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# Significance of Temple ponds with special reference to Water Quality and Conservational strategies: A Review

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## Abstract

The natural depression filled with water is called tanks and ponds respectively. Ponds are found inside the temples or outside the temples. Some ponds have natural banks and others have manmade banks (retaining wall) and walls above the ground. Most of them are well built and well maintained. Dewatering or cleaning is done occasionally. Usually, the temple management imposes restrictions over misuse of these holy ponds. Temple authorities do not usually permit outsiders to catch fish from temple ponds. Thus, sacredness is maintained in temple and its premises including ponds. Temple devotees use the holy water for washing their limbs and they sometimes make a holy dip into the water. People believe that it can wash all their sins away. However, temple ponds located outside temples are used by people for bathing and even washing clothes though in olden times, the water in temple tanks was used for drinking purpose. That there is water availability in temple ponds throughout the year is another mysterious thing. Due to these facts that make one curious about temple ponds. Water bodies play an important role in rituals in temples. The purpose of constructing pond as the water is used for holy dips by worshippers, offerings, cleaning purposes and other important religious activities like sandya vandane, teertha snana as they believe to be sacred and pure and removes our sins, some tanks are said to be cure various diseases when bathed in and plays a vital role in recharging underground water also serves as a fresh water source as well as they provide unique habitat for diverse range of aquatic species. Some of the ponds are the origins of great rivers. In contrasting point of view, one can experience the positive vibration around and fresh atmosphere.

**Keywords** *Temple ponds, Physico-chemical properties, Aquatic Habitats, Minerals, Healing powers, Significance, Conservation, Restoration*

## 1.0 Introduction

Temple ponds are water storage structures, integral component of the hydrological system. Water bodies of temple are traditionally conserved unique heritage ecosystems over a long period and serve as potential sources of groundwater recharge. Unlike other aquatic ecosystems, they have fairly less human interference, hence the water quality and aquatic biodiversity seem to be unique. Temple pond Ecosystem serve as repositories of a variety of cyanobacteria of nutritional, medicinal, agricultural and industrial significance. Temple water bodies are freshwater habitats traditionally linked with the temples in India as a part of temple structures and heritage (Tadgell, 1990). Usually, almost all such lentic sources are fairly unpolluted due to restricted use. The major water source for these lentic habitats are rainwater and groundwater, thus in addition to its usefulness to temple activities, they enable rainwater harvesting as well as groundwater recharge (Narchonai et al., 2019). These water bodies support a variety of flora, fauna and microbes as they receive organic and inorganic materials of routine rituals. Owing to the development of microhabitats and the availability of sunlight, temple water bodies serve as hotspots for various plankton including algae and bacteria. Phytoplankton being primary producers, balance the water quality of lentic habitats by enrichment of nutrients and energy to support other organisms (Oscar et al.,2014; Denise et al.,2018)

Healthy pond ecosystem are critical for achieving several sustainable development goals through numerous ecosystem services e.g., flood control, nutrient retention and carbon sequestration. However, the socio-economic and ecological value of ponds is often underestimated compared to the larger water bodies, as reported in wetlands studies. It is said that when the holy sages, way back in the early 16th century, blessed the naturally occurring hot waters of shivkunda reservoir, this belief in the healing power of sacred springs with mineral rich waters of varying temperatures, which gushed out naturally from beneath the earth's surfaces and existed in the form of healing pools of temples located at the mountain foothills may have been mystical or superstitious.

Traditionally, temple ponds are important source of compounds with therapeutic potential and still represent a significant pool for curing various diseases. The medicinal property of a pond is may be due to the presence of active organic and inorganic compounds having the properties of anti- inflammatory, antiviral, anti-bacterial etc., Apart from that, the water quality of these ponds also play very crucial role in deciding the status of the temple ponds in terms of portability. Water quality affects our lives in many ways. Water must be of good quality if its aesthetic value in the scenic environment is to be appreciated. Water of poor quality costs more to be treated for use as a community water supply. Poor water can be affecting our health since, it can carry disease agents and toxic chemicals and it may have an unpalatable taste or disagreeable odor.

Algae are involved in water pollution in a number of significant ways which may bring about an enrichment of algal nutrients in water and this may selectively stimulate the growth of a few types producing massive surface growths or "blooms" that inturn reduce the water quality and affect its use. Certain algae are able to flourish in water polluted with organic wastes and play an important part in 'Bio – purification' of the water body (Palmer, 1980).

Water quality assessment of Physico-chemical properties gives a proper indication of the status, productivity and sustainability of a water body (Goswami and Mankodi 2012). The changes in the Physico-chemical characteristics like temperature, transparency and chemical elements of water such as dissolved oxygen, nitrate and phosphate provide valuable information on the quality which in turn impacts the aquatic biodiversity. Good quality of water is always important for the organisms inhabiting the ecosystem for growth and survival (Namratha et al., 2022). Such important Physico-chemical parameter and their concentration of various temple ponds has been discussed.

## 1.1 Water Quality Parameters

### 1.1.1 pH

pH is a significant sign for water worth parameters. The measurement value of pH indicated the acidic or basic nature of the water at given temperature. The pH varies from 0(most acidic) to 14(most alkaline). The pH is measured by digital pH meter. The series of accepted pH values in water extend up to 4.5 in acidic nature, muddy high ground waters, up to 10 in water due to powerful photosynthetic action by algae. The most commonly useful range is 6.5 to 8.5. The average pH of water found in various temple ponds usually ranged from 6 to 9, though the applicable range for fish culture and also daily purpose. The change in pH alters the amount of supplementary ingredients in the water to greater toxic levels. Fresh water is essential for agriculture, industry and human existence. It is important to evaluate the physico-chemical and biological parameters of water.

### 1.1.2 Color

Color is an imperative parameter for water as it specifies the cleanliness of the water, and also explains about the impurity of water in the form of the presence of organic substances, like algae compounds. The national agricultural extension and research indicate that pale colors and light greenish and greenish water useful for fish culture. The greenish color of water shows good plankton inhabitants and primarily an apprehension of water value for an aesthetic basis.

### 1.1.3 BOD

Biological oxygen demand represents the oxygen requirement for the bacteria to perform biological decay of dissolved solids. BOD is a factor to consider the organic load in the water. It is the quantity of total dissolved oxygen inspired by microorganisms for bio degradation of natural matter. It mainly depends on temperature, the level of biological action, the attention of organic matter, and microbial organisms like bacteria and fungi. A BOD level greater than 5 mg/l is an identification of water pollution. The study shows temple water has a nil BOD value.

### 1.1.4 Electrical Conductivity

The EC value is a count of mobile ions and salt present in water. The presence of EC is generally due to saline water and, through leaching, industrial discharges. The greater value of EC and total dissolved solids is normally present in the dry period than in the raining period due to elevated evaporation. Electrical Conductivity very much disturbs the taste of water; hence EC has a greater influence on the consumer's authorization of the water as drinkable. A higher EC value may happen through ordinary weathering of any anthropogenic source. The electrical conductivity is measured by conductivity meter. The study explains the measured electrical conductivity value varies from 135 µmho/cm to 3012 µmho/cm for the temple pond water.

### 1.1.5 Dissolved Oxygen

The DO relationship with water gives information about the bacterial action, photosynthesis process, During the summer, DO values decreased due to a rise of the temperature and increased microbial activity. The greater value of DO in summer is the maximum duration of clear sunlight manipulated on the percentage of soluble gases O2 and CO2. Greater sunlight increases photosynthesis by phytoplankton, utilizing CO2 and giving off oxygen. This probably accounts for the superior qualities of oxygen during summer. The variation in starting and ending DO give the quantity of oxygen taken by the bacteria during this stage. The measured DO value varies from 6.2 mg/l to 7.9mg/l. The study of temple pond water shows a medium value of dissolved oxygen; this value is useful for the growth of aquatics in the pond.

### 1.1.6 Total Dissolved Solids

TDS is the sum of portable charged ions, including salt, that dissolve in a particular amount of water in mg/l. It is directly associated with the purity of the water. A higher TDS value is toxic to aquatic life through an increased amount of

salinity in the water. Principal sources of greater TDS in surface water include agricultural overflow, ejection of inland waste, and other anthropological actions like the cleaning of a vehicle at and around the surface. In surface waters, anions as carbonates (Cl, SO4) and cations like Mg, Ca are present. In the natural environment, these compounds are present in magnitudes that generate a reasonable solution. If there are supplementary intakes of dissolved salts into the structure, the balance is changed and harmful effects will occur. Inputs comprise both normal and anthropogenic resources. The measured TDS value ranges from 114 mg/l to 1782 mg/l. The study shows TDS value within the surface water standards in various temple ponds.

### 1.1.7 Chloride and Sulphate

It is the ionized shape of chlorine; chloride is the most plentiful non-living ion in normal water and un clean water. Seawater chloride concentrations averaged 35000 ppm. In usual fresh water, chloride attention is typically less than 10 ppm, but fairly less than 1 ppm. The greater limits of chloride cause stomach distress and eye and nose nuisance. Sulphur is one of the essential plant nutrients. Algal growth will not take place when sulphate levels are less than 0.5mg/l. Sulphate salts can be the main impurity in normal waters. It is physically happening, the outcome of the breakup of several leaves that fall into a watercourse, of water fleeting through rock or soil containing gypsum and other general minerals, or of atmospheric declaration. Overflow from inseminated agricultural land also participate sulphate to the water. Sulphate is not poisonous to plants and animals at normal concentrations. Normally, in humans, quantities of 500 - 750 mg/l produce a short-term laxative effect. The allowed limits for water used as inland water are under 250 mg/l. The measured chloride value varies from 23mg/l to 526mg/l, and sulphate value varies from 10mg/l to 369mg/l. The current study shows the temple pond water chloride and sulphate values are within the surface water standards.

### 1.1.8 Total Hardness In water

The total hardness is a composite mixture of cations and anions. Hardness consists of the ion's calcium and magnesium. The hardness property avoids the lather creation with detergent and increases the steaming value of liquid. It is a normal attribute of water that can improve its suitability for Integrated Water Resources Management for Quality Enhancement drinking (P. Meenakshi and K. Ambiga 2023). Total hardness is measured titrimetrically by EDTA method. The measurement of hardness in CaCO3 nature indicates a soft condition 0 to 100 mg/l, medium: 100 to 200 mg/l, hard condition: 200 to 300 mg/l a greater hardness of 300 to 500 mg/l, and an exceedingly hard condition of 500 to 1,000 mg/l. The measured value varies from 83 mg/l to 428 mg/l. The temple pond water is safe in total hardness for surface water standards, it can be used for other purposes not directly for drinking purposes.

### 1.1.9 Calcium and Magnesium

The parameters Ca and Mg are normally found in normal waters, and they create the hardness of water Calcium is the most plentiful ion in new water and is significant in shell creation, bone construction and plant rainfall of lime. Calcium is necessary for human nutrition and a key ingredient in the development of teeth and bones. It is limestone, it produces water hardness. Magnesium application is lower than calcium in water. Magnesium is necessary for chlorophyll development and performs as a restrictive feature for the development of phytoplankton. It is a common element in the earth's shell. It gives an unlikable taste at greater concentration. The measured calcium concentration ranges from 13 mg/l to 87 mg/l, and the magnesium concentration ranges from 10 mg/l to 67 mg/l. The temple pond water is safe in calcium and magnesium for surface water standards, and it can be used for other purposes not directly for drinking purposes.

### 1.1.10 Fluoride

Fluorine is a necessary element for human health. The fluoride maximum acceptable concentration

is 1.5 mg/l for drinking. The greater amount of fluoride is due to the existence of natural and non-living compounds that have fluoride in water in the form of Hydrofluoric acid, sodium fluoride, and uranium hexafluoride. Fluoride helps to avoid initial stage tooth decay; its greater concentration in drinking water and food creates health effects. The lower concentration in drinking water will avoid dental problems, but a greater dose will build up in human health the lead to fluorosis. The measured fluoride in 2020 ranges from 0.32 mg/l to 0.87 mg/l. The pond water is safe in fluoride for surface water standards; it can be used for other purposes not directly for drinking purposes.

### 1.1.11 Total Silica

Silicon is the second most plentiful constituent on earth, next to oxygen. Silicon dioxide sand and complex quartz are the indications of silica. Silicate salts are normally present in water, and silicate minerals present in several forms, including gemstones, asbestos, talc, and mica. The concentration value varies in the range from surface water to greater than 100 ppm in groundwater. Some silicates are in colloid form it is difficult to manage. Silicates can create scale and build up on polluted membrane surfaces, which create corrosion in the metal. Silicon ions are there in all existing organisms. They survive as hydrated, amorphous silicates and are necessary for structural fundamentals in single-celled organisms, superior plants, and animals. Silica plays a positive role in silicate's bone power, hair, and skin value. In the natural ecosystem, the silicon with phosphorus and silicon with nitrogen ratios are a reflection to donate to the verity of microorganisms that will lead, for example, diatoms versus cyanobacteria. Algal populations move after springtime as the silicate is inspired. The measured silica total ranges 6.8 mg/l to 36.4 mg/l. The temple pond water is safe in total silica, it can be used for other purposes other than drinking.

### 1.1.12 Total Nitrogen and Ammonical Nitrogen

Nitrates are mixed into freshwater through the disposal of manure, and manufacturing wastes, and runoff from the agricultural areas. The greater volume of nitrate creates blooms. Higher nitrate levels in drinking water pose a health risk to infants because they may cause Methemoglobinemia, a condition known as "Blue baby syndrome". Nitrate is naturally present in the environment; organic material in the soil will decompose and produce ammonia, the oxidization of this ammonia forms nitrate. Naturally drinking water and eating food containing nitrates. Through urine and blood tests, the presence of nitrate in the body can be dictated. Nitrates are, however, not harmful to fish.

Ammonia particles are a nutrient necessary for life. The highest levels of ammonia may build up in the organism and alter metabolism and pH. It is a pointer of contamination from the extreme consumption of ammonia rich fertilizers. The total nitrogen varies from 2.4 mg/l to 26.4 mg/l and ammonical nitrogen ranges from 1.3 mg/l to 10.6 mg/l. The temple pond water is safe in nitrogen; it can be used for other purposes not directly for drinking purposes.

### 1.1.13 Total Phosphate

The concentration of color is strictly relative to the amount of total phosphate and silicates present in the sample water. The phosphate compounds were decreased by weak dropping contents like ascorbic acid. The color of the decreased complex is sky blue. Phosphates are nontoxic to human or creature's health unless they are there at greater levels. The greater levels of phosphate will create digestive problems. Phosphate alone does not cause adverse health problems. A phosphate stage higher than 1.0mg/l may obstruct coagulation in water distillation plants. Total phosphate ranges from 2.6 mg/l to 17.3 mg/l. The temple pond water has a greater total phosphate value, so it can be used for other purposes other than drinking purposes.

### 1.1.14 Heavy Metals

Heavy metals are metal chemical components that have a comparatively greater density and are poisonous at a small concentration. The important examples of grave metals are chromium (Cr), mercury (Hg), cadmium (Cd), copper (Cu), cobalt (Co), arsenic (As), and lead (Pb), etc. Heavy metals are the normal materials of our ecological surroundings. They enter the human body through nutrition, water and, airborne particles in a small amount. The particular heavy metals, for example, copper, selenium, and zinc are essential to maintain the metabolism of personal fitness as trace fundamentals. Higher concentrations are poisonous and cause serious diseases. The bioaccumulation of heavy metal elements mixed in the water bodies affects the liver, muscle, kidney, and other tissues of fish. The release of heavy metals from industries affects certain aquatic species, aquatic fauna. So, it should be avoided. The climatic variation of heavy metals causes changes in the properties of water like pH, dissolved oxygen, salinity, temperature. Heavy metals may not be chemically despoiled by microorganisms, so the heavy metal substances are prolonged in soils and present in all creatures, including humans. Ni accumulates in marine life, but its enlargement along in the food chain is not established. Cobalt is helpful for humans because it is an element of vitamin B12, which is necessary for to human fitness. It is useful in treating anaemia in prenatal ladies as it stimulates the manufacture of red plasma cells. A greater concentration of cobalt may injure human fitness.

### 1.1.15 Iron

The heavy metal iron is the most significant ingredient in blood in humans and other breathing organisms. Iron is a necessary constituent for human nourishment and metabolism, but in overload, quantities result in poisonous effects like hemochromatosis in tissues. The permissible limit of Fe in drinking water is 0.3 mg/l. The first representation of iron poisoning is stomach hurting, and caustic to the inside layer of the gastro intestinal region, including the stomach. Iron poison causes the blood vessels to expand, if it is not preserved properly it will cause to the expiry of the human. The iron value varies from 0.02 mg/l to 2.53 mg/l. The maximum value for the class C standard of iron is 50mg/l. According to class C the water safe.

### 1.1.16 Arsenic

Arsenic is a necessary compound for the animal genus; it acts as the main function in protein production. It is a dietetic inorganic material for human life, and it receives from nutrition partial attention from 15-25µ. It mixed in with the surroundings by the way of mining, burning of fossil fuels. (Meenakshi and Ambiga Integrated Water Resources Management for Quality Enhancement humans in the way of water, nutriment, air, and skin relation with soil, water). Greater arsenic produces a health problem, less manufacture of red, white cells, abdomen and lung frustration, skin modification, growth of cancer cells and destroy of DNA. The temple pond water has < 0.01 mg/l of arsenic value.

### 1.1.17 Copper

In different enzymes, copper plays an important role, it is essential for the grouping of haemoglobin. The organic spices in the inactive industrial waste water combine with copper ions capability to precipitate a composite system, deposit it at the bottom of river basin, and infiltrate into the water table. The highest concentration of copper in the water is toxic. Copper has the greatest suitable amount of 0.1 mg/l . A small amount of copper is necessary for good health; a greater amount cause death in the nervous system, liver and kidney. The maximum amount of copper in drinking water may produce vomiting, nausea, diarrhea, and copper may be mixed into drinking water from pipes as well as from added materials planned to manage algal growth. The supply of copper in the water may be a result of farming actions and waste sludge. The use of copper and its minerals in water flow pipes and plumbing, fittings increase the danger of copper in the water. The temple pond water has a copper value of < 0.01 mg/l.

### 1.1.18 Zinc

Zinc is a necessary nutrient for human health, in numerous organisms, zinc plays an important role in physiological and metabolic development. The disintegration of zinc ores, municipal waste, pesticides used in agriculture, automobile waste, and zinc sulphate produces environmental contamination. The hazardous effects of heavy metals like nickel have carcinogenic stroke on rats. Similarly, excess zinc is harmful and produces zinc toxicity. The temple pond water has a zinc value < 0.01 mg/l.

### 1.1.19 Total Coliform Count

The microbiological examination is to discover the stage of pollution created by breathing things particularly humans that survive or have employment in the region. The examinations are founded on coliform microorganisms as the pointer. The existence of these analytical organisms is proof that the water has been contaminated with the faces of creatures or any warm-blooded animals. The measurements of total coliform count, E. coli are all measured pointers of water polluted with fecal matter. Polluted water may have other pathogens that are more problematic to determine. These pointer bacteria help us quantify of the contamination stage. TCC is a complete collection of bacterial classes that are normally parallel to and comprise the class E. coli. The TCC value indicates coliform bacteria that do exist in fecal substances. The TCC is mostly present in raw sewage in poorly monitored septic tanks. The value varies from 400MPN to 2300MPN and is safe according Class C.

### 1.1.20 Aquatic Habitat

#### Cyanobacteria (Phytoplankton)

Temple (lentic) ecosystems sustain a variety of cyanobacteria (filamentous and unicellular forms) (Muthukumar et al., 2007; Umarani et al., 2017; Narchonai et al., 2019; Rao and Rao, 2020; Jayakumar and Pandiyan, 2021). Cyanobacteria are cosmopolitan and widely distributed in water bodies, irrespective of their geographic locations and physicochemical features (Thajuddin and Subramanian, 2005; Ram & Paul, 2021). According to Liu et al. (2004), the presence of cyanobacteria prevents contamination in water bodies by anthropogenic interference. Cyanobacterial richness, diversity and dynamics are influenced by the physicochemical characteristics of different temple lentic waters in India (Anuja and Chandra, 2012; Bajpai et al., 2013; Girish et al., 2014; Sankaran and Thiruneelagandan, 2015; Palanivel and Umarani, 2016). There are limited reports available on the species richness and diversity of cyanobacteria in temple lentic waters in the Southern Karnataka region Including Cyanobacterial diversity in eight lentic habitats of temples in southwest India by Sharathchandra and Shridhar et al., 2022.

Many cyanobacteria have biotechnological significance (e.g. nutrition, health and agriculture) (Tajuddin and Subramanian, 2005). For example, *Spirulina princeps* are used widely in food products. *Nostoc commune* and *N. ellipsosporum* possess nutritional value (Chu and Tsang, 1988; Liao et al., 2015), while cryptophycin produced by *N. commune* has antiviral and anticancer potential (Knubel et al., 1990; Smith et al, 1994). Mucilaginous polymers produced by cyanobacteria helps in moisture retention, soil binding and enhancement of humus content in soil (Maqubela et al., 2009; Prasanna et al., 2013; Singh et al., 2014). Cyanobacteria are also known for the production of amino acids and indole-3-acetic acid by intimate association with roots of wheat (Hussain and Hasnain, 2011). Many heterocystous forms produce pigments (e.g., phycocyanin and phycoerythrin) (Rodriguez et al., 1989; Simeunovic et al., 2013). These pigments have various applications in food, pharmaceutical and cosmeceutical industries as natural coloring agents (Patterson, 1996). Phycocyanin is also used in immunodiagnostics as well as immunomodulation in cancer therapy (Benedetti et al., 2004). Besides nitrogen fixation, eight heterocystous cyanobacteria found in our study are valuable resources for several industrial applications.

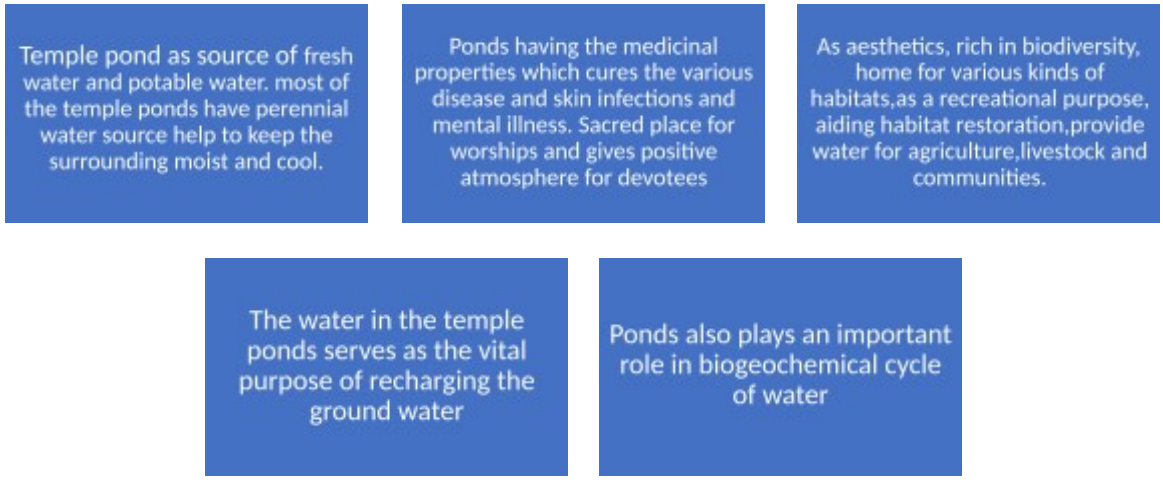
## 2.0 Water Quality Index

Water Quality Index (WQI), which is one of the most effective ways to describe the quality of water, by reducing the bulk of information into single value ranging between 0 to 100. The water quality index is an important tool for measuring water quality because it simplifies the complex data, Compares the water quality of different locations and assesses suitability for use like drinking, irrigation, recreation, aquaculture and other uses. It also helps to identify the risk associated with certain water. The term water class indicates the water feature and the physical canal necessary to maintain an aquatic life. The objective of the federal clean water act is "To safe guard and maintain the chemical, physical and biological reliability of the nation's waters," establishing the significance of assessing both water worth and the habitation required for maintaining other marine organisms. WQI is the most efficient tool to exchange details on the worth of water, it is a numerical equation utilized to convert the great numeral of water worth data into a solo numeral. It is helpful for policy makers to understand the superiority of water.

The WQI is also defined in the following ways (i) Complex water value data into easily comprehensible and usable by the public. (ii) Very significant parameters offer a single pointer of water class, an arithmetical equation that charges the health of a water scheme with figure. (iii)Appropriateness of superficial water for humanoid utilization. (iv) To understand the impression of the free waste release on the worth of the water as well as the fitness for human utilization based on calculated WQI values.

## 3.0 Significance:

Ponds provide sustainable solutions to problems such as climate change and management of scarce water resources. Small water bodies can have an immense carbon processing intensity. Ponds also perform other beneficial effects such as regulating temperature and humidity (microclimate regulation). Ponds can be used as model ecosystems to test scientific theories in diverse areas such as ecology, conservation biology, climate change modelling and evolutionary biology. The cultural and historical significance of ponds are profound because their sediment records can provide information about the lifestyle of our ancestors. The ponds also carry immense recreational values. Ponds habitats are of immense significance to human civilization as they are sources of water for domestic, agriculture as well as fundamentally important to humans, the structure and function of these freshwater ecosystems are currently threatened by a multitude of human-disturbances.




**Significance of Temple Ponds**

## 4.0 Conservation and restoration of temple pond

Temples are a place of worship. They also serve as a common gathering place for various community events, cultural interactions and religious rituals that many people visit daily. Often temple ponds are hotbeds of contamination due to human activities. Period cleaning and remediation of temple ponds using environmentally friendly and sustainable maintenance methods can help manage cleaning cost-effectively and help curtail any ecosystem imbalance.

The temple ponds help recharging ground water which helps improve the water ecosystem. Most of the temple ponds have become unusable and home to vast beds of macrophytes making water stinky and unfit for use to all living beings. While the maintenance of temple ponds is vested in the hands of temple authorities and village panchayats, cleaning up these vital water resources and ensuring a balance in the ecosystem and avoiding turning them into breeding grounds for various diseases is the need of hour. Using nature and science to remediate temple pond by bioremediation. The bioremediation leaning method uses biological organisms like enzymes, bacteria and even plants to clean and restore water resources. The bioremediation methods includes adding beneficial plants, microbes and enzymes into the pond. It helps to break the organic waste into smaller degradable parts. While chemical process is faster, it damages the balance in the ecosystem to a larger extent. Bioremediation method help to reduce the odor and sludge in the water through environmentally friendly methods. It not only keeps it clean but also helps to keep the aquatic life healthy. Water quality problems of pond can be prevented with proper management techniques.

## 5.0 Conclusion

Temple pond is a stagnant source of fresh water, replenished by means of rainwater and groundwater. The draining of organic materials in the pond increases the nutrient level of the water and the phytoplankton present in water helps in maintaining or balancing the ecosystem. Pond ecosystem ensures the economic prosperity, social wellbeing and environment sustainability. Bioremediation helps keep the temple ponds clean and hygienic with sustainable cleaning methods. Regular maintenance, constant monitoring, sustainable cleaning methods and hygienic waste management methods are some of the best ways to keep temple ponds premises clean and hygienic. Bioremediation of temple ponds not only keeps it clean but also helps to keep the aquatic life healthy. The preservation of temple ponds helps to maintaining both the quality and quantity of water. This can be achieved by encouragement of local people by creating a proper awareness about the importance of temple pond and water for their active participation by involving local administrative bodies. The water in temple ponds serves as a vital role in recharging the underground water and also reduce the runoff water which ensures sufficient water in domestic wells during the summer days. The present review elucidate the significance of temple pond in preservation of repositories of rich and varied plant species in turn serves as source of potable water, aesthetics, recreation, preserving medicinal flora and also enhance the nutritional value of the water as it is a home for many beneficial microalgae, which having commercial significance too.

## 6.0 Future prospects

Water resources are declining day by day at the faster rate. The importance of temple ponds often known by fewer. The temple ponds can be seen everywhere but yet they are endangered so we need to protect and conserve before getting extinct. They play very important role in maintaining nature and also these sacred water bodies revive the tradition and wisdom of our ancestors at water conservation through rain water harvesting and recharge and maintaining the ecological balance of given area. It is very important and responsibility to preserve, conserve and rejuvenate the temple ponds as they are the integral part of ecosystem as they maintain healthy balance of aquatic life and support our

socio-economic needs. One of the challenges in the future is the need for more active participation of the community in conserving these temple ponds. Greater community participation is needed to make the effort sustainable in the long term.

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