DISCUSSIONS

Ponds are important freshwater habitats throughout the world, although the amount of water in them constitutes only a minute fraction of the total freshwater resource on earth (Bronmark & Hansson, 2002). Water bodies are the integral part of human civilization. Both are having impact on each other. Due to urbanization several ponds which were truly necessity of village - as a village pond, converted into urban pond. Distinct utilization pattern has been observed for such pond on transformation. Either the entire pond is facing impact of such change or partly some area of pond having specific pressure of human activity. The water quality of small water bodies, particularly in the urban areas of India are under the influence of growing population and development. Development results in migration of rural population to urban areas; it is easy for these migrants to settle on the open areas nearby ponds, lakes, canals etc. were solid and fecal waste has been dumped into water body. Added to these the other sources of water pollution of small water bodies are agricultural runoff, industrial waste and garbage dumping etc. These water increases pollutants in terms of nutrients, organic matter and toxic substances in the water bodies and disturbs its ecosystem (Soni et al, 2008). With increase in anthropogenic meddling as a consequence of disregard to the socio-cultural values of water reservoir, there is increase in quality deterioration of their water. The quality of physical and chemical parameters serves as a good index in providing a complete and reliable picture of the conditions prevailing in a water body (Arya et al, 2011).

Limmnological assessment of these ponds was carried out on the basis of quality analysis for the surface water and soil analysis by taking samples from periphery of the pond. The biotic component was analyzed as representation of biodiversity which includes planktonic forms, molluscans etc. along with assessment of coliform bacteria from the pond water. Fish population study was carried out from Sama pond using morphometric analysis.

The pH is considered as an important ecological factor and is the result of interactions of various substances in the water (Tamlukar and Ambhore, 2006). The pH remained alkaline throughout the study period. This nature of pH may be the result of various biological activities (Gupta et al, 1996). In second year the decrease in pH during winter may be due to decrease in photosynthesis, while during monsoon it may be due to greater inflow of water (Agrawal and Rajwar, 2010). The variation in pH represents the seasonal fluctuations. Steady change in the atmospheric temperature with the change in the seasons results in the corresponding change in the water temperature (Kadam et al, (2007)). The maximum and minimum temperatures of pond water were observed in the months of July and January respectively on all the sites in 2009. Similar observations were made by Korai et al, (2008).

The acidity of water depends upon deposition of organic matter, chemical nature of bottom and water body. The acidity ranged from 0 to 40 mg/l and its value was recorded lowest at site-3 in first year. In second year the acidity value was highest in monsoon at site-1 and at site-2 may be due to the dilution of organic waste in water and was not in detectable range in winter.

Alkalinity of water is a measure of its capacity to neutralize acids. The higher alkalinity values may be due to domestic discharge. The alkalinity in the year 2007-08 was recorded highest at site-3 in the month of May due to large scale use of its bank as open latrine and washing of excreta in and nearby (Narshima Rao and Jaya Raju, 2001) and minimum during monsoon. However, in year 2008-09 the highest values of alkalinity were recorded in monsoon at all the sites. As per Venkateswarlu (1969) there is an indication that alkalinity concentration is affected directly by rainfall and here also the higher values were recorded in the monsoon only. Chloride is one of the important indicators of pollution. Large content of chloride in freshwater is an indication of organic pollution. Hutchison (1957) and Sehgal (1980) have reported that the rain contributes in increasing the chloride content in water. The chloride values ranged from 122 to 594 mg/l in first year which was recorded highest at site-3 in July and lowest at site-1 in the month of April. In the second year the concentration of chloride in the pond ranged from 200mg/l to 452 mg/l at all the sites. Its high concentration may be attributed to sewage pollution in the pond (Negi et al, 2001).

Hardness is an important parameter for determining the quality of water. It is the measure of the capacity of water to the concentration of Calcium and Magnesium ions in water. The main sources of such ions are sedimentary rocks, seepage and runoff from such rocks contributes to hardness in water (Paul and Mishra, 2004). Unni (1985) has suggested that total hardness can be used as an indicator for classifying domestic pollution. The concentration of hardness ranged from 40 to 176 mg/l. The water hardness at all the study sites was

highest during monsoon and lowest in winter at site-3 and in summer at site -1 and site-2. The utilization of these ions by organisms must have caused the decreases in the concentration of the total hardness in the dry season. According to Sati and Paliwal (2008) the input of domestic and other sewage water might be responsible for increased in hardness. In the first year Ca^{++} hardness was recorded highest in monsoon at site-1. In the second year its value was highest in December at site-2. Total hardness and calcium hardness are directly proportional (Mruthunjaya and Hosmani, 2004). High value of calcium hardness may be attributed to inflowing sewage from surrounding areas near this pond (Ganai et al, 2010). In first year Mg^{++} hardness was highest in month of April at site-3 and was lowest in monsoon at site-1 and site-3. In the second year it was recorded highest in winter and summer months at all the sites. Zaffar (1964) suggested that higher values in summer which might be due to higher decomposition rate of organic matter, higher evaporation rate and other anthropogenic activities.

During entire study the Total Solids (TS) were found above the normal range. The value of (TS) in the first year was recorded highest at site-2 in the month of May this value may be due to discharge of domestic sewage and due to other anthropogenic activities. In the second year minimum value of TS was recorded at all the sites in monsoon and maximum at site-1 during summer and at site-2 and site-3 in winter. The lower values in monsoon may be due to dilution of pond water by addition of rain water (Soni et al, 2008). The amount of dissolved solids increases due to releasing of decaying matter from aquatic vegetation. Similar findings were recorded by Kadam et al, (2007).

Dissolved oxygen (DO) is an important indicator of water quality, ecological status, productivity and health of the pond ecosystem (Mustappa, 2008). The quantity of dissolved oxygen in water is directly or indirectly dependent on water temperature, partial pressure of oxygen in the air, amount of chlorophyll content, etc. (Welch, 1952 and Wetzel, 1975). In the first year the Dissolved Oxygen ranged from 0.8 to 10.4 mg/l and the minimum value of DO 0.8 mg/l was recorded at site-2 in the month of November and was maximum in monsoon at all the sites. Similar observations for DO minima during winter months have been reported by Sehgal (1980). The value of DO ranged from 0 to 10 mg/l during second year and the highest value of DO was observed in winter at site-1 and site-2 and in monsoon at site-3. Higher concentrations of dissolved oxygen in winter at site-1 and site-2 probably due to the conditions during this period are more favorable for high rate of photosynthesis (Kumar and Kapoor, 2006). Tepe and Matlu (2005) linked increase in dissolved oxygen in a reservoir in Turkey to high runoffs during the rainy season.

Nitrate represents the end product of the activities of microorganisms. High contents of nitrate in fresh water body indicate pollution by organic waste and domestic sewage (Kumar and Sharma, 2002). In first year the highest concentration of nitrate was observed in summer months. In the second year the nitrate values was recorded highest in summer months and early monsoon on all the sites. Similar observations were made by Agrawal and Rajawar (2010). This may be due to the higher planktonic production, decaying of macrophytes and

concentration of nutrients owing to the evaporation of pond water with subsequent increase in nitrate value.

The most critical single element in maintaining aquatic productivity is phosphorus, though it is one of the most limiting factors of production in Indian fresh water reservoirs (Das, 2000). Phosphorus is a primary nutrient for aquatic plants and major cause of eutrophication in rivers, ponds and streams (Mc Laughlin and Brindle, 2001). During first year phosphorus values were highest in monsoon and lowest in winter months at all the sites. Minimum value in winter months was probably due to its immediate utilization by the overgrowth of phytoplankton (Agrawal and Rajawar, 2010). The phosphorus values varied from 0.2 to 3.29 mg/l in second year and high concentration of phosphorus was recorded in July at site-3 and minimum values of phosphorus was observed in winter at site-1 and site-2. High concentration of phosphorus in July at site-3 may be due to the activities like washing clothes and cleaning of the utensils.

In order to find out the relationship amongst physico-chemical parameters of water, correlation coefficients were worked out and a large number of significant correlations were obtained. In first year pH showed positive correlation with alkalinity, chloride and DO (Shastree et al, 1991) and negative correlation with total hardness (Nair et al, 1998) and nitrate. Generally temperature and DO are inversely proportional but in first year of study, lowest positive correlation has been observed between them. This may be due to the influence of biotic component of the pond. Acidity shows positive correlation with Total Hardness and nitrate and negative correlation with most of other parameters. Significant

negative correlation has been observed between acidity and alkalinity, similar observations has been made by Kamal et al, (2007). Alkalinity shows positive correlation with pH, chloride and significant correlation with this may be attributed to possible decomposition of organic matter and strong negative correlation with Total Hardness and acidity. Chloride shows positive correlation with DO, pH, alkalinity and significant with phosphorus and negative correlation with Total Hardness, nitrate, temperature and acidity. Total hardness showed positive correlation with Total Solids and negative correlation with most of the other parameters. TH shows negative correlation with DO, chloride and pH and significant negative correlation with alkalinity and phosphorus (Singh, 1986 and Nair et al, 1988). Inverse relationship observed at significant level between Total Hardness and alkalinity may be due to the presence of more dissolved carbonates and bicarbonates. Nutrients like Phosphates and Nitrates released due to trophic level interactions and food chain relationship shows increasing trend annually, but negative correlation between them.

In second year pH shows positive correlation with phosphorus and chloride (Bhandari and Nayal, 2007) and significant negative correlation with acidity because the pH remained alkaline throughout the study period. Temperature showed positive correlation with most of the parameters and most significant with alkalinity and dissolved oxygen and negative correlation with total solids. Acidity showed negative correlation with most of the parameters. Alkalinity showed positive correlation with Total hardness, Dissolved Oxygen, temperature and most significant with chloride and nitrate. Chloride showed positive correlation with most of the parameters.

Water samples were collected from Harni pond and were analyzed for some essential physico-chemical parameters. The higher pH is associated with high photosynthetic activity in water (Trivedy and Goel, 1986). DO is one of the most important parameter in water quality assessment. The oxygen balance of the system largely determines the effects of waste discharge in water bodies. DO shows positive correlation with pH and nitrate and negative correlation with temperature. DO concentration was highest in May and lowest in June (Arvinda and Manjappa, 1998). The higher concentration of DO in May was probably due to the conditions favorable for high rate of photosynthesis. The weakest correlation of DO was found with water temperature, Salaskar and Yeragi (2003) also show the similar findings in Powai Lake of Mumbai. Alkalinity is caused due to the presence of carbonates, bicarbonates and hydroxides of calcium, magnesium, potassium and sodium. Total alkalinity depends on pH and chloride, hence strong positive correlation is observed between them. The alkalinity range from 120 mg/l to 216 mg/l reflects good productivity of water body. Higher total alkalinity values indicate the high trophic status (Sarwar and Wazir, 1991). The high productive waters generally have total alkalinity above100 mg/l (Alikunhi, 1957). The increase in chloride is due to sewage pollution and high siltation. Chloride content found to be high during summer seasons might be due to decrease in amount of water and also high temperature which increases the decaying process (Cole, 1957; Zafar and Sultan, 2008). Also high concentration of chloride may be due to increased temperature coupled with the evapo-transpiration and accomplished with high microbial activity (Mitra, 1982). Total hardness shows significant correlation with chloride and nitrate. The higher

values of TH may be due to addition of calcium and magnesium salts from various sources. High values of nitrate were recorded which is responsible for weed infestation and phytoplantonic bloom. Wetzel (1983) stated that nitrate was generated by heterotrophic microbes as a primary end product of decomposition of oxygenic matter either from protein or organic compound. Zutshi and Khan (1998) stated that the presence of excessive nitrate in water is due to manmade domestic activities and fertilizers runoff from fields. The Total solids were minimum in winter months and maximum in summer months.

Comparing the water quality of both the ponds most of the parameters were in maximum range in Sama pond as compared to Harni pond. The overall pH of Sama and Harni ponds were alkaline but the pH values of Sama pond were higher as compare to Harni pond. The temperature of Harni pond was higher in winter and monsoon months and less in summer months possibly due to increase in humidity, which greatly decreased the loss of heat through evaporation as compare to temperature of Sama pond. The acidity of Sama pond was lower in summer months and higher in winter and monsoon months as compare to acidity of Harni pond. The overall range of alkalinity of Sama pond was higher than Harni pond. Comparatively chloride, Total Hardness and Calcium hardness were higher in Sama pond. DO of Sama pond was maximum in winter and monsoon and minimum in summer season. The nitrate and Total phosphorus shows monthly variation in both the ponds. Total phosphorus was found maximum during monsoon in Sama pond.

The Coliforms group of bacteria principally infects water used for domestic, industrial, or other purposes, and it responds to the environment, wastewater treatment, and water treatment similarly to many pathogens (Zamaxaka et al, 2004). Total Coliforms include bacteria that are found in the soil, in water that has been influenced by surface water, and in human or animal waste. The presence of indicator organisms (*Escherichia coli* or thermo tolerant Coliform bacteria) in water indicates recent contamination of the water source with fecal matter and hence possible presence of intestinal pathogens (Murage and Ngindu, 2007). Presence of fecal Coliforms or *E. coli* is used as an indicator for the presence of these water borne pathogens (Chukwurah, 2001; Okafor, 1985; Okpokwasili and Akujobi, 1996). High levels of nutrients are responsible for the growth of *E. coli* bacteria in the pond and may cause the water borne diseases like gastroenteritis. Presence of fecal coliforms or *E. coli* is used as an indicator for the presence of this Gastroenteritis. Several epidemiological studies have demonstrated an increasing relative risk of gastroenteritis for bathers exposed to as few as 20 CFU/100 ml (Ferly et al, 1989). The content of *E. coli* in open water bodies varies with seasons and their high level sharply increases after heavy rainfall (Voznaya, 1981) as well as the influence of sewage. The higher values of Coliforms in monsoon season at both Sama and Harni ponds may be due to inflow of nutrients with rain water. Similar observation was made by Aboo (1968). Kistemann et al. (2002) observed that in the case of rainfall, the microbial loads of running water may suddenly increase and reach reservoir bodies very quickly. This may be due to increased anthropogenic and socio-cultural activities at different sites of lower stretch. Considering the density of

population settled around the ponds and their continuous usage of them, very huge bacterial count were noticed is clearly an indication of possible epidemics.

Sediments are indicators of quality of overlying water and its study is a useful tool in the assessment of environmental pollution status (Kumary and Azis, 2006). Total organic carbon of sediment has a major role in keeping fertility of soil and thereby flourishing the biological activity (Sunil Kumar, 1996). Soil is one of the most important components of aquatic ecosystem. It provides nutrients as well as substratum to the aquatic organisms. Pond soil plays an important role in regulating the concentration of nutrients in the pond water (Adhikari, 2003). Occurrence of the nutrients in the pond water and maintenance of its chemical nature depends largely on the nature and properties of soil. Regular monitoring of soil quality parameters can give an insight about the physical, chemical and biological environment of the aquatic ecosystems. The availability of phosphorus is important to aquatic productivity because the PO_4- absorbs by phytoplankton which is stored in its cells and helps in increasing productivity. Pond soils with 30 ppm, 30-60 ppm, 60-120 ppm and > 120 ppm concentration of available phosphate (P_2O_5) are considered to have poor, average, good and high productivity respectively. Organic carbon acts as a source of energy for bacteria and other microbes that release nutrients through various biochemical processes. Pond soils with less than 0.5% organic carbon are considered unproductive while those in the range of 0.5-1.5% and 1.5-2.5% to have medium and high productivity respectively. Organic carbon content of more than 2.5% may not be suitable for fish production, since it may lead to an excessive growth of microbes and oxygen depletion in the water. Soil pH

influences the solubility of the nutrients (Kanuskaran et al, 2008). The pH of soil is one of the most important factors for maintaining pond productivity since it controls most of the chemical reactions in the pond environment. If the pH is too low (strongly acidic) can reduce the availability of key nutrients in the water and lower down pond fertility. It also affects the activity of microorganisms responsible for breaking down organic matter and chemical transformations in the soil. Here in this study the pH was alkaline throughout and ranged from 8 to 9.5. Near neutral to slightly alkaline soil pH is considered to be ideal for fish production (Adhikari, 2003). The water holding capacity is an index of a number of physical properties of soil. Good water holding capacity shows the good physical condition of soil (Rai et al, 2011). The water retention capacity was highest in the month of June at site-1 and lowest in the month of August at site-2 and site-3, may be attributed to new sediment influx. The organic matter was maximum in the month of July at site-3 and minimum in the month of June at site-1. An increase in organic matter content in the sediments may be due to the fine nature of sediments and high rate of sedimentation (Raghunath and Murthy, 1996). The value of Total Phosphorus was highest in the month of March at site-2 and lowest in the month of May at site-1.

In Harni pond, the depletion in soil quality may be due to the influence of anthropogenic activities around the water sheets. Alkaline soil absorbs more phosphorus from soil so it is the positive factor for productivity. Water retention capacity prevents the percolating of water and helps in recycling of humus and maintaining water level of the pond. The soil pH ranges from 6 to 9.5. It was minimum in the month of October and maximum in the month of February.

Similar observation was recorded by Gupta et al, (2008). The water retention capacity ranges from 5 to 7. The value of organic matter was recorded lowest in the month of October and highest in the month of January. The value of Total Phosphorus was recorded maximum in the month of November. Similar observations were made by Saravanakumar et al, (2008).

The plankton occurs in all natural waters as well as in artificial impoundment like ponds, tanks, reservoir, irrigation channels etc. Phytoplankton are autotrophs and belonging to first trophic level (Vasanthkumar and Vijaykumar, 2011). Plankton distribution and abundance are affected by season (Ezra and Nwankwo, 2001). Phytoplankton encountered in the water body reflects the average ecological condition and therefore, they may be used as an indicator of water quality (Bhatt et al., 1999; Saha et al, 2000). The maximum faunal density in winter and minimum in monsoon may be due to water temperature and turbidity these provide favorable environment for the growth of plankton (Sharma and Bhardwaj, 2011). Among this, in phytoplankton, chlorophyta is dominant group, while crysophyta and cyanophyta were subdominant as also observed by Sharma (2009). The dominance of Chlorophyta and Cyanophyta indicates the presence of organic pollution. Similar findings were made by Kumar and Verma (2009). In freshwater phytoplankton ecology, seasonality is often used to specify those patterns of succession sequences which occur during an annual cycle in response to changing in climatic variables. Phytoplankton abundance was appeared to decrease gradually in the winter; this may be related with lower temperature, shorter day length, low pH and low concentration of

nutrients. Supporting evidence to this assumption can be drawn from some previous studies (Van Nguyen and Wood 1979; Pabst et al. 1980), which suggest that collapse of phytoplankton occurs in a nutrient depletion condition coupling with meteorological changes such as cloudy weather, low water temperature etc. (Affan et al, 2005). On the seasonal basis the peak was found in winter, similar findings were made by Kumar and Verma (2009). The diatoms are indicator of clean water quality, were found less compare to other phytoplankton. The numerical variation in peak periods of different group of zooplankton might be due to different biological parameters. In Sama pond, zooplanktons like copepods and cyclops were abundant. *Cyclops* sp. was perennial and dominant (5142 units/l) throughout the study period Islam (2007). Cladocera are pollution sensitive so found in small number (Ramachandra et al, 2002). The contribution of rotifer was varying from none during May to abundant during August i.e. during monsoon. The dominant species among rotifer was *Branchionus forficula,* (Paulose and Maheshwari, 2007), which was also reported to be dominant by Bahura (1990). Hutchinson (1967) observed that *Branchionus* sp. is very common in temperate and tropical waters, which indicates alkaline nature of water bodies. Rotifers are prominent group among the zooplankton of a water body irrespective of its trophic status. Rotifers were found in maximum number in December and January months and decline gradually and were completely absent during May.

Molluscans are of great significance because they form the food of fishes and their productivity play an important role in the food chain. Molluscans communities are good indicators of localized conditions, including the water

quality (Zahoor, 2010). Snails are important part of fresh water reservoirs. They are the intermediate host of the most of the trematodes. Snail transmitted diseases such as schistosomiasis, fascioliasis, paragonimiasis and clonorchiasis are national or international public health problems. The ponds which are used for bathing, drinking and washing purposes by people are suitable habitats for *B. bengalensis* (Ghobadi and Farahnak, 2004). Natural habitats are generally known for their species richness, but for several invertebrate groups, species diversity in modified habitat can be similar or even higher. A total of 11 species of molluscan varieties were found. The snails of the genus *Lymnae* are the intermediate host of *Fasicola hepatica* and the etiological agent of fascioliasis. The *F. hepatica* is a cosmopolitan trematode parasite infecting human being and also this is a parasite of veterinary and public health importance worldwide (Mas-Coma et al, 1995). The Thairid snail is a moderately important species because it can serve as the first intermediate host for sheep liver fluke *(Clonorchis sinensis)* and for human lung fluke *(Paragonimus westermani)* that causes a disease known as paragonimiasis (Abott, 1950). Another example of parasitic disease is schistosomiasis which is caused by aquatic trematodes. Planorbis, a snail, is of great importance for humans as several members of this species are intermediate host of blood fluke causing a chronic disease schistosomiasis. The presence of indigenous *schistosome* transmitting snails in aquatic habitat will be considered as a sign of environmental health hazard. Rather it is the parasites that depend on snails and humans for their survival. Such snails are the potential threat of introduction of associated trematodes (Scholz et al, 2000) that may threaten the surrounding urban population. Due to

the presence of such species, spread of such diseases takes place in the resident population. The *schistosome* may causes dermatitis when they penetrate the skin of people in contact with water (Verbrugge *et al.,* 2004). The highest priority for the World Health Organization (WHO) with respect to molluscan *schistosomiasis* is to recognize that snail and parasitic fauna that may create the opportunities for transmission in some places and also serve as an indicators for detecting even more profound environmental and health changes associated with the degradation of aquatic environment around the world. *Corbiculla,* a bivalve has an advantage over many native species because it tolerates the impacts caused by anthropogenic activities and it has unusual high reproductive capacity, high growth rate and quickly adapt to disturbed environment (McMahon, 1983).

The length-weight relationship is very important for proper exploitation and management of fish population. Among the freshwater fishes, length-weight relationship of different fishes has been carried by many researchers (Dhoa & Dewan, 1967, Mercy et al, (2002), Oscoz et al. (2005), Serajuddin (2005), and Harish Kumar et al. (2006). The changes in weight in relation to length are generally not on the basis of specific gravity but due to changes in the form of volume because the density in the organism and that of the surrounding water. Such changes are analyzed by the condition factor or "Pondered index" (Le cren, 1951). This length-weight relationship is expressed by the equation $W = aL^b$. This equation was used by several workers for different species from different habitats. Generally, weight of fish will be proportional to the cube of their length, based on its dimensional equality (Harish Kumar *et al.,* 2006). The condition factor is an index reflecting interactions between biotic and abiotic factors in the

physiological condition of fishes (Lizama and Ambrosio, 2002). Correlation between total length and weight and standard length and weight of fish population of Sama is 0.90 and 0.91. Similar findings were observed by Lizama and Ambrosio (2002). Condition factor decrease with increase in length (Bakare, 1970; Fagade 1979); and also influences the reproductive cycle in fish (Welcome, 1979). Condition factor of fish population is 1.5 in the present study. As the value is less than 3, it indicates that the growth pattern of fishes of Sama pond is allometric, as suggested by Gayando and Pauly (1997).

Lack of sanitation facilities and improper disposal of human and animal wastes contribute to poor surface water quality and thus lead to the spread of water borne diseases. The primary public health concern regarding water contamination is microbiological contamination of drinking-water (Taylor, 2003). Bathing in waters meeting these standards, however, has been found to be associated with gastrointestinal illness, respiratory complaints and symptoms of the skin, ears and eyes. Bathing in faecally polluted waters is most likely to be associated with an increased risk of gastroenteritis (GE). Risk factors associated with incidence of gastroenteritis in a family included use of pond water for cleaning child-feeding containers, indiscriminate disposal of children's stools, feeding bottle, and water storage in a wide mouth container. High levels of nutrients are responsible for the growth of *E. coli* bacteria in the pond and may cause the water borne diseases like gastroenteritis.

During the survey the GE cases were reported more at Harni pond as compare to Sama pond especially during summer and monsoon seasons. Results of the

present investigation confirm the presence of *E. coli* in the pond water. Also they are of great importance among bacterial indicators used in water quality definition and health risks (Giannaulis et al, 2005). The skin diseases were commonly recorded in the slums around both Sama and Harni pond. Contact with water containing high amounts of blue green algae can cause skin irritation. Algae occur due to high nutrients in the pond. However, human activity often can trigger or accelerate algal blooms.

The geographic location, topography and anthropogenic relationship were different from Harni and Sama ponds. pH of water was alkaline for both the ponds due to similar type of biotic composition. Marginal higher temperature is recorded for the water sample from Harni pond as this pond is shallow in depth. Different activities were recorded on Sama pond is evident by higher alkalinity and chloride content comparatively between both the ponds. Parameters like Total Solids, nitrates and Total Phosphorus were marginally lower side of their value for Harni pond. This may be attributed to less use of this pond by surrounding inhabitants as well as site is away from vehicle transport. The soil quality of these two ponds is nearly similar because of normal condition observed during the study period. Organic matter content (16mg/L) is higher for the soil of Harni pond may be due to organic waste dumping as well as deposition of peripheral hydrophytes.