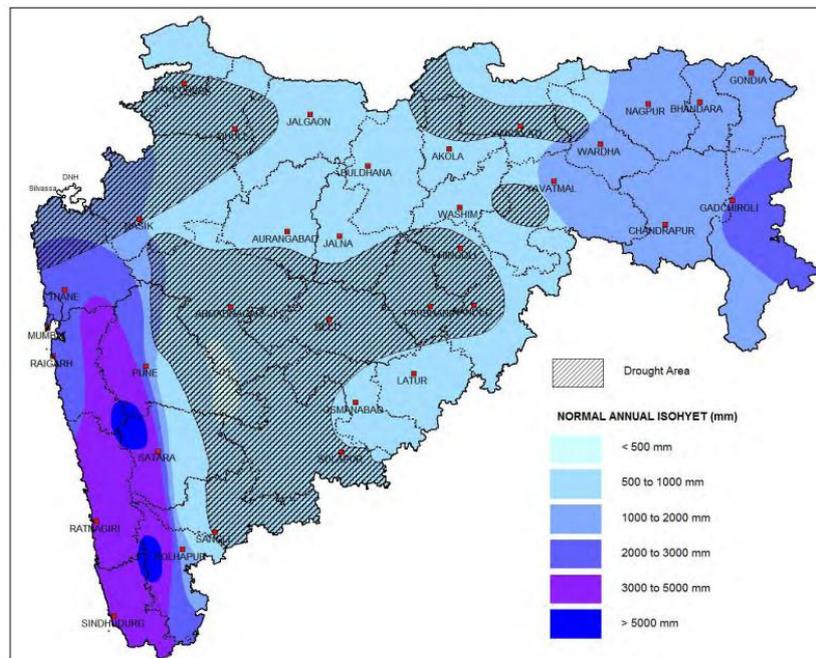
SEVERE DROUGHT CONDITION OCCURRED IN MAHARASHTRA:

Table No. 1.1 Permanently drought prone-District and Number of Tahsils

Sr. No.	District	No. of Tahsils	Sr. No.	District	No. of Tahsils
1	Solapur	10	12	Parbhani	All tahsil
2	Sangli	7	13	Akola	5
3	Pune	5	14	Amaravati	8
4	Satara	5	15	Bhanadara	7
5	Ahmednagar	10	16	Buldhana	3
6	Dhule	03	17	Chandrapur	10
7	Beed	10	18	Dhule	3
8	Aurangabad	9	19	Gondiya	4
9	Latur	2	20	Jalgaon	13
10	Jalana	7	21	Nagpur	3
11	Osamanabad	All tahsil	22	Nanded	3
Total					355

Source: Compiled by researcher

Maharashtra: Distribution of Rainfall (in mm)



Source: Ground Water Year Book of Maharashtra & UT Dadara, Nagar Haveli

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Factors responsible for water scarcity problems in Maharashtra:

- 1. Geographical Set Up:** Physiographically, the State can be divided into three units: a) The Sahyadri Range (Western Ghats), b) The Western Coastal Tract (Konkan), and c) The Eastern Plateau (Deccan Plateau). Maharashtra is having irregular and uneven rainfall status. Most of rainfall is received during rainy season (June to September). Most of rain water is lost from Konkan region to Arabian sea. As state belongs to Deccan plateau composed 82% basalt rock having least water holding and carrying capacity. It results in availability of limited ground water reservoirs.
- 2. Wrong irrigation Practices:** In state in total 1930 different minor and major irrigation projects are developed, having more than 1800 TMC capacity. Water along with these sources, is also made available from wells and tube wells. A large amount of water from these water reservoirs is used for irrigation purpose. But still irrigation practices are not properly followed. Some water through canals it is lost due to evaporation

and percolation. 20 to 25 percentage of water is lost because of mismanagement, flood irrigation practice also affecting the loss of water.

- 3. Irrigation backlog due to Forest Law:** It is estimated that due to change in forest law, 177 irrigation projects were suspended in Maharashtra. For completion of these projects 27310 hectares forest land is required, These projects will irrigate 10.38 lakhs hector land
- 4. Uncontrolled use of ground water:** In the state since 1960 there is continues increase in tube wells and open wells. It was estimated that from 1951 the number of tube wells increased from 3600 to 60 lakhs. These tube wells are having average depth of 200 to 300 feet's. This enormous uptake of water through tube wells eroded picture of ground water level of the state. Now some parts of Maharashtra having water table below 500 feet's. In some area average well density is very high, which is affecting the ground water reservoir.
- 5. Lack of water conservation and harvesting:** Although number of positive attempts is being made in the state to conserve water, but they are not sufficient against the water consumption going on at various terminals. There is more potential still available for conservation of water.
- 6. Cropping pattern of Maharashtra:** Typical crop pattern is also significantly affecting the water scarcity. It estimated that 80 % of available irrigation water is used for sugarcane cultivation which is a perennial cash crop. As it is a cash crop for farmer, therefore this wrong cropping pattern is encouraged.
- 7. Industrial use of water:** Being industrially developed state, a major fraction of available water is supplied to industrial area. While industrial process a large amount of waste water is regenerated. This waste is highly polluted with toxic chemical pollutants, like mercurial, cyanides, Arsenicals, heavy metals and hydrocarbons etc. Its BOD is always higher one. Such regenerated waste water is polluting natural water reservoirs, like rivers, lakes, ponds and ditches. For example, Ulhās river near

Ulhasnagar, Panchganga River near Kolhapur and Krishna river near Sangli district can be mentioned as highly polluted river.

- 8. Deforestation:** To meet the demand of wood for different purpose, a vast deforestation took place from the basins of different rivers and hilly area. Besides this new construction of road, railway line, dams, new settlements, agriculture and industries are also responsible for deforestation. It results in decrease in water percolation and encouraging the soil erosion due to floods. It causes siltage of dams and other water reservoirs.
- 9. Temperature:** It was also observed that the temperature of the environment is increasing every year in the state. It is affecting the loss of water from water bodies due to evaporation. Increasing global temperatures cause water to evaporate in larger amounts, which will lead to higher levels of atmospheric water vapor.
- 10. Increased Population:** Since last decade there is 25.36% population of the state is increased. The rise in population leads to higher demand for water for domestic, industrial, agricultural and municipal needs and also evacuation for waste materials. The most water scarce areas are typically those with few water resources, high population, and even higher population growth rates. With the increase in population, the demand for groundwater increases as every human being needs a minimum amount of water for his/her sustenance and for daily activities. Thus, the water table decreases.
- 11. Water illiteracy:** The water Scarcity problem of Maharashtra is mostly manmade, as there is still water illiteracy. The available water is not properly harvested, conserved and utilized. Over-exploitation of ground water in Maharashtra has resulted in the depletion of water from dams and reservoirs.
- 12. Urbanization:** Maharashtra state is having 45 % population lived in urban area. The industrial belt is developed in between Mumbai, Pune, Nashik, Metro cities. Increased urbanization it leads to creating burden

on water resources. To meet urban water demand for different water purpose etc.

Besides this there are also some causes of water scarcity in Maharashtra such as climate change, unsurprisingly rainfall, natural disasters, wastewater, lack of water data, natural calamities such as droughts and floods, increased human consumption, overuse and wastage of water, rise in freshwater demand, overuse of aquifers and its consequent slow recharge. All these factors are also responsible for water scarcity problems in the study region.

SOLUTION FOR WATER SCARCITY PROBLEMS IN MAHARASHTRA:

Although the state is having water scarcity problem, it can be solved successfully by sincere efforts in various dimensions. Some factors responsible for scarcity are definitely man made while some are natural. As state is receiving water from limited natural resources and considering can be adopted getting through this problem. Different solutions are as following:

1. Establishment of state water grid
2. Water conservation and harvesting
3. Reshuffling of cropping pattern
4. Adoption of modern irrigation system-drip and sprinkle irrigation
5. To control urbanization and generating job potentials in rural area
6. Decentralization of industries
7. Recycling of industrial waste water and reuse of water
8. To control population growth
9. Reforestation
10. To generate awareness at individual level
11. Sustainable water management
12. The government needs to implement schemes, such as drip irrigation, Jalyukta Shivar
13. To implementation of the 'Project of Pani foundation' and 'Paani adva, paani jirva' (the water conservation slogan of the state government for 40 years)

14. Contour banding method is used for plantation

CONCLUSION:

Maharashtra is recognized as a most developed state by all means in India. But it is pity to say, Maharashtra as thirsty state. The development of state can be seriously affected due to this problem. Although it is serious problem but it can be solved by proper management and following all the solutions which are suggested here in this research paper. For this purpose honest efforts are essential in this regards. Then it will not take much time to become Maharashtra as California of India.

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