Ecotourism In Temple Tanks - An Urgent Need For Public Health

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ABSTRACT

In India Kings and emperors in olden times had built many tanks and lakes as per requirement of the general public. But as time passed on, most of the temple tanks have become waste and dumping ground. In the present paper, authors have taken up the case study of famous Bhalkeshwar Temple Tank located at Bhalki in Bidar district of Karnataka. The tank is situated near the temple of Lord Shiva constructed by King Bhalkeshwar approximately 600 years ago. The tank is completely surrounded by large walls on all sides and divided into two large units. In the centre of the tank, a spring type structure is existing from which water comes into tank. In olden days this tank had been in use for taking water for drinking purpose as well as for performing pooja and various rituals.

Presently as per study, this tank has been found mainly dominated by aquatic weeds. The water colour is green. High siltation has been taking place due to immersion of idols specially during Ganesh festival. Also people have been throwing coconut and pooja waste in this tank on day to day basis and specially during Dasahara festival. The physiochemical characteristics of this tank reveal high pH, very low O2 concentration and very high CO2 concentration. Almost yearly 4-5 persons die due to committing suicides in this tank leading to becoming notorious suicide spot. It has also been observed that the time taken to swell up the dead body is 30 to 36 hours. Biological parameters reveal very large numbers of bacterial and insect population. It has been prominently occupied by various producers and different grades of consumers as per foodweb. In and around the tank, various aquatic birds have also been spotted and reported.

Almost similar situations prevail for thousands of old temple tanks in India which are required to be studied and developed by Local Government and Non Government organisations for encouraging ecotourism and creating ecofriendly environment.

INTRODUCTION

India is a land of unity in diversity. People of different religions live cordially and follow different religions as per their faiths and beliefs. Kings and emperors of olden times had built many tanks and lakes as per public requirement at different points of

time. But as time passed, year after year, most of the temple tanks have either dried or become dumping ground. During present days, the temple tanks have become threat to environment.

The present paper is based on study of many temple tanks in India. Among these, the famous Bhalkeshwar Temple Tank has been taken as case study to evaluate physiochemical and biological parameters of the tank as well as to develop this tank as a hot spot for ecotourism. In this way we can save invaluable worth of rare heritage of natural wealth and human endeavour that inhabitants of this region have inherited.

TEMPLE TANKS

The history of temple tanks in India dates back to medieval period. Temple tanks have been excavated or constructed across the country. Rulers of that time have made these tanks to enhance State's beauty and prosperity. Bhalkeshwar temple tank located at south of Bhalki town in Bidar district of Karnataka State. This tank is situated on the western side of the temple of Lord Shiva, constructed by King Bhalkeshwar approximately 600 years ago. The tank is completely surrounded by large walls having area of 3600 sq. ft. The water source being perennial by underground springfed structure. For this, credit goes to past master in the art of excavating tank, used as innovative method of site selection for excavation of tank. In olden days, this tank had been in use for taking water for drinking purpose as well as for performing pooja and various rituals. But for the last many years, this tank is not being used for any purpose and it has just become dumping ground on various occasions.

CAUSES OF POLLUTION

The Bhalkeshwar temple tank has become threat to environment, pilgrims and general people due to various reasons as detailed below:

1. The tank is mainly dominated by aquatic weeds and algae. The water looks green in colour.
2. High siltation has been taking plea due to immersion of idols specially during Ganesh festival.
3. People of this region have been throwing coconut and pooja waste in this tank on day to day basis and in very large amount specially during Dasahara festival.
4. The walls of tank have been getting damaged with passage of time from all the sides.
5. The steps/stairs by which people go inside the tank are also in very bad condition.

Due to above factors, instead of, for various good uses, this tank has become threat to people and has become just a waste pool of water land and dumping ground. Every year 4-5 persons die due to committing suicide in this tank and thereby it has become a notorious suicide spot. It has also been observed that time taken to swell

up the body is 30-36 hours due to high CO2 concentration. Still some local people sometimes use this tank for swimming which is very harmful from health and other view point to one and all.

MATERIALS AND METHODS

In order to evaluate physiochemical and biological parameters, water quality testing have been done on seasonal basis i.e. during summer season, rainy season and winter season.

Water samples have been taken from three (03) different locations. Sample analysis was carried out as per procedure prescribed by American Public Health Association (APHA). Physiochemical analysis was carried out in Chemical Engineering Department of Rural Engineering College, Bhalki and biological analysis has been carried out in Zoology Dept. of C.B. College, Bhalki. The collected data have been shown in Table-01 to Table-03.

Table 1 : Physical Analysis

Sl. No.	Physical parameter	Rainy season	Winter season	Summer season	As per ISO permissible limits
1	Colour	Green	Green	Green	
2	Taste	Tasteless	Tasteless	Tasteless	Sweet
3	Transparency (cm)	5	5	5	
4	Temperature in centigrade	26	27	28.5	
5	TDS (mg/ltr)	452	452	480	60-100
6	Turbidity (NTU)	5.0	5.0	5.0	5.0

DISCUSSION

Higher values of pH, TDS, total suspended solid and Chlorides specially during summer season have been found in this tank. Reasons for this may be higher evaporation rate for water at higher temperature in comparison to monsoon and winter season.

The higher value of dissolved oxygen in the tank water has been observed during winter season due to profuse algal growth in the tank. Algae decomposes the organic material for its growth in the pond. It releases O_2 in water during photosynthetic activity. Higher value of total alkalinity of tank water in summer indicates presence of excess free CO_2 as a result of decomposition of organic matter. High concentration of CO_2 is also

Table 2 : Chemical Analysis

Sl. No.	Chemical parameter	Rainy season	Winter season	Summer season	As per ISO permissible limits
1	pH	7.2	7.25	7.5	6.5 to 8.5
2	Total suspended solid (mg/ltr)	220	230	230	-
3	Alkalinity (mg/ltr)	Alkaline	Alkaline	Alkaline	-
4	Acidity (mg/ltr)	-	-	-	-
5	Total hardness (mg/ltr)	110	115	128	300
6	Dissolved 0_2 (mg/ltr)	5.4	5.6	5.6	5.6 to 8.5
7	Chlorides (mg/ltr)	240	255	260	250
8	Calcium (mg/ltr)	50	52	53	75
9	Sodium (mg/ltr)	30	30	32	75

Table 3 : Biological Analysis

Sl. No.	Biological parameter	Rainy season	Winter season	Summer season
1	Phytoplanktons	05	05	06
2	Bacterial population	Moderate	Moderate	Moderate
3	Protozoans	06	08	08
4	Molluscans	04	04	04
5	Fishes	06	06	06
6	Amphibians	02	02	02
7	Birds	06	05	05
8	Aquatic insects	07	07	07

related with swelling of dead bodies whenever any death occurs in the tank.

Biological parameters reveal that algae as well as aquatic phytoplanktons are in large numbers which provide sufficient food to insect population.

Bacterial population is also moderate due to decomposition of organic materials. A good representation of fishes, amphibians and birds reveals that food chain is very well maintained in this tank.

SUGGESTIONS FOR REVAMPING THE TANK

Based on observations, considering various prevailing factors, following suggestions are being made to revamp the Bhalkeshwar Tank:

1. First of all, complete cleaning of the tank is necessary to remove siltation, organic waste and unnecessary dumped materials from the tank. It will help in regaining full source of water in the tank.
2. The walls and stairs of the tank in dilapidated condition have to be renovated and reconstructed properly.
3. All threatening factors like idol immersion, dumping of pooja wastes and washing of clothes etc. must be banned completely to have maintenance for cleanliness of the tank.
4. Water filteration tank should be installed near the temple to supply purified treated water to the temple as well as to Bhalki town for drinking purposes in view of large perennial water source inside the tank.
5. For proper maintenance of health and hygienic conditions of general public, toilets and bathrooms should be made on the other side of the temple and run on payment basis.
6. The Bhalkeshwar temple has sufficient space outside the temple which should be developed as public gardens having full of trees, flower plants, water springs etc. with various park entertainment facilities.
7. Water and sewage coming out of bathrooms, toilets and various drinking water points etc. should be channelised, treated and reused by applying proper watershed management in the garden.
8. As the water source is maintained by springfed structure to have perennial water source, this tank can maintain water upto 25-30 ft. inspite of continuous pumping of water even during summer and hence drinking water from this tank can be supplied to old Bhalki population very easily if managed properly.
9. Ground water table in surrounding area of the Bhalkeshwar Temple tank can be maintained if recharged and utilised properly.
10. Public awareness is also necessary for public attention so that they can take active part in restoration activities of the tank and development as well as proper maintenance of the public garden near the tank.

CONCLUSION

Authors are of the firm opinion that like Bhalkeshwar Temple tank, similar situations prevail for thousands of old temple tanks in India which are required to be studied rejuvenated, developed and maintained properly by Local Government and Non Government Organisations including the general public for encouraging ecotourism and creating ecofriendly environment.

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