Sustainable Water Management during Gond Dynasty in Chandrapur, Maharashtra

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Abstract
Water is an indispensible part of human life. Water is life. Water is available to human being from different sources which comprises of lakes, ponds, tanks, rivers, etc. Need of careful management of water and water resources is an integral part of water conservation. Water management practices were adopted by different rulers/dynasties in the history of the world. An attempt has been made to explore the water management practices adopted by Gond rulers during 12th to 17th century in the Chandrapur district of Maharashtra state. The prominent measures implemented by them includes formulation of water policy, encouragement of construction of lakes, development of water distribution system through underground pipeline system, construction of elevated water resources (var. *Hathani*), separated lakes for drinking purpose for human beings and horses, interlinking of lakes in addition to this big dug wells were also constructed throughout the empire. Thus it can be argued that Gond rulers had set an example of water management which is still relevant in today's situation where we are facing a problem of destruction of water resources and thus leading to acute shortage of water.
Keywords: Water management, Lake management, Gond, Chandrapur, Maharashtra

Introduction

A number of estimates suggest that of all the water around the globe, 94 per cent is salt water in the oceans and 6 per cent is fresh water. Of the latter, about 27 per cent is in glaciers and 72 per cent is underground. This leaves at any one time less than 1 per cent of the fresh water in the atmosphere or in streams and lakes (White, 1988). This fresh water supply is continually replenished by precipitation as rain or snow. It has been estimated that the total runoff from continents is about 41,000 cubic kilometers. Of these, 27,000 cubic kilometers return to the sea as flood runoff, and another 5,000 cubic kilometers flow into the sea in uninhabited areas. This cycle leaves 9,000 cubic kilometers of water readily available for human exploitation world-wide (WRI, 1987; La Riviere, 1989).

India abounds in water bodies, a preponderance of them manmade, typical of the tropics. The manmade (artificial) water bodies are generally called reservoirs, ponds and tanks though it is not unusual for some of them to be referred to as lakes. Ponds and tanks are small in size compared to lakes and reservoirs. These lakes are served as a source of water supply for urban as well as rural settlement. While it is difficult to date the natural lakes, most of the manmade water bodies like ponds and tanks are historical. The large reservoirs are all of recent origin. All of them, without exception, have suffered environmental degradation. Only the degree of degradation differs. The degradation itself is a result of lack of public awareness and governmental indifference.

This paper is an attempt at presenting a comprehensive view of water management practices adopted by the Gond rulers who ruled from circa 12th to 17th century in the Chandrapur district of Maharashtra.

Study area

Chandrapur is a district in Nagpur division of the Indian state of Maharashtra. Chandrapur is located in the eastern edge of Maharashtra in 'Vidharbha' region. The Chandrapur district is located between the latitudes 19^{0}30' N and 20^{0}45' N and the longitudes 78^{0}46' E and 80^{0}00' E. It has an average elevation of 189 meters above mean sea level. Physiographically, the district is situated within the Wainganga and Wardha river basins, respectively, flowing on the eastern and western boundaries of the district which are the tributaries of Godavari river. The district has vast reserve of coal, limestone and iron ore. The average annual rainfall is about 1420 mm. The eastern part receives more rainfall then west. Average number of rainy days is 60 to 65 throughout the district. The relative humidity is very high during monsoon season, which exceeds 70%, but after monsoon season it falls down rapidly and in summer it is only 20%.

Water management in Gond regime

Gond Kings ruled the Chandrapur district (erstwhile undivided Chandrapur and Gadchiroli district)

of Maharashtra State from circa 12th to 17th century. In this regime of 500 years they had contributed significantly towards water management in the district. Water management was not restricted only for drinking purpose but extended towards construction and conservation of lakes, irrigation, creation of separate lakes for horses and big wells.

***Tukum* system**

During the Gond regime an innovative system was adopted called as *Tukum* system which emphasized upon construction of lakes and distribution of equal land as much as it gets drenched by water of that lake. By adopting this system, the district had 12,038 lakes and they had occupied a total land area of 1,74,400 acres. Thus, the district was known as the district of lakes. Gond rulers were also instrumental to encourage the landlords from their territory to construct lakes on the given land (Hood, 1968).

Drinking water provision

King Khandkya Ballalshah (circa 15th century) had constructed Ramala Lake on 180 acres of land towards north-east direction of the city for drinking purpose only. To provide safe drinking water to Chandrapur town a specialized water distribution system was constructed during the regime of King Ramshah (1719-1735). Water was distributed from Ramala Lake through an underground pipes made from roasted soil. To provide water to different parts of the city, water was used to collect in an elevated water reservoir (var. *Hathani*) at various locations throughout the town (Julme, 2011). The water level of Ramala Lake and these elevated water reservoirs was managed in such a manner that the water level in these reservoirs was always maintained and water was poured into another small tank from these reservoirs were individuals would collect it. These elevated water reservoirs were constructed up to a height of about 10 feet and supported by masonry work on ground surface. Sanitary conditions around these elevated water reservoirs were maintained by constructing a protective layer to prevent the entry of any kind of waste. Approximately 13 such types of elevated water reservoirs can be found in the city even today and out of these, ten were connected to each other. In one of this elevated water reservoir copper pipes can be observed even today and this highlights the use of metal pipes during 17th century for distribution of drinking water (Rajurkar, 1982). In addition to the construction of drinking water system for human beings, Queen Herai had taken initiative to construct a separate lake especially for the drinking purpose of horses (Rajurkar, 1982).

Interlinking of lakes

During the Gond regime three major lakes of the city viz. Ramala, Koneri and Ghutkala were interconnected to each other through an underground pipeline system. The water from Ramala Lake was taken to Koneri Lake for recreational purpose for the members of royal family so as to maintain the pristine nature of Ramala Lake which was exclusively used for drinking purpose. The water from Koneri Lake which was used for recreational purpose was afterwards discharged into a river.

Lakes for irrigation

Gond rulers not only restricted themselves for the construction of lakes, but also, had adopted an innovative system for construction of lakes at higher altitude so as to collect rainwater from surrounding catchment area which was adjacent to forest area. The water from this area which was pristine in nature was used to get collected in these lakes which were situated at lower altitude. An underground channel was made from these lakes so as to allow the lower altitude farmers to utilize lake water for irrigation purposes (Hood, 1977).

There were 1500 large tanks and some 4000 bodies (farm tanks) in the district. The best tanks were usually found at the base of the hills in the Garbori pargana, and in the adjoining tracts of the Chandrapur and Warora tahsils; Ghot, Rajgarh and Amgaon had also several very fine tanks. In Garbori almost every village had a large high level tank capable of irrigating an area up to 121.406 hectares (300 acres). Almost all the tanks in the district except those of Sironcha tahsil were fully utilized for irrigation purposes. Wells formed the next important sources of irrigation. The chief among the crops irrigated was sugarcane (Gazetteer of Chandrapur).

Large wells

In addition to all these initiatives taken by Gond rulers they had also constructed large wells with steps facility in it. Around 10 such wells still exist in the city even today and they have the potential to provide drinking water to the city during draught like situation. All these large wells were constructed at prominent places in the town so as to serve the maximum subjects.

Discussion

From this research paper it can be concluded that Gond rulers were visionary towards water management 500 years ago. The initiatives taken by them for water management include the amalgamation of policy, administration and incentive measures. The policy for construction of lakes on the given land to the landlords (*Tukum* system) had also contributed significantly in number of lakes. Construction of elevated water reservoirs (var. *Hathani*) highlights the proper planning and design layout of drinking water distribution during Gond dynasty. For distribution of drinking water use of copper and roasted pipes trough's a light upon awareness about hygienic conditions to be maintained at that time. The network of these elevated water reservoirs throughout the town in a systematic manner emphasized upon the care to be taken by kings for their subjects. Equal importance was also given towards the drinking water facility of horses by constructing a special lake for them, as

horses were commonly used for transportation, communication and in wars.

The important lakes of the town were interconnected with each other so as to circulate water in them and reduce the chances of floods and facilitate the irrigation practices. Construction of separate lakes for drinking purpose (Ramala lake) and recreational purpose for the royal family members emphasize upon use of advanced technologies and meticulous planning around 500 years ago. The rulers were aware about the quality of water to be maintained for drinking purpose and had taken initiatives by assigning different lakes for different purposes. The wastewater from recreational tank was discharged into a river. This wastewater would get mixed with river water and due to self purification capacity of river and due to dilution, dispersion and transportation of pollutants in the river; the wastewater could get back to its pristine state after a time gap.

The lakes were not only constructed for drinking purpose for individuals and horses but also for irrigation purpose. These lakes were constructed at higher elevation to collect pristine water from catchment area so as to grow crops with this clean water.

The rulers in addition to lakes constructed large wells inside the town for drinking purpose of subjects. As lakes can't be constructed at every place its role was replaced by these wells. The wells were large enough so as to allow an individual to enter into it and collect water for drinking purpose.

All these activities taken by the Gond rulers 500 years ago clearly highlight their concern for the society. The water management initiative taken by them for sustainable development has a potential to be adopted even today for efficient water management by bridging a gap between demand and supply of water.

References

Gazetteer of Chandrapur

Hood R S., (1968) Tahanlela Chandrapur Zilla (Ek Gambhir Samasya) (Marathi) pp 66.

Hood R S., (1977) Nisargabhishikat Chandrapur (Marathi) pp 28.

Julme T T., (2011) Kinara magazine (Marathi) 28th July 2011, pp 4

La Riviere J W., (1989), Threats to the World water. Scientific American, Vol. 261, 48.

Rajurkar A J., (1982) Chandrapurcha Itihas (Marathi) Harivansh Prakashan, Chandrapur, pp 196.

White G F., (1988) A century of change in world water management. Proceedings of the Centennial Symposium-Earth '88. Notational Geographic Society, Washington, D C, pp 248

WRI (1987) World Resources-1987. Basic Books, New York.