Chapter-2

REVIEW OF LITERATURE
Review of literature

Water is the universal solvent and all living beings depend on the water for surviving. But due to the rapid growth of population, urbanization and industrialization the water has become polluted. Dix, H.M. (1981) and Sharma, C.B. et al. (1987) are the chief contributors to the water pollution studies. Drinking water, because of its integrated relationship with the human and animal health has been extensively worked out all over the world. So there is an increasing need to assessment of water quality.

Fluoride higher then 2ppm may cause Osteoporosis and fluorosis. High nitrate is alarming as it indicates possibility of seepage from sewage. Shekhawati region of Rajasthan is notorious for having high fluoride and nitrate concentrations in groundwater, making it unsuitable for drinking use. Arid climate with high evaporation and insignificant recharge might have accelerations the strengthening of fluoride and nitrate concentrations in the ground water of this area. Batheja, K. et al. (2008).

The fluorides belong to the halogen group of minerals and are natural constituents of the environment. Fluorides are mainly found in ground water when derived by the solvent action of water on the rocks and the soil of the earth’s crust. Fluoride is the most electronegative of all chemical elements and is never encountered in nature in the element form. Effects of fluoride contents in ground water Ibrahim M. et al. (2011).

In the recent years the contamination of the different sources of drinking water by the nutrients such as nitrate, phosphate and also the metallic elements has been worked out extensively (Spalding et al., 1982; Hill, A.R., 1982).
Bacteria as indicator species of organic pollution is a subject of topical interest. Clark, J.A. et al. (1982) worked on the municipal water supply to test the presence or absence of pollution indicating bacteria and found that the species of endemic nature were *E. coli*, *Enterobacter aerogenes*, *Aeronomas hydophilla*, *Klebesiella pneumoniae* and *Citrobacter peundii*, Keswick and others (1982) worked on the continued existence of indicator bacteria and intestinal viruses in ground water. It is now almost certain that the surface wash off containing bacteria of all kinds, metallic and toxic effluents, gradually percolate in the earth stratum and reach the water table below.

The WHO prescribed the criteria of drinking water in 1971. Later, bacteriological standards of drinking water were also prescribed (WHO 1984).

The same is true for inorganic fertilizers. Similarly Stender, J.O. & Adams, J.C. (1982) investigated the effects of black water upon the viability of indicator bacteria.


Fluoride and nitrate levels in ground water of arid districts of Rajasthan have been worked out by Gopal, R. et al. (1983). Gupta et al. (1993) recorded the TDS and Fluoride from various districts of South-Eastern Rajasthan.

Nitrate value in ground water in some districts (Churu, Barmer etc.) of Rajasthan have been recorded by Ozha, D.D. et al. (1993).

In the research Subba Rao, N (2003) investigated and classified of concentrated F− prescribed of drinking: low- F− (<60 mg I−), moderate- F− (0.60-1.20 mg I−) and high-F− (>1.20 mg I−).
In the investigation of ground water fluoride it was observed that with the increasing concentration of fluoride in ground water hardness decreased while alkalinity increased. have been done by Gautam, R. et al. (2011).

Nitrate levels in underground water of some district of Rajasthan have also been recorded by Rai and Gulati (1997).

Heavy metal contamination of the ground water has been investigated by Mohammad, A. and Raziuddin (1986).

The sources and distribution of trace metals including iron in aquatic environments have been thoroughly described by Batley, G.E. (1983).

The bicarbonates are common constituents of natural water and are introduced through the solvent action of water containing dissolved carbon dioxide on calcium and magnesium carbonates, sulphates and chlorides for calcium and magnesium are also responsible for hardness. Thus, the principle cations which causing hardness are magnesium and calcium. Iron, aluminium, manganese, strontium and zinc cause hardness but to a relatively little extent (Purohit, S.K. 1986).

Along with mortality, studies on erythrocyte morphology and their count may serve as important indices for monitoring pollutant toxicity. Keeping this in view, we examined toxic effects of dye wastewaters from the textile printing industries on a freshwater fish, Gambusia affinis (Baird and Gerard). Soni, P. et al. (2005).

The distribution of nitrate in ground water in Canada have been given by Hill, A.R. (1982).
Physical characteristics of water such as temperature, hardness and pH also influence the rate of bio-concentration and depuration. For some metals the toxicity is related to hardness as well as, alkalinity the effect is most prevalent in hard water. However the role of such influencing factors remains limited for heavy metals especially nickel. Karthikeyan, Set al. (2007)

Copper sulphate is released to water as a result of natural weathering of soil and discharge from industries, agricultural run-off and sewage treatment plants. Copper sulphate is also intensively introduced in water reservoirs to kill algae. of copper sulphate Acute toxicity to fresh water prawns have been carried out by Lodhi, H.S. et al. (2006).

Groundwater resource in Anekal Taluk ground water is broadly used for agriculture, household activities and also in the form of drinking water. The taluk peoples for drinking totally depends on groundwater water. Somashekar, et.al. (2006).

Considerable attention has been paid in the recent years to study of the physicochemical parameters of the coastal waters around in India order to ascertain the productivity and water quality, very little information is available on these aspects of the Palk Bay. Have been discussed by Sridhar, R. et al. (2006).

The difference between initial and final water samples in the dissolved oxygen content sow the quantity of oxygen consumed by the fish. Have been studied by Tilak, K.S., Veeraiah, K. et al. (2007).

Fluorides in the groundwater and its impacts on the health. Environmental awareness is a very important and the general public must be educated on the health problems particularly when a person consumes fluoride rich waters 0.5 mg/l and above. This must be done through the mass media like television, pamphlets, radio, cartoons etc. Shailaja, K. and Johnson, M. E. C. (2007).
The chemical profiling of ground water of Alkhari in Saudi Arabia has been given by Jahangir et al. (1988).

In the surface waters nitrate found in trace amount but in a few ground waters nitrate found in high level. High concentrations of nitrate compound in the drinking water are serious concern mainly in the parts of rural areas where nitrate mix animal manure and nitrate rich fertilizers runoff and add into the water supply. Have been discussed by Mitharwal, S. et al. (2009).

Some different water quality such as pH, Electrical conductivity, Total dissolved solids, Total hardness, Total alkalinity, Dissolved oxygen, Calcium, Magnesium, Sodium potassium, Carbonate, Bicarbonate, Chloride, Nitrate, Sulfate and Fluoride used to evaluation of ground water quality have been given by Shyam, R. and Kalwaniya. G.S. (2011).

This situation however, is possible when the water table is not high. The bacterial regrowth in drinking water has been studied by Dott, W. (1983).

Chemical surveillance of drinking water supply in desert city Bikaner has been carried out by Saxena, M.M. and Chhabra, C. (1998).

A comparative study on the quality and tropic status of some desert water employing bio-indicators and indices has been worked by Chadha, M. (1999).
Recent advances in biosensors for detection of water contamination. Biosensors for potential environment applications continue to show advances in areas such as detection of heavy metals, biocides, pollutants, microorganisms and various polyaromatic compounds. Also, water toxicity testing, mutagen analysis and BOD estimation is facilitated by use of biosensors The use of genetically modified AChE in biosensors has significantly increased their sensitivity to inhibition by OP pesticides. Gautam, P. et al. (2012).

Sewage is known to give out microbes in the soil. Liu, O. (1982) observed that 90-98% in the soil and further opined that there was little microbiological contamination of ground water through the disposal of sludge on the farm land.

Well water has only a few workers of research on it, and mention could be made of Adesiytin et al. (1983) and Mazid et al. (1984). In Rajasthan work on the well water is done by Johri, S.N. and Khetawat, G.K. (1984).

Heavy metals comprise a very heterogeneous set of element broadly diverse in their chemical property and biological function. These are Persistent in environment, so get accumulated in soil and plants. This water quality Assessment have been thoroughly described by Shaji, C. et al. (2009).

The studies of Kumar, A. and Gupta, A.K. (2006) showed the severe toxicity of Mercury in relation to temperature and hardness of water to the fingerlings of Indian major carps i.e. rohu, etc. has been evaluated by static bioassay.

The presence of coliform in water does not establish that the pathogens are present and some coliform are not viewed as pathogenic and only few are disease causing bacteria. However, the number of coliform present in the water does provide a measure of the probability that water borne pathogens are present (Lamb and Rowe, 1987). It is interesting to know here that the reduced
or low level of coliform and even their elimination is sometimes not accurate in indicating the safeness of drinking water.

For example, this is evidence that Giardia & Lambila present in drinking water may be, despite negative test of coliform (Craum 1986). In spite of this, the coliform test to evaluate the quality of water from the microbiological viewpoint is still in vogue.

For the presence of pathogenic bacteria, the groups of bacteria have been detected by a relative study for bacterial and physicochemical investigation of drinking sewage and borewell water in the 3 diverse places of Sivakasi by Radha Krishnan, R. et al. (2007).

Agricultural activities depend, on different types of water sources in south-western Karnataka. Have been investigated by Smitha, P.G. et al. (2007).


Valecha, V. et al. (1988) and Trivedi, R. et al. (1988, 89) studied seasonal fluctuation, differentiation of coliform group and distribution.

Oger, C. et al. (1981) reported that temperature greatly favours the significance growth of micro flora (bacteria).

The pollution status of perennial pond was studied on the basis of seasonal variation of different bacterial counts (total coliform, faecal coliform and faecal streptococci) by Jakher, G.R. (1997).

Jain, N.C. (1997) has studied the well water samples of Bikaner district and has observed that all the well water samples have total coliform below the 10 MPN/100 ml.
Water level, being directly assessable, is an essential parameter for the study of aquifer systems and their dynamic behaviour. However, the spatial and temporal variability of water level should be accounted for in order to understand the connectivity of the aquifer, particularly in hard-rock regions. Being time-variant, water level should be monitored at an adequately high frequency to indicate the effect of external stresses such as pumping and recharge. Kumar, D. and Ahmed S., (2003).

Rodvang, S.J. et al. (2004) have studied in r changes in the quality of Groundwater an irrigated area of Southern Alberta.

Rapid growth in competition for economic development, population, industrialization and urbanization, ground water resource has become vulnerable to depletion and degradation. Management of this valuable resource is determined by its accessibility and utilis-ablility in terms of quantity and quality. Due to imbalance between demand and availability. Datta, P.S. (2005) has studied ethics of groundwater for its sustainability.

Parameters of Some water quality such as Biochemical oxygen Demand (BOD), Most Probable Number (MPN), Dissolved oxygen (DO), Total Dissolved Solids (TDS) and pH, Turbidity measured were used to assessment to index of water quality for drinking uses from Subarnarekha by Parmar, K. and Parmar, V. (2010).

Some water quality parameters like turbidity, pH, TDS, total hardness, total alkalinity, chloride, calcium, electrical conductivity, sodium, & potassium were used to physic-chemical analysis of selected ground water samples of Agra city Yadav, K.K. et al.(2012).
In this assessment they was found that quality of water Subarnarekha diverse from tremendous to minor range by Bhargava WQI method. It was found that the effect of human action was harsh on some parameters. In Soil-Water system distribution of The Iodine in the Gandak Basin, Bihar has been investigated by Ghose, N.C. et al. (2003).

Physico-chemical parameters are generally used for evaluation of effluent quality. However, these parameters alone cannot give a quantitative measure of the impact of pollution. Toxicity assessments of waste water from a textile industry to Cyprinus carpio have been given by Roopdevi, H. and Somashekar, R.K. (2012).

The geology is dominated by two rock types, acidic volcanic rocks and a granitic intrusion. The volcanic rocks have been subject to low grade regional metamorphism and deformation and affected by contact metamorphism where close to the granite. Both lithologies have been subsequently intruded by basaltic dykes. The irregular contact between the granite and volcanic rocks crosses the area and is disrupted by normal faults in several locations. Have been discussed by Chi-Man Leung, et al. (2006).

Macrophytic diversity was high at the point where nallahas connect the reservoir and in that area where agricultural practices are performed. conservationand Water quality management of Ramsagar reservoir, Datia, Madhya Pradesh have been carried out by Garg, R.K. et al. (2009).

In the mapping technique is done to explain the endemic region of fluoride toxicity. The areas with high and low fluoride content have been identified, and the possible causes for its variation and escalation have been investigated by Alagumuthu, G. and Rajan, M. (2010).
Bacteria concentration in a sample of water means the number of bacteria colonies present in per 100 milliliters (col/100mL) of water sample. Discharge of organic wastes sewage waste, polythenes, human excreta, toxic discharge and municipal garbage from the factories increasing bacterial pollution in the river Gomti. This waste is very harmful for water ecology, human beings and animals; spatially in Lucknow and Barabanki district. Srivastava, A., at.el. (2011).

Water is the very essential compounds, but due to increasing of industrialization, population exploitation, utilization of fertilizers in the agriculture and anthropogenic activity. Some of natural water resources are causing heavy and diverse pollution in aquatic environment which infect the water quality and exhaustion of aquatic biota. The quality of drinking water regularly checked at the time of interval It is very important, for the reason that due to utilization of polluted drinking water, human being influenced from various water borne diseases. Have been studied by Basavaraja Simpi, at.el. (2011).

The Electrical Impedance Tomography involves the injection of current into a body using circular electrode arrangements or configuration patterns to image the internals of the medium under investigation. The method is extensively used in the medical field to image organs of interest. It allows the generation of two or three-dimensional images of electrical conductivity for a given profile or volume of ground. The technique is suitable for non-invasive investigation of landfill sites due to its sensitivity to high electrical contrasts as caused by changes in fluid saturation, material types and ion concentration levels. Most waste fluids are highly conductive due to their elevated ion concentrations. Tomograms or Electrical images can provide valuable insight on the distribution of waste and waste fluids within landfills as well as identity potential flow paths. Joseph, O. (2012).

Analysis of water of Bhadravathi taluk using GIS. Bhadravathi river is polluted due to urbanization, industrial and industrialization waste and sewage discharge has been increased considerably into the river have been discussed by Raikar, R. V., Sneha, M. K. (2012).
Cladocera are rich in water bodies of south Rajasthan. Different species inhabited different water bodies depending upon the Limnological parameter, thus certain cladocerans may play a role of bioindicators showing trophic status of water bodies. Water of Rajasthan has been very productive from fisheries point of view and some of the most productive lakes of India are situated in southern part of Rajasthan. Cladocerans are widely used in aquaculture and large filter-feeding planktonic species have an economic impact as important fish food or phytoplankton controlling group. Sharma, V. et al. (2012).

The of the daily discharge volumetrical proportion of chemicals effluents increase industrial discharges so it is of big problem from the point of view of environment and bio safety. The same as discharge from the institutions may also be danger to the environmental and human beings, test out the pollution on its source is very important by this research. From the recent years, awareness has drained towards evaluating the probable health hazards of effluents. Assessment of drainage water from educational institutes have been given by Koshle, S. et al. (2012).

The growth of industry, technology, population and water use has increased the stress upon both our land and water resources. Locally, the quality of ground water has been degraded. Municipal and industrial wastes, chemical fertilizers, herbicides and pesticides have entered the soil, infiltrated some aquifers and degraded the ground-water quality. Other pollution problems include sewer leakage, faulty septic-tank operation and landfill leachates. In some coastal areas, intensive pumping of fresh ground water has caused salt water to intrude into fresh-water aquifers. Studies on heavy metal pollution of ground water sources between Pondicherry & Tamilnadu, India. Abdul Jameel, A., Sirajudeen, S. and Abdul vahith, R. (2012).
The trophic status act dependent on the area and topography of water bodies. Usually, to the trophic status of any lake phosphorus, chlorophyll content nitrogen weight and transparency have been considered. The definition of trophic state has been defined that in given water body the total weight of biomass at the time of measurement. Nutrients play a significant role as their too much input leads to eutrophication in freshwater bodies. Plentiful development of macrophytic vegetation is also expressive of trophic status of any water body. Have been carried out by Saxena, M. (2012).

The fresh water field guerini crab, Barytelphusa, which is most important food source in south India, has been and is being exposed extensively to insecticide. The pesticides are having long half-life and accumulate in the food chain through consumption of infected crabs. They are not only neurotoxic but also affect other systems and have shown to have a high degree of impact on the metabolism by altering the enzymes. Effects of chlorpyrifos on some biomarker enzyme profiles in fresh water crab, Barytelphusa guerini. Narra, M.R. et al. (2012).

Fecal coliform are the coliform that ferment lactose in a medium with bile salt. The ratio of count of fecal coliform to fecal Streptococci projected as a mean to differentiate between infectivity from human and animal source. Increasing ratio of coliform and hemolytic bacteria to total bacterial load of Bhojtal – A serious concern have been discussed by Anita Mishra, Kishor Shende and Ragini Gothwal. (2013).

Water is an essential input not only for the human existence, but also for all developments. Demand for ground water has increased tremendously in recent years due to the industrialization, urbanization, population increase, and

The marine environment, especially coastal and estuary, forms an essential component of the global life. In highly developed countries, all these human activities can affect the characteristics of the water in their estuaries. This analysis have been studied by Dixit, P.R., Kar B., Partha Chattopadhyay, P. Panda, C.R. (2013).

Water and land based anthropogenic activities within the system and in the catchment including the release of nutrients, organic matter, toxic chemicals and water borne pathogens have a negative effect on water quality. Bacterial contamination in particular accelerates when human activities are augmented, jeopardizing the safe use of water for drinking and recreational purposes. Water quality assessment of Dal Lake, Kashmir using the coliforms as indicator bacteria have been thoroughly described by Saleem, S., Kamili, A. N., Kakru, D. K. and Bandh, S. A. (2013).

Removal efficiency of nitrogen and phosphorus in mechanical treatment plants is only 10%. However, in case of sewage treatment plants equipped with the mechanical and biological technology, the efficiency of nitrogen and phosphorus removal is assumed to be 50% and 40%, respectively. For mechanical-biological sewage treatment plants with improved tertiary sewage treatment the degree of reduction for both nitrogen and phosphorus was assumed to be 88%. Have been done by Pandit, A. K., Dilafroza Jan, Azra N. Kamili, Basharat Mushtaq. (2013).

Some water quality parameters such as turbidity, pH, TDS, electrical conductivity, total hardness, chloride, Ca & Mg were used to assessment the properties of physicochemical of river Yamuna, Agra have been discussed by Gupta, N. et al. (2013).

Some parameters like pH, Temperature, Chloride, Iron, Manganese, Calcium, Magnesium, Nitrate, Sodium, Potassium, TH, EC, Total Dissolved Solids, Alkalinity, Phosphate and Sulphate. Temperature, were used to Physico-chemical evaluation quality of drinking water in Alshati district, Libya is done by Salem, M. A., Alshergawi, M. I. (2013).
The primary source of all nitrates is atmospheric nitrogen gas. This is converted into organic nitrogen by some plants by a process called nitrogen fixation. Dissolved Nitrogen in the form of Nitrate is the most common contaminant of ground water. Some micro-biological and chemical processes such as Denitrification and nitrification also influence the nitrate concentration in ground water. Scenario of Nitrate contamination in Groundwater: Its causes and Prevention has studied by Khandare, H. W. (2013).

In different types of aquatic ecosystem various kinds of macroscopic fauna and flora develop. The chemical and physical quality of water depends on the basin size and shape, depth, light penetration, precipitation, location, chemical nature of surrounding soil and dissolved minerals, pH, etc, and the components of biological habitats fully depend on them the balance between these can be maintained if the chemical, physical and biological parameters are in optimal condition. most of the peoples depend on groundwater supplies for drinking and other use. A great part of the Indian population utilizes the ground water for domestic use. It is the main sources of water for agriculture. Have been discussed by Tambekar, P., Morey, P., Batra, R. J. and Weginwar, R. G. (2012).

The formation of nitrates is an integral part of the nitrogen cycle in our environment. In moderate amounts, nitrate is a harmless constituent of water and food. Plants use nitrates from the soil to satisfy nutrient requirements and may accumulate nitrate in their leaves and stems. Due to its high mobility, nitrate also can leach into groundwater discuss by Maheshwari, R. K., et al. (2013).

Groundwater pollution unlike others is very critical, as once an aquifer becomes polluted, it is very expensive, difficult and time consuming affair to clean it up and may remain unusable for decades. Haryana is one of the Indian states where endemic fluorosis has been reported as an alarming health problem. Have been discussed by Rout, C., Sharma, A. (2011).
The use of turbidimetry for assessing water pollution is motivating and positive by its permanence, instantaneous but not sufficient. It is time for national authorities to develop a network of quality control of the Senegal river in setting up sensors to continuously monitor the physicochemical parameters and it is imperative to study the pesticides content in the water of Senegal river in order to make a good model of treatment. Have been carried out by N'Diya Demba, et al. (2013).

Plain drinking water consume by the Human beings, food water and water from additional beverages, which is gain a little water to the metabolism of food. From the food around one third of the daily average fluid taking in is consideration to be derived. so, rest of the water requisite should be meet to the consuming fluids. accessibility, temperature of ambient, flavor, variety of flavor, temperature of beverage, nearness of the beverage to the person, all container of beverage have been also exposed to intake impact. W.H.O (2004).

The best quality potable water free from contaminants and hazardous materials must be available for the public to avoid disease incidence and it is also used as a powerful environmental tool, required to determine the health of public. Have been discussed by Ali, S., Hussain, et al. (2012).

In the city areas people are mostly satisfy by water supply provided from municipality due to the water quality are good and near to residents. The cost of water are measured elevated generally to the poor people who cannot have enough money and thus used other insecure services. In reply, the municipality just decreases the cost. In other matters, as most of the systems were only a only some years old, some people cannot use to to taste and went back to the original, minor quality water sources. On some days, waiting times were very long, forcing some people to utilize a more distant, unimproved source by Addisie, M. B. (2012).
Magnetized water molecules can easily enter into the cement grains. Therefore, magnetized water can increase the workability of the concrete mixture, which can reduce the in homogeneity degree of mixture Studied by Wang, Y.at.el. (2014).

It is necessary that water be assessed repeatedly often throughout the year as contamination may be irregular. Water supplies should be safe for human being utilization, by taking regular chlorination and taking instant suitable corrective measures when contamination is measured. It may also be clear out that even drinking water from water distributors has also been inspected to be contaminated through bacteria. In office, schools buildings and commercial stores there is water coolers are mostly used, the water quality of this source for drinking purpose also has the likely to cause water borne diseases. So, there is a must to adopting suitable regular monitoring method to check or to reduce the probability of pollution of this water source. Unnisa Sy. Az. and Rao, B. (2011).

Fluoride polluted ground water and effects of fluoride on human health, K.S. Meena , at.el. (2011) discussed that The of extreme quantity of fluoride presence in drinking water is accompanied by a distinguishing order of changes in bone and teeth.

Analytical study of metallic elements and physico chemical of surface water and ground water in Balco industrial Area, Korba, C.G. have been given by Vaishnav M.M., Dewangan S. (2011).

If the drinking water affected by Arsenic or medium it is very injurious to human health somewhere in Asia and other parts of the world. As the human health threat from high levels of manganese is fewer well accepted and in fact less is harmful, the final conclusion of this research was that arsenic is very harmful for the people’s health. can be both and toxic when Inorganic arsenic is very danger and carcinogenic intake of small amount of arsenic for long period of time causes ‘arsenicosis discussed by Peter, R. Feldman, at.el.(2007).
High concentration in water is reduced by diluting the high concentrated chloride water with the help of small concentrated water or avoiding the direct discharge of textiles bleaching and dyeing wastewater in to the nearby water streams. Reverse Osmosis or Ion Exchange methods may also be used to manage such problems in drinkable water supply worked out by K.K. Sivakumar, at.el.(2011).

Information specific to Yola-Jimeta metropolis is still needed to increase our understanding of the processes affecting borehole water quality in the area. In a society like Yola- Jimeta metropolis where borehole is the main source of domestic water supply, contamination will not only expose people to and increase occurrences of life threatening water borne diseases but also negate any development goals. It is against this background that the chemical assessment of borehole water of Yola-Jimeta metropolis is carried out and sources of contamination investigated with the aim of providing information that can serve as a guide in monitoring water contamination in the area Abubakar, B. and Adekola, O. (2012).

One of the major sources of water is Groundwater. Management is one of the main resources to meet the growing demand of water for domestic agricultural and industrial utilization. Various management evaluates to know the temporal and spatial behavior of the groundwater. Discussed by Kumar, V. and Remadevi (2006).

For the healthy living harmless convenient water is very important. most suitable and for human consumption Ground water is the best water resource not only in rural areas urban areas also. Have been Discussed by Reza, R. and Singh, G. (2009).
Human activities such as application of fertilizers and irrigation practice increase affect the nitrate, phosphorus and arsenic. The continuation of this manner of farming (i.e. the use of this contaminated water for irrigation and application of fertilizers over the recommended rate) in the term without appropriate management increases the risk of soil salinization and arsenic, nitrate and phosphorus contamination in the soil and water, which further result in food chain contamination have been given by Sharifi, Z. and Sinegani, A. A. S. (2012).

A big part of rain fall occurs in the monsoon season in India and mainly water-related activities, for both activities natural for example recharge or anthropogenic for example agriculture with groundwater extraction for irrigation, is strongly related to this period. It was therefore, predicted that a general variogram in monsoon or monsoon-affected period for the groundwater levels and another general variogram for the groundwater levels in non-monsoon period could be determined. For the study of the aquifer systems and their dynamic behaviour water level is an most important parameter. Ahmed, S. & Kumar, D. (2003).

Fluoride is one of the toxic elements in water and also it’s an necessary element in groundwater. Small concentration of fluoride in drinking water has an enormous beneficial effect on human body if consumed in standardized quantity. Monitoring of fluoride concentration in the ground water of Kadayam block of Tirunelveli District, India: correlation with physico-chemical parameters Alagumuthu, G. and Rajan, M. (2008).

High fluoride concentration in the surface water and ground water in many parts of the world is a case of great concern. Tirunelveli district of Tamilnadu in South India is reported to have drinking water containing high levels of fluoride and causes disease namely fluorosis. Chemometric studies of water quality parameters of Sankarankovil block of Tirunelveli, Tamilnadu discussed by Alagumuthu, G. and Rajan. M. (2010).
Industrial production without adequate regard for environmental impacts has led to increased water and air pollution, and has led to soil degradation and large-scale global impacts such as global warming, acid and ozone depletion (Hema, S., Subramani, T., Elango, L. 2010).

The use of biosorbents of biological origin have emerged in the last decade as one of the most promising alternatives to traditional heavy metal management strategies. Of late, the attention has shifted to the non-living dry alga biomass and other microorganisms for metal removal. Have been studied by Kumar, N., J.I. and Oommen, C. (2011).

Nitrite removal rate was measured by eight aquatic plant viz. Peltandra virginica, Utricularia vulgaris, Eichhornia crassipes, Trapa natans, Mimulus glabratu, Marsilea quadrifolia, Pistia stratiotes and Polygonum persicaria which were obtained from surface water bodies have been given by Rawat, S.K., et al. (2012).

The analysis of light gaseous hydrocarbons in recent sediments because these compounds migrate easier than the heavier, liquid hydrocarbons. Hydrocarbons reaching to the surface can be measured directly - both in the sediment itself and in the overlying water or air or through geochemical changes they induce. These hydrocarbons are extracted from the adsorbed gas by processing of fine sediment fractions as hydrocarbons are sorbed within clay lattices. Lakshmi, M., Rasheed, et al. (2012).

The main cause for privatization has been the belief that with farmer control there would be better management of financial resources as well as improved irrigation management, resulting in more efficient use of the water resources. Gundogdu, K. S. and Aslan, S. T. A., (2007).
Chemical analysis of drinking water of villages of Sanganer Tehsil, Jaipur Dist. has been discussed by P. Jain, at.el. (2006). They suggested that the pollution of groundwater is a big concern, firstly because of human needs for utilization increasing and secondly because of the sick effects of the increased due to industrial activity.

Ajmal, M., Raziuddin, Khan, A. U. (1987) analysed the concentrations of Co, Cd, Cu, Cr, Mn Fe, Pb, Ni and Zn in the water, sediments, fish and plants of the Hindon River, U.P. India, starting from its beginning (hills of Dehradun) to the point (Ballabgharh Haryana) where it merges into the Yamuna river.

Indiscriminate discharge of waste products of result of severe ground water and surface water pollution, the natural ground water quality tends to be despoiled by dumping of wastes on land. The leachate from these discharge percolates into ground and pollutes the ground water quality. The extent of this pollution has grown in recent years with the increase in population as well as increase in the industrial and agricultural activities of human being. Mohammad Ajmal, Razi Uddin (1986).

In the research of fluoride concentration in ground waters of revenue Mandals of Kadiri, Mudigubba and Nallamada of Anantapur District, Andhra Pradesh, the people rely on groundwater as potable water source. Serious major inorganic constituents were also determined to the ascertain water quality. Widespread amount of fluoride and nitrate contamination in groundwater is reported from different parts of the world. The most effective way of reducing the nitrogen substance of groundwater in the areas where agriculture is the main occupation is to reduce the purpose of fertilizers in consultation with agriculture scientists and change the cropping pattern by going in for irrigated dry crops which consume less fertilizers and water. It is suggested that frequently modifying the cropping sequences offer possible ways to search the nitrogen and provide fluoride-free drinking water in the study area. B. Muralidhara Reddy, V. Sunitha, M. Ramakrishna Reddy (2013).
At present, it has been estimated that the fluorosis is widespread in 17 states of India, indicating that endemic fluorosis is one of the most alarming public health problem of the country, especially in Rajasthan, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Tamil Nadu, and Gujarat. Certainly high nitrate and high fluoride contents in drinking water have created not only dealt problem but it has become a serious living problem for the consumers which in turn has adversely affected the socio-economic status of the state. M. Arif, J. Hussain, I. Hussain and S. Kumar (2013).

The occurrence of high fluoride concentration in the ground water has now become one of the most considerable health related geo environmental topic in many countries of the world. Our country is also facing the same problem where the high fluoride concentration in ground water resources and the resultant disease “Fluorosis” is regularly distributed in nearly 150 districts of 15 states. It has been observed that in 8700 villages in India about 25 million peoples are using ground water having fluoride content more than 1.5 mg/l. In Rajasthan,

ground waters of the western and some southern part of the state are enriched with high fluoride concentration. The arid areas of the state are prone to both skeletal and dental fluorosis. Ozha, et al. (2003).

The term ‘trace metal’ suggests occurrence at low concentrations in the environment, in both biotic and physical components, yet all of these metals do occur in high concentrations in ores and some enormously so in organisms, as will be demonstrated. An implication of the label ‘heavy metals’ is that these are metals above a threshold atomic weight, typically incorporating all transition metals of the periodic table. Yet the bigger metals of the first two groups of the periodic table and the actinides and lanthanides, are usually not considered to be ‘heavy metals’, although their weights go above those of some transition metals. Discussed by Rainbow, P.S. (2006).
toxic heavy metals has been a chief source for water contamination. Heavy metals are very harmful on human beings and other living beings because of their occurrence in aquatic environment out of the permissible limits. Some heavy metals are not favorable to human body due to the discharge of Heavy metals in the water bodies by industries and domestic wastes also influence the aquatic organism. wastes of heavy metals in the water bodies is to be tested in order to decrease the environmental effect. Moonis Ali Khan, Rifaqat Ali Khan Rao and Mohammad Ajmal (2008).

The very important indication of water quality is its pH value. As is affects to a great extent the growth of both soil micro-organisms and plant, hence it affects the suitability of water for irrigation. The pH value of water is controlled by the amount of carbonates, bicarbonates and dissolved CO2. It is governed by the type of contaminated bases, extent of hydrolysis, degree of ionization and buffering action. By Ghandour, M.F.M. El, at.el. (1985).

Heavy metals are frequently used without any exacting definition. Natural metallic elements are characterized by a high specific gravity exceeding 5, and they are usually known as heavy metals. Heavy metals are present in all environment compartments, but normally in very small quantities trace metal elements, trace elements, trace metals. Sediments consist as a function of either repository or source. They may have been eroded at the bottom of the sea in a form of sediment or act as a source where NMEs radiate from the sediments. The amount of heavy metals in the water can be changed by bioaccumulation and biomagnifications where organism uptakes and the metal contents increase throughout food web. Kim, K. T., at.el. (2010).

The nutrient contents such as nitrates are higher than the maximum standard values, which is mostly resulted from rural sources. The concentrations of the trace elements are lower than the standard limits except for manganese, iron and nickel. This groundwater is safe for using in irrigation of some crops but should be treated before using for drinking purposes. Atta, S. A., at.el. (2005).
Ground water NO₃ contamination in shallow unconfined aquifers due to the agricultural practices is a universal problem. Excess N in the form of NO₃ accumulates in the soil when land application of animal manures and inorganic, commercial fertilizers exceed the N-tomically required by crops. The mobile NO₃ ion is easily leached to the ground water during precipitation events and irrigation, especially in areas with well-drained soils and shallow water tables. Mitchell, R. J at. et. al. (2003).

Groundwater is an essential water resource in the Helwan area, not only for drinking and agricultural use, but also because several famous mineral springs have their origin in the fractured carbonate aquifer of the region. The area is greatly populated with a high density of industrial activities which may pose a risk for surface water and groundwater resources. The groundwater and surface water quality was investigated as a basis for more future investigations.

The results revealed highly variable water hydrochemistry. High values of sulphate and chloride hardness and significant mineralization were detected under the industrial and high-density urban areas. in the groundwater High nitrate contents recorded in the southern part of the study area are probably due to sewage infiltrations and irrigation from the sewage treatment station. Abdalla, F. A. at. et. al. (2012).

The contamination of groundwater by human activities became disturbing and is threatening the health of consumers very seriously especially in the cities of developing countries. Among the contaminants, nitrate occupies an important place as it is generated by basic human activities such as urban runoff and agricultural, disposal of untreated sanitary and industrial wastes in risky manner, leakage in septic systems, landfill leachate, animal manure, NOₓ air stripping waste from air pollution control devices. Panahi, S. at. et. al. (2012).
Fluoride does not change its colour, smell or taste in the drinking water normally there is no way to identify it unless tested. In recent years, there has been an increased interest in fluoride research because high concentration of fluoride in drinking water causes adverse effects on human health. In order to diminish the excess fluoride in groundwater, it is essential to determine and monitor the fundamental factors of enrichment of fluoride concentration. Therefore, a systematic evaluation of fluoride in groundwater is required for the better management of the fluoride toxicity. Singh, B. & Garg, V.K., (2012).

The Gurgaon district Ground water quality was assessed for its suitability for drinking purposes. The fluoride concentration in underground water was assessed in various villages of Gurgaon district of Haryana state (India). In these villages underground water concentration of fluoride varied from 0.02-6.4 mg/l. various other water quality parameters, viz., pH, total dissolved salts, total alkalinity; total hardness, magnesium and calcium hardness were also measured.

Majority of the samples do not comply with Indian and WHO standards for most of the water quality parameters measured. Overall water quality was found unacceptable for drinking purposes. Fluoride content was high than permissible limit in more than 23% samples. Singh, M., B. P., and Sharma, J.K., (2014).
Characterization of arsenic contamination and hydrogeo-chemistry in geothermal systems of Al-Kharj aquifers in Saudi Arabia has been done to understand the key processes causing the arsenic mobilization into the groundwater. The main processes responsible are geothermal, & this has been established with different geothermal tracers and geostatistics. The reductive dissolution of arsenic bearing minerals could also be a process occurring, this has been observed and concluded as the aquifer systems in Al-Kharj region show significant amounts of TOC content and experience a slow water moment with low recharge rates, that is why the system has only two major water types categorization. The processes like the mobilization due to competitive impacts of carbonate ions to as and chemolithotrophic dinitrification of arsenite to less mobile arsenate can be ruled out in this system which is characteristically anoxic and high in sulphate levels. A thorough investigation though is needed to widely study this system which may include profiling mineralogical and morphological patterns of the sedimentary rocks and aquifer system along with hydrogeochemical studies. Al-Wabel, M. I., at.el. (2013).

The impact on agriculture was also evident due to inhibition on plant metabolism leading to necrosis, tip burn diseases and needle scratch. In animals also well-known symptoms of fluorosis were observed. In human beings, effects on dental and skeletal tissues can occur in teenagers and young adults, and even in under 10 years of age children among communities exposed to high levels of fluoride. It can interfere with carbohydrates, protein, lipids, enzymes, vitamins and mineral metabolism when the dosage is high. Ramanaiah, S.V., at.el. (2006).
The study has confirmed that temp. of 15, 25 & 37ºC, usually have negative impact on \textit{E. coli}, coliform and HPC bacteria levels, resulting in a decrease in their counts/milliliter in the water phase over a 21-day period. The results showed a decrease in coliforms and \textit{E. coli} bacterial counts after 24 h, but was more pronounced at 37ºC. These bacteria are copiotrophs and could therefore not stay alive in nutritionally-deficient environment, hence the diminishing number of bacterial counts. The marked decrease of bacterial levels at 37ºC could be attributed to environmental stress caused by the excessive temperature that the bacteria could not endure. Sakyi, P. A. and Asare, R., (2012).

\textit{Cryptosporidium} and \textit{Giardia} enter in to the surface water such as ponds, lakes and reservoirs as environmentally resistant cysts and oocysts, respectively, in the faeces of polluted people or animals. Contamination sources include septic tank discharges, sewage treatment plant effluents and infected pets, farm and wild animals. Faecal material may contaminate water directly or following storm water runoff. \textit{Cryptosporidium} and \textit{Giardia} can stay alive in the environment for weeks or months. Rad, A. Y., Aysal, S. & Taner, M., (2007).

The carbonates and bicarbonates are common chemical factors in most of the water bodies because carbonate minerals are rich in nature and contribution to alkalinity by hydroxides is rare in nature. In the reservoir the bicarbonate alkalinity varied seasonally with definite pattern, being highest during summer and lowest during rainy season. Hulyal, S.B. & Kaliwal, B.B. (2011).

Common and universal kriging methods with cross-validation were applied to evaluate the accurateness of the chosen variograms in estimation of the groundwater level drop and groundwater level fluctuations for spatial and temporal scales, Results of common and universal krigings revealed that groundwater level drop and groundwater level fluctuations were underestimated by 3% and 6% for spatial and temporal analysis, which are very low and acceptable errors and support the unbiasedness hypothesis of kriging.

The depth of groundwater is strongly spatially correlated and its spatial structure follows a spherical model. The OK method was the most suitable method for the three investigated years. The spatial distribution maps of groundwater depth showed that the groundwater depth in Eghlid aquifer did not change much between 1997 and 2003, but decreased in 2010. This decrease potentially resulted from the lower annual rainfall in 2010 relative to 2003. So the generated maps obviously indicated that the depth of groundwater decreased during the wet seasons relative to the dry seasons. Delbari, M., Motlagh, M. B. & Amir, M., (2013).

Various management measures need to know the spatial and temporal behavior of groundwater. Observed groundwater levels serve as one of the main input data in studies related to groundwater simulation for various purposes as required in water balance studies, assessment of groundwater recharge potential, in the design of drainage structures etc. However, the measurement of groundwater levels are usually carried out at spatially random locations in the field, while, most of the groundwater models requires these measurement at a pre-specified grid. Some interpolation method is usually employed to get these values at grid nodes. The accuracy with which this interpolation can be carried out affects the accurateness of the model output. Al-Mussawi, W. H., (2008).

The rate of annual increment of GW rise, coupled with seasonal fluctuation, has obvious repercussions and grave consequences for the sustainability of WSSE in particular and the region in general. Unless the potential causes for the rise of GWTD are identified soon and feasible corrective measures for mitigating GW rise are introduced, severe crises in the region are inevitable. Dinka, M. O., et al. (2013).
In the groundwater assessment it is implicit that the considered values can be appropriate for a definite area. The more repeated measurement network is, the very correct would be the water-table measurement. Geostatistical methods can be use in a speckled groundwater assessment to conclude the values for the points where measurements are not completed. Spacial interruption of population attribute values from data that are imperfect in number and found at erratically set points is an essential procedure for more understanding in the natural fields geostatistical structure. Gundogdu, K. S., at. el. (2007).

A large amount of the annual precipitation (2500 mm) in Taiwan comes from convection rain, and typhoons. Due to the complex topography and the occurrence of Monsoons, the distribution of precipitation is not uniform in regard to either time or space. In general, the annual precipitation in the mountainous and eastern coastal areas is higher than that in the western coastal areas and plains. In the wet season the precipitation is concentrated, which accounts for 62% of the total precipitation in northern Taiwan. The wet season accounts for 70–80% of total precipitation in central Taiwan and over 90% in the south. Thus, the sequential and spatial distributions of precipitation are enormously uneven, making careful management of water resources in Taiwan crucial. Yeh, H at. el. (2014).

Regular annual ground water analysis is needed to examine the quality of water and a regular biological analysis to the ground water in Karbala city is necessary to determine the microbial pollution. It is very essential to propagate environment awareness in the community using different types of media. Ibrahim, S. A.R. and Al-Shammaa, A. M., (2012).

Groundwater in certain geological formations may not be of desired quality for potable utilization because of geochemical conditions. Arsenic contamination of groundwater in-viably arises from the natural environmental and geological conditions. Arsenic arises in many minerals and ores.
regularly present in combination with iron and manganese oxides; under various natural conditions it can be rendered soluble and released into the ground water. Ground water with high fluoride content is found frequently in calcium-deficient ground waters in many underground aquifers, such as granite and gneiss, in geothermal waters and in some sedimentary basins. Seventeen states in India have been identified the endemic to fluorosis due to abundance in natural occurring fluoride-bearing minerals. Rao, S. M. & Mamatha, P. (2004).

In the past decades the Exploitation of groundwater resources has increased, leading to the over-consumption of groundwater, which ultimately causes ecological problems such as decreased groundwater levels, water pollution, water exhaustion, and deterioration of water quality. Integration of remote sensing with GIS for preparing various thematic layers, such as lithology, lineament density, drainage density, rainfall, soil, slope, and land-use with assigned weight age in a spatial domain will support the identification of potential groundwater zones. Magesh, N.S., at.el. (2012).

The first step towards ensuring safe drinking water is to generate consistent and exact information about water quality. Numerous government institutions and departments are involved in water quality monitoring, leading to overlapping of functional areas and duplication of efforts. Have been discussed by Srikanth, R. (2009).

Due to the consequence of urbanization and industrialization the water can deteriorate. The ground and pond water frequently consists of ions such as Ca\(^{2+}\), Mg\(^{2+}\), Cl\(^{-}\), HCO\(_3\), K\(^{+}\), Na\(^{+}\) and SO\(_4\)^{2-}. Hence, the present work was carried out to estimate the water quality parameters of major open pond and groundwater of Tiruchirapalli. Have been given by Prasath, B. B., Nandkumar, at.el. (2013).
The present study disclosed that the evaluation of water quality decreases due to various factors. The quality of ground water in the Bhopal city is measured which is also main drinkable water resource in summer. In the Post-monsoon season the water quality found better in comparison the Pre-monsoon season, because of rains water level increases. Due to urbanization, industrialization and anthropogenic activities level of water pollution increased. Jinwal, A. and Dixit, S., (2008).

In most of the cases Changes in the physico-chemical properties of ground water were noticed. It is well known that occurrence of ground water and its accessibility is controlled by the nature of rock formation in which it occurs as well as geological structure etc. through the operation of the processes such as evaporation and transpiration, dissociation of minerals, oxidation, reduction and cationic exchange etc. The composition of ground water in a region can be changed. Jain, C., at.el., (2013).

The amount of oxygen required to chemically oxidize reduced minerals and organic matter is measure by Chemical Oxygen Demand. In general, the greater the Chemical Oxygen Demand value in water, the more oxygen the influent demands from the water body, thus resulting in depleted dissolved oxygen which is important to the metabolism of all aerobic aquatic organisms have been discussed by Kensa, V. M., (2012).

Magnesium and Calcium are essential contributors of hardness of water. The concentration of zinc and iron does not show any damage either to economy or health because they are present only in traces. Have been discussed by Nawaz, H., at.el.(1999).

In many areas of the world Agriculture is mostly affected by salts in soil and irrigation water in some cases so seriously that even the production of forage plants for grazing domestic livestock is not possible. The utilization of poor quality
water causes problems of permeability, salinity and phyto toxicity to common agricultural crops. High salt concentration in water and soil may choke the soil pores, seals and reduces water penetration and aeration which hamper root development. Water is the main contributing factor for life plus salinity development end at the same time salinity management. Khan, M.J., Khattak, R.A. and Daula, N., (1999).

When in the surface waters organic metals are added, the proliferation of oxygen consuming decomposers, mainly fungi and bacteria are encouraged. These both decomposers reduce the oxygen supply and consequently, members of aquatic communities especially shell fish and fish, become deprived of aquatic oxygen and consequently perish. In recent years, due to awareness about pollution, the programmes for the monitoring and abatement of river pollution including heavy metals pollution have been initiated. Mahmood, G., at.el., (2000).

For drinking water the bacteriological standards that coliform bacteria must not be present at levels indicating contamination of the water by sewage. Total plate counts of the water sometimes are made to indicate when trouble may be initial so that such trouble can be forestalled. Unfortunately, the river Nile in Egypt, receives heavy load of wastes and effluents particularly from developing industries and agriculture practices as well as domestic discharges. El-Fadaly, H., et al., (2000).

In regulating nutrient dynamics Phosphorus has an important role to the wetlands. enrichment of Nutrient results in biological changes in the wetlands. constant inflow of phosphorus in the wetland tends to interfere with the wetland ecosystem and brings changes in both species composition and productivity. Human activities bring large fluxes of phosphorus to the surface water as a result a low productive aquatic body environment slowly turns to an over-enriched hyper-productive condition over a period of time. Irfan, S. and Pasha, F., (2013).
The groundwater Suitability for irrigation and domestic purposes is determined by its geochemical constituents. Subsurface rock formations controls the soil composition and hence that of water and vegetation. Groundwater geochemistry explains the links between chemical composition of groundwater and the health of plants, animals and people. Have been discussed by Jeyaseelan, A., at. el., (2013).

The carbonate ions are present in the groundwater of the Nile Delta region in very little amounts (0-96ppm). These ions reduce or may be absent in the northern parts of the Delta. The range of bicarbonate contents between 0 and 738 ppm, and depending on the amount of CO₂ in water and following nearly the same trend as that of the carbonates. The of ground water pH values examined from Nile Delta region show an essential indicator of water quality this is controlled by the amount of dissolved CO₂, bicarbonate, carbonate, and salinity content. M.F.M.El Ghandour, at.el., (1985).

Estuaries comprise a major interface between land and the ocean and have been regarded as one of the most essential aquatic system. The progressing of big industries in Para-deep there is a danger to the health of the Mahanadi estuarine and coastal water environment. The sewage from industrial wastages and urban areas contributes a continuous source of pollutants, where as the surface runoff is a seasonal phenomenon largely affects by climate in the basin. The industrial inputs, agricultural runoff and urban inputs, play a crucial role in water quality, nutrient cycling, eutrophication, biota abundance and overall food web dynamics in estuarine and near shore ecosystems. Dixit, P. R., at.el., (2013).

A byproduct of life is Waste. Due to High standards of living and ever increasing population have resulted in an increase in the quantity of wastes generated. Municipal Solid Waste is generally a combination of domestic and commercial refuse which is generated from the living community. Among the large amount of
the environmental problem existing in the urbanizing cities of developing countries, Municipal Solid Waste management and its impact on groundwater quality have become the most prominent in the recent years. Rajkumar, N., Subramani, T. & Elango, L., (2010).

Most of the compounds contain air and water. Besides this, man needs water and air for external use and in industry. While the water is everywhere, the supply of water is limited. Water is cannot replace. Human needs are growing quickly and the need for water is also growing. No doubt rainfall is The main source of water supply. But the rainfall in India; mainly in Tamil Nadu is not uniform neither spatially nor temporally for water Human need can be classified as those of agricultural, domestic, and Industry. Sekar, A.P., at.el., (2010).

To study the aquifer response for given input output stress Groundwater modeling is an established tool. The findings, in turn, help evolve and select optimal groundwater management policy. In India the over pollution and over extraction are important component of the groundwater problem. in recent times Mass transport modeling helps to understand the migration behavior of pollutant in the saturated region. Mass transport results are in turn used to devise the corrective measures to clean the aquifer system. Rajamanickam, R. & Nagan, S. (2010).

In the recent years, because of changes in the climate and government regulation, the surface water available for irrigation and drinking is decreasing in Yinchuan area, and hence, groundwater is becoming more and more important for human and agriculture. Groundwater assessment for drinking and irrigation has become a important and essential task for present and future groundwater quality management. Yinchuan area is a traditional agricultural area with heavy population. Located in a semiarid area, groundwater has always been the key source for drinking and irrigation due to the lack of surface water. Therefore, the carrying out groundwater suitability assessment for agricultural, drinking and
domestic uses in Yinchuan area is practically important. Peiyue, Li, Qian, W., Jianhua, W., (2011).

The investigation of surface water quality is an important and sensitive issue. The anthropologicaleffects (i.e. industrial urban and agricultural activities) as well as the natural processes (i.e., changes in precipitation amount, erosion and weathering of crustal materials) degrade the surface water quality and spoil its use for drinking, industrial, agricultural, recreational and other purposes. Duetospatial and temporal variations in water chemistry, a monitoring program that provides a representative and reliable evaluation of the quality of surface waters has become an important necessity. Boyacioglu, H., at. el., (2005).

The natural state of ground water is usually of excellent quality although injurious concentrations of certain ions such as iron and sodium, which can occur naturally and lead to problems. Groundwater quality is the physical and chemical characterization of groundwater, which assess its suitability for human and animal utilization, irrigation and other purposes. Singh, V. & Khare, M.C., (2008).

West Bengal some probable human health risks related to the livestock and fresh water fisheries as these can be expose to arsenic via drinking water, pond water, and feeds. There are Thousands of people have already shown the symptoms of arsenic poisoning and several millions people are in danger of arsenic contamination from drinking tube well water. The sudden enhance in arsenic related diseases has panicked the local people. The Inorganic arsenic, accumulates in hair, nail skin, tongue, stomach wall, bone, mouth, and eye lenses. Ordinary noticeable symptoms are skin disorders such as hyper pigmentation or hyperkeratosis, and finally cancer. Arsenic is scattered in nature as compounds of iron, lead, copper, silver and gold or as a sulphide mineral. Arsenic can enter the environment either through natural or by human activities. Biswas, B., (2010).
From the Overall study of offshore Pondicherry it is observed that the concentrates of heavy metal is higher than the Veeranampatnam. There was a significant variation in the accumulation of heavy metals in water. The more concentration of metals in this region could be attributed to the heavy rainfall and later river runoff, bringing much industrial and land derived materials along with municipal, domestic and agricultural wastes, which include residues of heavy metals containing pesticides. Solai, A, Suresh, G. M, Sriram, (2010).

A record of fluoride concentration in drinking groundwater is important to curb increase of the disease fluorosis. This study was carried out to evaluate the quality of underground water of sixty one village panchayats in Ottapidaram block in the state of Tamilnadu, India. along with various chemical parameters in ground water samples The fluoride concentration was determined in these regions. Besides, an attempt has been made to statistically correlate to the concentrations of fluoride with the other measured parameters and the conditions affecting the ground water quality. Veeraputhiran.V, Alagumuthu.G, (2010).

In water Fluoride is an important element for human beings and its deficiency as well as high concentration both is harmful to human health. It is required for the protection against weakening of bones and dental caries. Groundwater in shallow aquifers that supply water to the dug wells in and around Dhampur, Bijnor district of Uttar Pradesh, has high concentrations of fluoride than those of bore wells from deep aquifers. Fluoride present in almost all natural water supplies. high concentrations of Fluorides are not a ordinary constituent of surface water, but they may occur in harmful concentrations in ground waters. Kumar,N., (2011).

In North China, due to the excessive exploitation of groundwater, surface water resource is the helpless choice for some cities such as Harbin, Tianjin etc. In current ten years, in North China the quality of surface water has become worse and worse due to the continuous anthropogenic activities. ZHAO, Z., CUI, F., (2009).
Assessment and mapping of quality of groundwater is an most important quantity, because the groundwater physical and chemical characteristics determine its suitability for agricultural, domestic and industrial usages have been given by the Swarna, L. P., Nageswara R. K, (2010).

With continuous withdrawal of groundwater at Panandhro Lignite Mining Region, the level of water has gone down. So groundwater conditions in this area are highly influenced by hydrogeology as well as human interference. As the area does not receive any important rainfall, and as the area contains formations which are not fine aquifers, ground water occurrences is rare. Singh, P. K., at.el., (2011).