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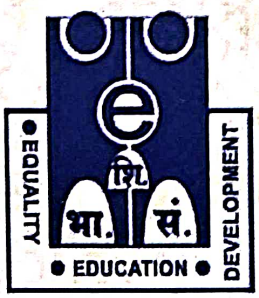

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128/2, J. P. Naik Path, Kothrud, Pune - 411 038

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Content....

Present Geo-Environmental Status of Hanuman Lake& Lakshatirtha Lake Lakes in Kolhapur City

Dr. Santosh Prakash Patil
Assistant Professor
Balasaheb Desai College, Patan

Introduction:

Lakes have supported mankind since historical period. However, the use of lake water is for drinking and agricultural purpose, but not all lakes are supporting for the same use. Because by virtue of some particular property and value every lake every lake performs, particular function. The function depends upon location, size, and various ecosystem characteristics of lake & of course the degree of human interference in the matter of water pollution Kolhapur district having fine network of drainage system with Bhogavati and Panchaganga River. The demand of water by the fast growing and Kolhapur city is tremendous. The major part of this requirement by the city partly fulfils by Panchaganga river water system. Particularly for industries, irrigation and community supply. The lakes in Kolhapur city have a special purpose and ecological effect over the city environment. Some lakes of Kolhapur. City help to ease the tremendous pressure of water demand particularly for irrigation purpose, where as some lakes are also use for recreational purposes also.

Aims and Objectives:

The prime objectives of present study are as follows,

1. The purpose of the study is to find out present Geo- environment status of the lakes and tanks of the Kolhapur city.
2. To portray the present eco- environment impression of the lakes and tanks over the surrounding area.
3. To analyses lake and tank water in view of Physio-chemical characteristics.
4. To establish a relationship between causes and effects of pollution and degradation of the lakes and tanks.
5. To determine the level of pollution and degradation of the lakes and tanks.

Choice of the Study Region

The Kolhapur city is the historical one. The city is well acclaimed as of Dakshin Kashi because of Goddess Mahalaxmi or Ambabai is the city of Kolhapur. Owing several lakes and tanks in the city. Kolhapur was also well recognized as 'City of Lakes'. It is said that there were '108' small and big tanks in the historical period. During the intensive fieldwork, we came to know that several tanks were reclaimed, demolished, abandoned and finally extinct due to dearth of proper care and maintenance. The today's situation of the lakes and tanks, which still exist, is horrible. Some historical tanks could not be identified even after extensive study from toposheet. These lakes or tanks are now bogs or very small patches of filthy wet land

feuded by local sewage water. Once these lakes/ tanks were the booty of city now turned into the cesspool emanating cholera dicentric like diseases.

There are in all six lakes existing now a days, among these, two tanks are about to extinct. So there is need to at least other lakes should protect from extinction.

The Study Region:

The study region i.e., Kolhapur city lies in between 15^0 43' -17^0 17' North Latitude to 73^0 40' -74^0 42' East Longitude and the height of the Kolhapur city is 187 feet above mean sea with an area 66.82 sq. km.

Data Base And Methodology:

The data for forgiving study is made available from the empirical, field survey and documents source the intensive study from to toposheet has also been done accordingly the empirical sources include physic- chemical analysis of water quality such as ph, DM, TDS, electroconductivity with other physical characteristics like odor, color, turbidity, transparency etc. The extensive field survey consisting t thorough observation of each water body and it surrounding environment has also be done. We collected some important, information about each tank e.g. historical background, source of water like feeder channels, wells, source of pollution, vegetation species, birds etc. some intensive experiments particularly to find out water depth of lakes/ tanks also accomplished by navigation in to the water. Documenting sources comprising reading of reports, surveys, research papers, official published data, and newspaper also have been brought under us

Significances of the Study;

A recent foregoing geo-environment study of the lake/tanks reveals that how the present predicament of the lakes/ tanks is only the outcome of careless, miss management and human activities, which are greatly responsible for the pollution and further deterioration of the lake water and its environment. Therefore, it is hope that this somewhat soar account of the situation in which lakes of the Kolhapur city lied, would be act as a eye-opener and aware the society about to keep clean and take care of the lakes and tanks of the city In recent years with unprecedented population growth and intensive agricultural practices, ground & surface water has been exploited on increasing scales. Lakes have supported humankind since historical period. However, the use of Lake Water is for drinking and agricultural purpose, but not all lakes are supporting for the same use. By virtue of some particular property and value every lake performs, particular function. The function depends upon location, size and various ecosystem characteristics of lake & of course the degree of human interference in the matter of water pollution. In this chapter the attempt is to find out present situation of the quality of the water of lakes and tanks in Kolhapur City.

Methodology:

The present study completed from acquiring data from extensive field survey and laboratorial tests such as – PH, Conductivity DO, COD, TSS, TDS, etc. of each lake conducted separately.

PHYSICO – CHEMICAL PROPERTIES OF WATER

While discussing the physic – chemical properties of the water the attempt has been made to study the quality of lake water to evaluate their suitability for drinking and irrigation purpose. The attempt is also made to find out ecological status of the lake. Each lake has been discussed separately for same purpose The physio- chemical properties of the lake also suggest the severity of water pollution COD call their chemical oxygen demand is 160 ppm higher among the water of other lakes. Which suggest that sewage increase inorganic matter such as nitrogen & phosphate in the great extent. The conductivity of the water of the lake, which is 0.0123 (table no. 1)

Being vast reservoir of water of water, TDS (total dissolve solid) is much less than 200 ppm. It was 162 ppm in 2003. Dissolve oxygen (DO) Is 8.4 showing enormous growth of hyacinths & other aquatic plants such as hydrilla. It was 4.45 in 2003. High content of DO is an indication of inorganic pollution. Overall analysis of the Rankala water suggested that though the pollution is in moderate condition but continues supply of sewage is augmenting the severalty of water pollution. The DO (dissolve oxygen) indicates that pollution by organic matter is much more which support the hyacinth & other aquatic plants. The marshy land of western side also helps to increase this organic pollution. More over immersion of Ganesh idols during Ganesh festival is also increasing level of water pollution. Physico chemical characteristics of lakes and Tanks water in Kolhapur city (2005)

Sr. no	Parameter of Water	Lakshatirtha Lake	Hanuman Tank
1	Ph (6 to 8.5)	7.28	8.36
2	Conductivity(mhos)	0.0155	0.025
3	DO (4 to 6 ppm)	11.2	12.20
4	COD (4 ppm)	180	180
5	TSS (5 ppm)	200	300
6	TDS (500 ppm)	200	700

* The parameters of water given above are for drinking water

Lakshatirth Lake:

This lake is situated in the eastern part of city near Lakshatitha Vasahat. The total area under this lake is much more, but present storage of water is very less. The lake is abundant and silt up the source of water is rain water and some infiltrate source. There are many sewage terminals which increases pollution of the lake water there are many spices of aquatic plants are also seen. The COD of the lake is highest 180 showing quantity of inorganic material is more conductivity of water is also more 0.0155 TDS is 200 ppm whereas DO is11.2

Hanuman Tank:

Hanuman tank is situated in Kasba Bavda. This is recently developed lake it cover & area of about 2.5 acres with the depth-maintained tank providing boating facility. The water has some medicinal characteristics. This also reflected in chemical analysis of this water. COD is highest indicating percentage of inorganic material TDS is highest 700 showing some specific inorganic matter in the concentration of some in organic material is more. It is due to the very less amount of water storage.

Conclusion:

The Foregoing study of the chemical properties of some lakes and tanks in Kolhapur city reveals that the level of water pollution is continuously increasing. The intensity of water pollution has very deteriorated in Kotter, Ashtaroth. The pollution of the lake water is mainly due to several terminals of sewage, cattle washing, mass bathing, cloth washing, & human waste. Therefore, it is necessary to take some preventive measures to reduce the water pollution of the lake and tanks. Preventive measures like,

1. Diversion of sewage
2. Total prohibition for washing of cattle, cloths
3. Total eradication of hyacinth and other aquatic plants.
4. Construction of wall wherever necessary.

Geo-environmental Status:

In the city of Kolhapur, there are four tanks and two lakes entitled Lakshatirtha, Kotitirth, Newpalace, Ramanmala and Hanuman tank etc. Among these Ramanmala tank is under the private possession legged by Kolhapur co-operation to the private entrepreneur who has developed it for recreational utilization as a water park. Therefore, it is entirely prohibited from conducting any experiment, even we are barred to take observation. Owing to the incorporation of the personals, we have to exclude this tank from our study. In all, therefore five lakes and tanks are considered. After the extensive fieldwork with intensive observation, some measurements taken, and few experiments conducted, which bring us near the true picture at the present situation of the lakes and tanks

Lakshatiratha Lake:

This is a natural lake having some historical importance, many yet to be dug out. The lake is near Lakshatirtha Vasahat new residential colony Owing to the Shiva temple near the lake, it has a special religions value. The location of the lake is very beautiful, it is near the highest point le a hill 2000. ft to means sea level Though the originally lake is spread in considerable area, but today it has Shrinked to all side more over it is silt up. Owing to the location, which is somewhat away to urbanized zone, the surrounding of the lake Is very calm and serene, besides the lake is very highly polluted by the agricultural waste. There is small Jagary making industry located in the near vicinity of the lake, which is adding pollutant like buggase, waste of sugarcane. All kinds of utilization of the lake water are beings practiced by the residents. Mixing of sewage is common a like other lakes. At the time we visited the

location for fieldwork, there were several women washing cloths adding detergent powder in to the lake water There were some women washing and cleaning some gunny bags, which were used for cement previously. We have been told that cattle washing are also their routine practice in mid of the lake. This lake is unlined and therefore susceptible for some land erosion particularly during the rainy season. Altogether, the lake surrounding is good only need some attention and cleaning activity. If pollution is prohibited and lake is developed it would a new land mark in the beauty of Kolhapur city

Hanuman tanks:

This tank is situated the towards the eastern size of Kasba Bawada are Kolhapur. this is very small tanks very recently developed by Kolhapour corporation. This is well stone pitched, bounded by wall. due to very small area under the water storage the tank is very easy to maintenance. There is boating facing really provided by the contract. The water is protected to pollution. All area is developed as a garden and well compounded. Due to public interest cooperation the tank is soon be coming ideal for all lakes and tanks.

Some observation of the lakes/ tanks in the Kolhapur city.

Sr. No	Name of the lake / tank	Water capacity	Water hold	Use of water	Pollution by
1	Lakshatirtha Lake	Medium	Feeble	Still washing and drinking for cattle	Intensively polluted by agro waste silt-up
2	Hanuman tank	Less	Less	Aesthetic/ recreation	Protected, no pollution

Among the lakes and tanks at the Kolhapur city the Geo-environmental status of the Lakshatirtha. These are natural lakes once feuded by clear water stream. But today water streams are intensively polluted and draining into the lakes making it worse, surrounding at the lakes are also used under the squatting community, tremendous load filth and all type of junk depositing into the lake now these lakes are nothing but cesspool, bog of filthy water. Considerable part at the lake turned into the marshy, wetland.

Hanuman tank has very small water storage well lined with built up construction. Tank and its surrounding is well developed by Kolhapur corporation steps taken towards the proper maintenance are appreciable. Such steps should have been taken in case of Lakshatirtha and Kotitirtha.

Conclusion:

From the foregoing brief but intensive study of the lakes and tanks in Kolhapur city conducted with keeping save geographical and environmental aspects

prevailed some shocking questions with some stark reality that the lakes and tanks which have save historical value still disregarded carelessly and heavily exploiting in the bygone period there where several natural lakes and pound existed in the city owing to that the city was recognized as a city of lakes but in time several such water bodies are shrunken even some are disappeared totally extinct. There are several regions behind such predicament and several aspects are responsible for extinction at these lakes and tanks The part of anthropogenic activities are much responsible than natural one rapid growth of urbanization so called town planning greed to take maximum benefit from land are prime causes. Because some lakes and tanks are virtually reclaimed by the municipal corporation and so-called Builders.

Lakshatirtha and Kotitirtha are the natural lakes going towards their extraction. Disregard, carelessness and surrounding area are heavily responsible for the present juncture as the lakes. These lakes should be compounded immediately no question about the Ramanmala tank and new palace lake. Because these water, bodies are in private possession. These are well maintained but in case of new palace should new water source should make be available for the more water storage in the lake. Hanuman tank is an ideal example because it has properly maintained.

Suggestion:

After the intensive study conducted in short period, I could not reveal some other effects of the issue it regards some profound analysis and study of the issue at least like this which have wide scope of the study However, we have come to suggest some steps, which should be taken, and some prevention, which should be avoided, or bar All these together will certainly help to abute the beauty of lakes, tanks and their surrounding

1. Tap the small channels, which are adding sewage into lake/tanks
2. Total, restriction over homely use such as cloth washing, bathing. cattle washing etc.
3. There should be a sentry or security guard keeping eye untoward activities like above cited.
4. Controlling growth of hyacinth and hydrilla
5. Disposal of waste material such as food waste, selid waste, food bags, boxes, papers etc. should be banned and heavily fired it found.
6. Construction and repairing, if necessary, should be done in time
7. Protection of plantation, full grown trees etc. Protection of aquatic life. E.g., some rare fishes. Public awareness is must to control pollution.

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