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WATER RESOURCE AND ITS MANAGEMENT IN AHMEDNAGAR DISTRICT (MS)

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ABSTRACT

Among the different component of natural environment, water is the most important component. Water is very important factor which is necessary for all living things. As well as water is a basic resource on the earth for all living organisms including mankind and for development and survival of plant community. This water 97 per cent has been locked in ocean as a saltwater, 2 per cent has been arrested by ice sheets and glaciers, 1 per cent fresh water present on the earth. This fresh water is various sources such as underground water and surface water. Amongst than underground water source such as springs, dug wells, tube wells are the prime sources which can supply water in dry season also. The surface water is found in rivers, streams, lakes, seas and ocean. The study region is Known as the core part of drought prone area of the state. As the region comes under rain shadow area, rainfall throughout the year is scanty and its distribution both spatial and temporal is not uniform. Due to the erratic nature of monsoon, presence of poor, low quality of soil and traditionally poor peasantry has led to the agriculture practice at subsistence level. The scarcity of water both surface and ground put limits for the development of irrigation facility in the region. The aim of present paper is to assess water resource and its management in Ahmednagar district of Maharashtra. The entire investigation is based on secondary sources of data. The secondary data obtained from District census handbook, District Gazetteers, District statistical department, Socio-economic review and district statistical abstract etc. Collected data is processed and presented in the forms of tabular and graphical. According to 2015 Socio-economic abstract of Ahmednagar district, district has 3 rivers, 3 big project, 8 medium projects, 89 small projects, 1587 percolation tanks, 104 Kolhapur type wares, 1166 storage tanks and 179268 wells.

INTRODUCTION

Water is a supreme product of a nature and which remains a lifeline of every living organism on the surface of the earth. We can found water in various places on surface of the earth, interior of the earth, in the atmosphere around the earth. This water on the surface of the earth also found in various forms e.g. solid, liquid and in the forms of vapors etc. major source of this water is rainfall. As well as water is one of the most precious natural resources and a key element in the socio-economic development of a country (Khullar, 2000). The significance of the water resource in regional economic development hardly needs to be emphasized (Phule, 2002). A person can live without food for a month, but it cannot live for a week without water. As well as animals require more water than human beings. Animals may live without food for more than 100 days but may die without water within 5-10 day (Rastogi, 1992). Water is used for variety of purposes. However drinking is the main use of water in the world. As well as there are various uses of water by agriculture, industry, electricity, domestic requirement etc.

OBJECTIVES

The main objective of the present research work is to have detailed study the water resource and its management in the study region.

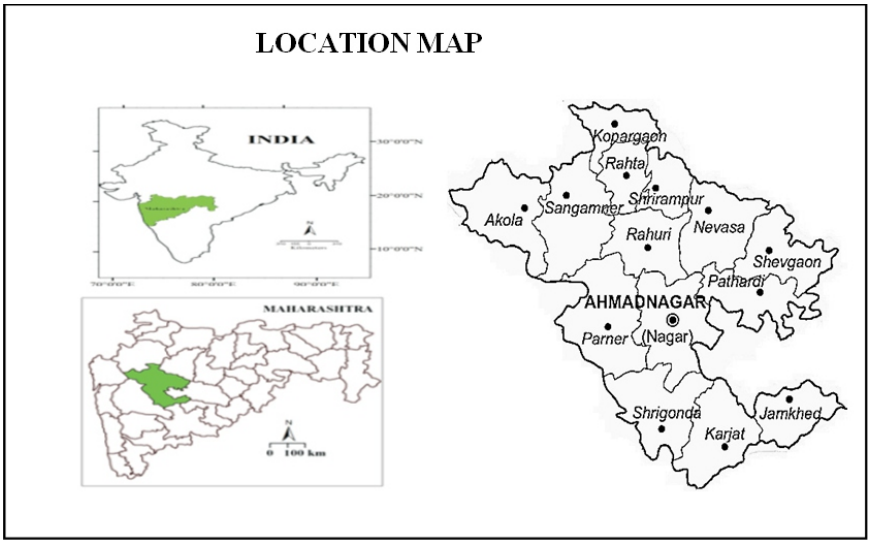
DATA BASE AND METHODOLOGY

The data is collected from various sources, which includes both published and unpublished books, government publications and private publications. Data published by Government and non government agencies, research organizations, research studies formed the source of secondary data. Secondary data has been obtained from the District Census Handbook, District Gazetteers, District Statistical Department and Socio-economic Review and District Statistical Abstract of Ahmednagar District (2015). Collected data is processed and presented in the forms of tabular and graphical.

STUDY AREA

Ahmednagar district in western Maharashtra region of Maharashtra state is an economically and agriculturally developed area. In 1960-61, there were fourteen tahsils in Ahmednagar district. The highest peak as well as temple of this district is Kalsubai. Kalsubai is

located in Sahyadri Range. The neighboring districts to Ahmednagar district are Solapur (SE), Osmanabad (SE), Beed (SE), Aurangabad (NE), Nashik (NW), Thane (NW), and Pune (SW). The district 'Ahmednagar' is located middle part of the bank of Godavari and Mula river. This lays between '18°02′North / 19°09North to 73°09′East 75° / 19.57; 74.2205′ East longitude with an area of 1701836 hectors of land and in fourteen tahsils as per District Socio-Economic Review 2014 -15. It has an average elevation of 549 meters (1,801 ft.) from mean sea level Physiographic, rainfall, soil, temperature, and drainage influences on agricultural land use pattern in this district. The underline basalt on disintegration and decomposition brought various agents had yielded three kinds of soils viz. Deep black, deep & shallow Alluvial soils in Pravara, Mula and Seena river basins. These rivers are main irrigation source of middle district areas. The rainfall is mainly due to rain shadow area in term of amount of rainfall average receives 571.5 mms in western and middle part of district but southern part of district six tehsils are totally drought prown area. Therefore these areas are mostly hilly and unirrigated. The variation in amount of rainfall influence on the water resource management in 2014-15.



ANALYSIS

This water is various sources such as underground water and surface water in the study region. Amongst than underground water source such as springs, dug wells, tube wells are the prime sources which can supply water in dry season also. The surface water is found in rivers, streams, lake. According to 2015 socio-economic abstract of Ahmednagar district, district has 3 rivers, 3

big project, 8 medium projects, 89 small projects, 1587 percolation tanks, 104 Kolhapur type wares, 1166 storage tanks and 179268 wells (Table 1).

Table 1: Ahmednagar District: Sources of Water

Sr. No.	Source	Number
1	Rivers	3
2	Big project	3
3	Medium project	8
4	Small project	89
5	percolation tanks	1587
6	Kolhapur type wares (KTW)	104
7	storage tanks	1166
8	Well	179268

Source: Socio-Economic Review and District Statistical Abstract of Ahmednagar District 2015.

1. **Surface Water**

Surface water is available on the surface of the Ahmedngar in the form of rivers, lakes, ponds, canal etc. However in the study region river comprise the most important source of surface water. Godavari and its tributaries such as Pravara and Mula etc., Sina and Kukadi are these river supplies water in the study region. These rivers are non perennial; therefore problem of shortage of water is experienced in summer season. Recently water has been regulated in the courses of Parvara from bhandardara and Nilavande dam, Mula From Mula dam and Kukadi From Yedgaon Dam keeping them perennial. This has encouraged the development of lift irrigation schemes on their both banks.

2. **Ground Water**

The rain water percolates in the rocks, soils and is available to us as ground water. Well is a single and most important groundwater source of irrigation in the study region, because in the study region surface water is inadequate. From the tanks land is watered at latest till the end of March. Wells are rarely sunk in Malran or high level lands. But wells in the region contain small amount of water.

Sustainable Development and Management of Resources

For a sustainable development, especially where earth resources are involved, has to be judicious, to make sure that the resources care neither degraded nor overexploited to the point of exhaustion and non-generation. The most talked about resources of which the misuse is often alluded to, are the land, water, forests, minerals and fisheries. Some others, which are threatened, are the wildlife and several species of plants and animals. The biologists refer to an assemblage of a variety of life-forms in an area as its bio-diversity, an area of great concern. The preservation of bio-diversity has turned out to be an area of great concern not only nationally but even at an international level.

Water : Of the resources the most precious is water, almost as important as air, for all life forms. The global supply of available water is not unlimited, much of the global water is either in the form of saline water contained in the oceans or locked in polar ice and glaciers. As commonly known, the distribution of global mass of water is as follows:

Distribution of World Water	Million km^3	% of total
Water in the oceans	1,348.0	97.3
Fresh water	37.5	2.7

The total amount of fresh water for the humanity is 37.5 million km^3. A large part of this water is concentrated in glaciers and polar ice and the remaining is distributed as follows. As seen in the table below.

	Volume in million km^3	% of fresh water	% of Total
Polar Ice & Glaciers	28.20	75.2	2.04
Ground Water< 800 m deep	3.74	10.0	0.27
800-4000 m deep	4.71	12.6	0.34
Lakes & Rivers	0.127	0.3	0.01
Soil moisture & Atmospheric vapour	0.704	1.9	0.05
Total	37-48	100.0%	2.71

Source- Central Water Commission, extracted from after " The Role of Dams in the 21st Century, June, 1992, United States Committee on Large Dams

The above table brings to us the limited availability of fresh water in the world The situation in India - in fact in all countries in the monsoon regime - is not very optimistic. The total renewable fresh water availability in India is as follows:

Total Annual Renewable Fresh Water Availability in India

Total for India----------1869 million m3 (1869 km3)

Total utilizable water -------- around 1110 million km3

Surface water-------690 km3

Ground Water -----431 km3

The estimates of Central Water Commission of the water potential, i.e. renewal annual resource including ground water is 1869 km3, of which the usable potential is only around 60%. The difference between the potential utilizable water resource occurs because of various constraints like relief, seasonality of flow etc. The per capita availability, varying with population is less than 1,000 m^3.

The consumption pattern of water is similar to other monsoon countries.

Share of Uses of Water in India

Agriculture------- 85.3%

Industry------- around 2%

Domestic -------5%

Per capita use of water is around 600 m^3.

As can be seen, much of the water in India is used for irrigation purpose. This is typically in the case of monsoon countries. In Pakistan, for example 97% 0f the water is used for agriculture. In the USA, 27% of the available water is used for agriculture, while Germany hardly uses any water for agriculture. Farm cultivation is the major business of the people living in the study region. In Ahmednagar district 62 per cent (2011 census) of the people are engaged in agricultural activity. In Ahmednagar district rainfall is received from south west and retreating monsoons. District is situated in the western part of Maharashtra and it comes under the rain shadow region of the state. Hence, the rain received in the study region is irregular and scanty. Drought will be the permanent natural hazard in this region. There should be need applying new techniques of water harvesting and knowledge of bio-technology. Any kind of planning for development of agriculture sector would be incomplete and insufficient in the

absence of efficient water for the development of agricultural products. On the basis of earlier observations and after studying the availability of water resources and drought prone area, following suggestions should be incorporated in making strategies for rational and substantial development of water in the study region. Following some steps are more significant in the respect of water management.

1. Applying new methods of irrigation is very useful for the better development of agriculture in study area i.e. drip irrigation, sprinkler, perforated pipe etc.

2. At the meso-level we could better integrate ground water development comprising exploration assessment and sustainable exploitation from remote sensing by hydrological and geophysical studies.

3. The most important thing is to increase the area under of forest. In recent out of total geographical area forest occupies 2.14 per cent area in the study region.

4. We could also consider at alternatives to traditional cropping practices, where feasible artificial recharge augmentation can be achieved by recharging wells and bores with good quality water from streams. With perculation tanks in semi-arid hard rock areas and with rainwater harvesting in urban areas.

5. The proper planning of water resource management is needed in the study region. Therefore number of methods should be apply for water conservation like well and tube well recharge, nala building, construction of dams and tank, kholapuri bandhara etc.

6. Finally at the micro level each one of us should be a socially aware and responsible citizen, exercise water economy and promote and support water management practices.

7. To create among awareness the farmers about actual need of water for crop.

8. In minimum water to take crop production with better average.

9. To introduce the disadvantage of traditional watering method to farms.

10. To incline the farmers to utilize maximum modern tools and techniques for watering the crops i.e. drip irrigation system etc.

11. The Government should make easily available modern tools and techniques with minimum asking price in market.

12. To control the evaporation through sugarcane leafs or any other decomposable agricultural

13. To make aware the farmers about an importance of water.

14. Overwatering is strictly prohibited with appropriate law.

Benefits of water Management

- Going on relax life with the help of water management
- Irrigation sectors are increased
- To less the drought
- The water level is become well
- Water supply is done in a good manners
- We can take care of our future problems of water and less them
- Water management is a way from which we can preserve our natural asset in a good manners

The above aspect keeping in mind the water management particularly in agriculture sector should implement long term, medium term and short term plans for water conservations.

CONCLUSION

Water is very important factor which is necessary for all living things. As well as water is a basic resource on the earth for all living organisms including mankind and for development and survival of plant community. This water 97 per cent has been locked in ocean as a saltwater, 2 per cent has been arrested by ice sheets and glaciers, 1 per cent fresh water present on the earth. This fresh water is various sources such as underground water and surface water. According to 2015 socio-economic abstract of Ahmednagar district, district has 3 rivers, 3 big project, 8 medium projects, 89 small projects, 1587 percolation tanks, 104 Kolhapur type wares, 1166 storage tanks and 179268 wells.

In this way after management is the best way for the use of Natural property of water. Water is gift of god as well as nature, water is a natural asset. So by human taking the vital role of water management water is a non-renewable thing and good life to all living creatures on the earth sustainable development is not success to without planning & help of water management. Thus water management is a basic need of this time.

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