based on hydro-chemical facies.Based on chemical analysis, the pre and post monsoon water samples were classified as per different standard irrigation criteria to study the chemical changes resulting due to rain and natural recharge. It indicates that Na-Ca-HCO_3 type water dominates during pre monsoon and Mg-HCO_3 during post monsoon seasons of the year 2011.

Chidanand Patil et.al [03] carried out Physical, chemical, bacteriological analysis of water samples from seven bore wells located around landfill site at Turmuri, Belgaum to ascertain the magnitude of dumpsite pollution on groundwater quality. During the study period,7 bore wells were selected around the landfill area at a distance of 500, 750 and 1000m.The parameters analyzed during the study period were pH, Total dissolved solids(TDS),Total Hardness, Nitrate, Most Probable Number (MPN) and heavy metal such as Lead using standard laboratory procedures. The pH ranged from 6.01 to 7.3 indicating acidic in nature in the month of Feb and March, but in the month of April and may all the wells within the levels.

The pHs of water in wells within 500-700m are contaminated by the leachate of landfill. Concentrations of Hardness, TDS, Nitrate ranged from 0 to 80 mg/L, 49 to 190 mg/L, 4 to 79.89 mg/L respectively. The analysis was done for four months from Feb to May. The results showed that within 500 m bore wells were contaminated by E-Coli bacteria, also nitrate concentration is above the permissible level described by WHO and Bureau of Indian Standards for drinking water and pH were acidic in nature. The polluted water requires certain levels of treatment before use. Public enlightenment on waste sorting, adoption of clean technology, using climate change mitigation strategies and the use of sanitary landfill to prevent further contamination of ground water flow are recommended.

Sarala C.et.al [04] studied the groundwater quality parameters in the surrounding wells of Jawaharnagar, in upper Musi catchment area of Ranga Reddy district in Andhra Pradesh. The bore wells data was collected from the study area for two seasons i.e., post monsoon in December 2007and pre monsoon in June 2008. The groundwater is acidic in nature and very hard. It is done by using Arc GIS software. The study reveals that the concentrations of major constituents are well within the permissible limits of IS-10500-1994, except in few cases where total hardness and fluoride concentrations are high. The fluoride conc. exceeded the permissible limit. From the analysis it was observed that the groundwater is polluted in the entire study area. During last few years, the utilization of surface and groundwater for drinking, industrial and agricultural purposes has increased manifolds but consequently it is observed that the water is polluted and affecting the human health, soil nutrients,livestock,biomass and environment in certain areas.

Priti Singh et.al [05] he assess and map the spatial distribution of ground water quality of the Dhankawadi ward,pune by using GIS.APHA's standard laboratory procedure has been adopted to assess the quality of ground water. The spatial distribution map of pH, Chlorides, Magnesium and Sulphate shows that, these parameters are within range as per standard.TDS and Nitrate concentrations in ground water of the study area exceed the permissible limit at central location at katraj dairy near katraj,Pune.

People can use the ground water for drinking and domestic purpose in study area except in upper katraj nagar, Pune. Priyanka Pandey et.al [06] he analysis the physiochemical properties of ground water near munciple solid waste dumping sites in Jabalpur. All the samples were collected from bore well and hand pump near the MSW dumping sites and stored at 4^0C. The temp. of ground water sample ranged from 25.11 to 27.31^0C.The study is carried out on parameters which are selected for testing are pH,TSS,TDS,COD,Nitrate,Cl,PO_4^-,F^-etc.The parameters for both type water are within permissible limit for the use except TDS,TSS,TS.

Adetunde L.A.et.al [07] have studied the area and investigated Physicochemical and bacteriological qualities of well water in the Ogbomoso North areas and South local government areas of Oyo State, Nigeria. Water samples were collected from 20 hand dug wells in the Ogbomoso North and 20 hand-dug wells in the Ogbomoso South local areas. The results showed that most of the physical and chemical parameters were within the acceptable guide line limits of the WHO for drinking and domestic water. The well water is mostly soft, alkalinity ranged from 30- 390mg/l and 40- 236mg/l for North and South respectively. pH ranged between 6.2-8.8 in both areas, SO_4^{2-} and CL^- ions concentrations fell within WHO set standards. Hardness ranged between 40- 504mg/l and 60 to 384mg/l for North and South areas respectively. Well water in some areas is moderately hard to very hard. Such microbial contamination posed a threat to well water quality and could lead to an increase risk level of outbreak of water borne diseases in the two local government areas of Oyo State.

Shimaa M. Ghoraba et.al [08] collected 120 ground water samples from 29 Districts of Balochistan,Pakistan. The various parameters are selected for the testing of samples. All samples were analyzed for pH, Calcium, Carbonate, Magnesium, Sodium, Potassium, Chlorides, Sulphate and Nitrate, TDS and bicarbonate. The results revealed highly variable hydrochemistry. The chloride is found to be most predominating. The groundwater in Balochistan has high concentrations of fluoride, iron and nitrate in many districts. The pH part of the Durov diagram reveals that groundwater in study area is alkaline and electrical conductivity of most of samples lies in the range of drinking water standards adapted in Pakistan. From the SAR and conductivity plot it was found that most of groundwater cannot be used on soil without restricted drainage and special requirement of Management for salinity control.Comparision of data with WHO(2011) standards for drinking water indicate that the groundwater in the most of study area are suitable for drinking purpose except some few places. The groundwater recorded a wide range in TDS.

M.R.G. Sayyed et.al [09] assessed the groundwater from the south-eastern part of Pune city for the seasonal variation in their quality parameters. Using Piper diagram the hydrogeochemical facies were identified and the groundwaters were classified with regards to the changes in

their major chemical compositions. Based on the hydrogeochemical facies it has been found that the groundwater regime is severly deteriorated by the anthropogenic activities. The predominant SO_4 and Cl in the wells of Fursungi and Mantarwadi areas have strong influence of leachate throughout the year due to solid waste disposal site.

K.C.Khare et.al [10] he was done water quality assessment of Katraj lake, pune. He was done water analysis for the parameters like pH, DO, BOD, COD, TDS, Calcium, Magnesium and Hardness for lake water. The analysis of Water quality indicates the temperature in the range of $24^0_{C.}$The pH was 7.3 to 8.45.It shows slightly alkaline water. The DO varied from 4.8 to 5.7 mg/l.The total hardness ranged from 160 to 298 mg/l which is higher than permissible limit. The turbidity of water was 28 to 42 NTU which is higher as per the APHA limit.

Mona A. Hagras et.al [11] to assess the quality of groundwater and to characterize the hydrochemical characteristics of the groundwater in Punjab, groundwater samples were collected from different cities of Punjab Province and analyzed for 28 water quality parameters Groundwater suitability for domestic and irrigation purposes was assessed by using WHO and USDA standards.SAR values and the sodium percentage (Na%) in locations indicate that majority of the groundwater samples are suitable for irrigation. This investigational study indicates that water in many cities of Pakistan is unsafe for human consumption due to presence of both bacterial and chemical contamination.

3. Assessment of Water Quality

In now days due to increase in population, industrialization, agricultural activities and urbanization, large quantities of sewage and industrial wastewater are discharged into water bodies has significantly contributed to the pollution of the surface and ground water. The objective of the present study was to assess water quality of various ground water sources in India for drinking and agriculture. For the assessment of water pollution status of the water bodies, the following water quality parameters were analyzed: (1) pH (2) Conductivity (3) Temperature (4) Total dissolved solid (TDS) (6) Total Alkalinity (7) Hardness (8) Cations and Anions (9)Carbonates and Bicarbonates. (10) Sulphates.

Measurement of pH:
The pH is important parameter of water, which determines the suitability of water for various purposes such as drinking, bathing, cooking, washing and agriculture etc. The pH level of water having desirable limit is 6.5 to 8.5 as specified by the BIS. Pure water is said to be neutral, with a pH of 7. Water with a pH below 7.0 is considered acidic while water with pH greater than 7.0 is considered as basic or alkaline.

Measurement of Conductivity:
Electrical conductivity is the capacity of electrical current that passes through the water. It is directly related to concentration of ionized substances in water and may also be related to problems of excessive hardness. According to BIS and ICMR the desirable limit of Conductivity is 600 µm/cm. Solutions of most inorganic acids, bases, and salts are relatively good conductors. In contrast, the conductivity of distilled water is less than 1 µmhos/cm.

Measurement of Alkalinity:
The standard desirable limit of alkalinity of potable water is 120 mg/l. The maximum Permissible level is 600 mg/l. Excessive alkalinity may cause eye irritation in human and chlorosis in plants (Sisodia and Moundiotiya, 2006). It is measured by titration with standardized acid to a pH value of 4.5 and is expressed commonly as milligrams per liter as calcium carbonate.

Measurement of TDS:
TDS in groundwater can also be due to natural sources such as sewage, urban runoff and industrial waste (Joseph, 2001; Swarna Latha, 2008). According to BIS and ICMR the desirable limit of TDS is 500 mg/l. If TDS value is more than 500 mg/l, it may cause gastro intestinal irritation. High TDS presence in the water decreases the quality and affects the taste of water (Guru Prasad, 2005).

Measurement of Hardness:
The limit of total hardness value for drinking water is to be within 300 mg/l of CaCO3.Higher concentration of hardness was found may be due to natural accumulation of salt, or surface runoff, water enter from direct pollution by human activities.

Measurement of Chloride:
Chloride is one of the most important parameter in assessing the water quality and higher concentration of chloride indicates higher degree of organic pollution (Yogendra and Puttaiah, 2008). According to BIS and ICMR the permissible limit of chloride in drinking water is 250 mg/l. High concentration of chloride was observed may be due to natural processes such as the passage of water through natural salt formations in the earth or it may be an indication of pollution from industrial or domestic use (Renn, 1970). In drinking water, high chloride content may lead to laxative effects (Raviprakash and Rao, 1989; Dahiya and Kaur, 1999).

Measurement of Turbidity:
Nephelometer instrument measures the intensity of scattered light by turbid particles at right angle to the incident beam of light in comparison with the intensity of light passing through the sample. Scattering of light is a function of Tyndall effect exhibited by colloidal suspended particles. Turbidity of samples is measured by Nephelometer based on this principle. The maximum Permissible level is 5 NTU.

Measurement of Temperature:
The temperature is measured with help of Digital Thermometer. The thermometer is immersed in sample and temperature is recorded.

Physicochemical Characteristics of Water in India

Sr. No.	*Parameter*	*BIS Specification*
1	pH	6.5 – 8.5
2	Conductivity	600 Ms/cm
3	Alkalinity	200 Mg/l
4	TDS	500 Mg/l
5	Hardness	300 Mg/l
6	Chlorides	250 Mg/l
7	Turbidity	5 NTU
8	Temprature	23^0C
9	Ca	75 Mg/l
10	Mg	30 Mg/l
11	Na	200 Mg/l
12	K	200 Mg/l
13	Carbonates and bicarbonates	-
14	Sulphate	150 mg/l

4. Concluding Remark

1) Total Hardness was observed some evidence indicates its role in heart diseases and hardness of 150-300 mg/l and above may cause kidney problems and kidney stone formation, as it causes unpleasant taste and reduce ability of soap to produce lather. Hard water is unsuitable for domestic use.
2) The suggested measures to improve the ground water quality includes total ban on the activities that causes pollution, avoid use of pesticides and prevent entrance of sewage in to ground water.
3) Water quality assessment shows that the most of the water quality parameters slightly higher in the wet season than in the dry season.
4) Water quality is dependent on the type of the pollutant added and the nature of self purification of water.

References

[1] C.Sadashivaia1,C.R.Ramakrishnaiah and G. Ranganna, "Hydrochemical Analysis and Evaluation of Groundwater Quality in TumkurTaluk, Karnataka State, India, International Journal ofEnvironmental Research and Public Health, 2008, 5(3) 158-164.
[2] Adetunde L.A, Glover R.L.K &Oguntola G.O, "assessment of the ground water quality in ogbomoso township of oyo state of nigeria", IJRRAS8 (1) july 2011, 115-122.
[3] Shimaa M. Ghoraba&A.D.Khan, " hydrochemistry and groundwater quality assessment in balochistan province, Pakistan", IJRRAS 17 (2) November 2013, 185-199
[4] M. R. G. Sayyed1, G. S. Wagh2, A. Supekar3, "Assessment of impact on the groundwater quality due to urbanization by hydrogeochemicalfacies analysis in SE part of Pune city, India", Proceedings of the International Academy of Ecology and Environmental Sciences, 2013, 3(2): 148-15.
[5] Dinesh kumar tank and c. p. Singh chandel, "Analysis of the major ion constituents in groundwater of Jaipur city", Nature and Science, 2010;8(10), 1-7
[6] VikasTomar, Kamra S.K, Kumar S, Kumar Ajay and Vishal Khajuria, "Hydro-chemical analysis and evaluation of groundwater quality for irrigation in Karnal district ofHaryana state, India", International Journal of Environmental Sciences, Volume 3, No 2, 2012, pp.756-766.
[7] Mona A. Hagras Assistant Professor, Irrigation &Hydraulics Department, Faculty of Engineering, Ain Shams University, Cairo, Egypt
[8] S. Prabaharan, R. Manonmani, M. Ramalingam and T. Subramani, "Groundwater Contamination due to Municipal Solid Waste Disposal in Salem City using GIS", International Journal of Earth Science and Engineering, Volume 05, No. 04, pp- 696-702.
[9] E.O. Longe and M.R. Balogun, "Groundwater Quality Assessment near a Municipal Landfill, Lagos, Nigeria", Research Journal of Applied Sciences, Engineering and Technology , Vol2(1), 2010, pp.39-44.
[10] ManeT.T.andHinganeHemalataN."Existing Situation of Solid Waste Management in Pune City, India", Research Journal of Recent Sciences , Vol. 1, 2012, pp.348-351
[11] S.S. Castaneda , R.J. Sucgang , R.V. Almoneda , N.D.S. Mendoza and C.P.C. David, "Environmental isotopes and major ions for tracing leachate contamination from a municipal landfill in Metro Manila, Philippines", Journal of Environmental Radioactivity 110 (2012), pp.30-37.
[12] GunjanBhalla, Swamee, P.K, Arvind Kumar, Ajay Bansal , "Assessment of groundwater quality near municipal solid waste landfill byan Aggregate Index Method", International Journal of Environmental Sciences Volume 2, No 2, 2012, pp. 1492- 1503.
[13] P.I. Agber, A. Ali and N. A. Tsaku, "Assessment of Ground Water Quality, Soil Propertiesand Nutrient Content of Soil in Areas Close to MunicipalRefuse Dump Sites in Makurdi, Nigeria", J. Biol. Chem. Research. Vol. 30, No. 1, 2013, pp.88-97.
[14] Sarala C, Ravi Babu P, " Assessment of Groundwater Quality Parameters in and around Jawaharnagar, Hyderabad, International Journal of Scientific and Research Publications, Volume 2, Issue 10, 2012, pp.1-6.
[15] N Shaheda Niloufer, A.V. V. S. Swamy and M K. Syamala Devi, "Impact of Municipal Solid Waste on the Ground Water Quality in Vijayawada City, Andhra Pradesh", Indian Journal of Applied research, Volume 3, April 2013, pp.62-642.
[16] Chidanand Patil, Shreekant Narayanakar and ArjunVirupakshi, "Assessment of Groundwater Quality Around Solid Waste Landfill Area - A Case Study, International Journal of Innovative Research in Science, Engineering and Technology, Vol. 2, Issue 7, July 2013, pp. 3131-3136.
[17] Mohammed Saidu, "Effect of refuse dumps on ground water quality", Advances in Applied Science Research, 2011, Vol.2 (6) pp.595-599.
[18] AderemiAdeolu O., Oriaku Ada V. AdewumiGbenga A. and Otitoloju Adebayo A,"Assessment of groundwater contamination by leachate near a municipal solid waste landfill",African Journal of Environmental Science and Technology Vol. 5(11), November 2011, pp. 933-940.
[19] N.Rajkumar,T.Subramani, L.Elango, "Groundwater Contamination Due to Municipal Solid Waste Disposal

– A GIS Based Study in Erode City, International Journal of Environmental Sciences Volume 1, No1,2010, pp. 39-55.

[20] Butt, Ibtisam and Ghaffar, Abdul, "Ground water quality assessment near MehmoodBotilandfill, Lahore, Pakistan,"