Water Quality Parameter: A Review Article

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Abstract - Enviorment is the surrounding of system. All kind of life exist in the environment. The earth is the main part of the solar system .The earth is made of Atmosphere, Hydrosphere and Lithosphere. Atmosphere is consist of different kinds of gaseous, hydrosphere is made by only water present as sea and ocean, while lithosphere is related with soil. Earth ecosystem is balance for surviving from micro-organism to human being , flora and fauna. Since 20th century owing to various revolution such as green, industrial, agriculture etc. the component of earth planets are gradually losing its own nature resulting introduction of undesirable materials in all parts of the ecosystem and the quality of water, air and soil becoming detracted. Several works have done in world to moniter the pollution state of water source. In our present work we include 50 papers , published in that field. Various parameters are taken for measuring the pollution levels. Heavy metals were also detected in some river water. Some methods are also applying for the removal of heavy metals.

Keywords- water pollution, parameters,heavy metals,water quality parameters.

I. INTRODUCTION

Water is one of the most common and precious natural and basic component. It makes our planet unique in the solar system. Physically water is found in three state Solid (ice), liquid and gas (vapor) and broad the temperature ranges from 0 c to 100 c. The distribution of water in earth planet is 97.2% salty and 2.8% water is in fresh form. Fresh water is deposited on 79% ice cops and Glacier 20% GW, and only 1% is surface fresh water. Ground water is very safe and purest form of all types of water. Natural water contains number of impurities in the large amount when falling on the earth.When this water moves on the ground further it carries salts, organic impurities, sewage and industrial effluents, which are causing of water pollution.

II. REVIEW WORK

Yanhung Wu et al[1] (2019)1 has been designed a Ph – responsive , charge switchable piperazine derivative, 1,4- bis (3-propane-sulphonate sodium)-piperazinediethanesulfonic acid disodium –sulphate (4), via a stepwise synthesis and proposed as a draw solute to remove Arsenic (AsIII, AsV) from water through forward osmosis(FO).

Bruce Petric et al[2] (2014) had worked on ecological impact of contamination to biota within the environment, non regulated trace organic ECS including pharmecutical , illicit drugs and personal care products are focused on due to ongoing policy initiative and the expectant brooding of environmental legislation.sound knowledge of their [EC] fate during wastewater treatment and within the environment is currently lacking.

L. Ferenge et al[3] had worked on water quality evaluation , they studied the effect of pesticide on the water quality parameters.

M Pantelic et al[4] had studied on water quality parameter of Veliki Backi Canal.

Monisha et al[5] had worked on toxic effect of heavy metal. MMA (III) is not excreted and remains inside the cell as an intermediate product.

Sing et al[6] at 2007 found that MMMA (III) is highly toxic compared to other argenicals –induced carcinogenesis.

Brochin R[7] (2008) had studied the effect of increased lead level in the blood.

S. Khan et al[8] (2007) had collected the soil sample irrigated from contaminated water and found that both the children and adults consuming food crops grown in wastewater irrigated soils ingest significant amount of the metal studied. However health risk index value of less than 1 indicate a relative absence of health risks associated with the ingestion of contaminated vegetables.

Zhiyuan Li et al[9] (2014) had review the available data in the literature (2005-2012), they review the heavy metal pollution in china. Health risk assessment had been made the methods by US Environmental Pollution Agency(USEPA). The result tells the risk factor(carcinogenic and non-carcinogenic) in the mining area.

Shazad M. A. Basra [10] (2014) had investigated that Moring seed aqueous extract (SAE) was more effective than SP or their combination to decrease Lead (pb) and Cromium load from sewage water.

Sulivan Jauanneaw et al [11](2019) had worked on BOD5 assessment method requiring only 3 hours(5 days with refrence method). Approach based on 8 bacterial strains coupled with a processing by neural network.

N. Rahmanian et al[12] analysed the drinking water quality parameter from the different part of Perak State, the value of various parameters werw in the permecible limit according to WHO and ND WQS.6according to UNISAFE report published in 2013, around 6-8 million people die each year due to water related diseases.

A Azrina et al[13] in 2011 point out that the inorganic chemicals has greater portion of chemical contamination in comparison to organic chemical.

Jakir Hussain et al[14] in 2017 had worked on Godavari river and found that iron and zink metal were found to be the most abuncent metal in the Godavari river, Fe recorded the highest , while Cd had the least concentration.

J A bah et al[15] at 2013 found that heavy metal are persistent and enter to yhe food chain and accumulate until the food chain.

Xiaolei Qu et al[16] worked on the use of nanotechnology in water and waste water treatment. Challenges includes technical hurdles , high cost and environment and health risk.

Hans A Blom et al[17] in 1996 analyse key water quality parameter in the sewage treatment plant, this paper concentration on finding an indirect model for total phosphorus content.(1996)

Vaishnav, M. M. and Dewangan, S. [18] have studied physic-chemical and metallic elements of ground water and surface water in Balco Indusrial Area, Korba (C.G.). Vaishnav,

M. M. and Sahu, Anita [19] have studied fluoride content in GW in Korba, Balco region. Janjala, R. et al. [20] detected heavy metals in SW aquatic system in pre-monsoon season of Korba district.

Dewangan, S. et al [21] also studied the physic- chemical parameters and heavy metals in different water bodies of Balco area, Korba. Vaishnav,

M. M. and Dewangan, S. [22] describe assessment of water quality status in reference to statistical parameters in different aquifers of Balco Industrial Area. Vaishnav, M.M. and Dewangan, S. [23] was taken analytical study of Balco Industrial area.Vaishnav

M. M. and Dewangan, S. [24] were systematic study of surface and sub surface water of Balco industrial area. Janjala, R. and Vaishnav, M. M.[25] have been study the physic- chemical monitoring and statistical evaluation of surface water in korba district (C. G.) India.

Vaishnav, M.M. and Janjala, R .[26] were analysed the physic- chemical and trace metal analysis of surface water in Korba district (C.G.) India. Vaishnav, M.M. and Dewangan, S. [27] have studied the impact of Balco industrial wastes on surface and ground water quality of Korba India. Dewangan,

S. and Vaishanv, M. M. et al [28] were assessment of water quality status of Industrial areas in Bilaspur district (C. G.).

Tong Z. have studied the molecular weight distribution in Ganjiang River1,Zhu C. and Hao W. have studied the grey differential model of river water pollution and its application, Zhang Y. and Zhu C.have studied the water quality analysis in Jining city using clustering method, Rishang L., Baohui M., Yaewei Z., Anze W., Sha H. , Shuaijin W. [15] have studied the bioremediation of metal pollution of water and soil environment in Yongding River

Gupta, M. D. et al [30]. have investigated the status of surface and ground water quality of Mandiakudar.

Singh, N. K. et al.[31] have studied some physiochemical parameters of drinking water of Bhitarwar town, Gwaliar. Raju, G. S. and Reddy, Y. Venketswami et al .[32] have studied ground water quality of Kunderu River basin, Andhra Pradesh. Boarh, M. and Mishra, A. K. [33] have studied the seasonal distribution of trace metals in ground and surface water of Golaghat district (Aasam).   Collins[34] while working on temperature of water available for industrial use in the US reported that temperature of ground water occurring at a depth of 10 to 20 meter is always higher by 1c to 2c than the local annual air temperature, Yung, et al [35] ana lysed the monthly physic-chemical and biological data of water samples collected from 18 marine monitoring stations in Victoria Harber and its vicinity in Hongkong from 1988 to 1996. Resulte show that Victoria Harber shows high level of total nitrate nitrogen , B. O. D. , and Chlorophyl, Chacko and Ganpathi [36] studied the hydro biological condition of Adyar river and found pH varing from 8 to 8.6 and dissolved o2 from nil to 6.02 ppm Chloride was recorded in the range of 40 to 280 mg/Lit. while no nitrate was found, Pandey et al[37] studied the physic-chemical characteristics of Ganga river sediments to Unhao (Shuklanj) and Kanpur(Jajmua) India. The result indicats that the discharge of pollutants into the Ganga river affects the Physico- chemical properties of the sediments.

Anil Pratap Singh[38] and coworkers studied the physic-chemical parameters of river Ami, they found that the river is extremely polluted and due to the discharge of paper mill the BOD,COD, DO, nitrogen content and chlorin, hardness sulphate were altered due to the organic and inorganic effluents of paper mill, so the river water is unsuitable for agricultural use, animal and human consumption, therefore a suitable water treatment is urgent.

Panda R B et al [39]were reported 2.20 mg/L and 0.70 mg/L at highest and lowest level of iron in Brahmani river (Orissa) during March 1986 to February 1988.

Bhosle A. B. et al [40] were found that the highest concentration level of iron in river Godavary in the month of October and November 2005 i.e. 5.63 mg/L and lowest 1.30mg/L in the month of June 2006.

When naturally existing dynamic equilibrium is changed due to any factor it give rise the change in natural state of water , that is called water pollution. [41]

Sudhakar G et al [42] in 1993 were analysed the high level of iron content in Godavari river water due to the effluents of industrial waste inclusion in Godavari river.

Padmanabha B. et al [43] were found thath the WQI of Kabini river is 58.6(up stream), 67.92 (Kallahally) and 69.93 (down stream), which indicate that pollution load was increased as river flows. The pollution is due to agricultural runn-off and industrial waste. So to conserve the natural water source and biodiversity is essential.

The analytical methods used for the determination water quality parameters are described by Trivedi and Goel(a), APHA(b) and Kodarkar et al.(c).

The most important water quality indices used for the assessment of water source qualities are as : Water Quality Index (WQI), Water pollution index (WPI) and river habitat survey (RHS). D, e.

The water quality indices was first time in 1987. (f.g). mostaly WQI used to describe the quality of surface water.data from the multiple parameter incorporated into mathematical formula, with the number from 1 to 100, and separted into five class according to different class.

N Farah[44] and coworkers in 2002 worked on Faisalabad city , they found that due to   uncontrolled population growth, industrial development and facecal pollution of drinking are causing public health hazards like water born diseases due to careless disposal of sewage water.

Padmanabha B. [45] et al had worked on Kabini river water , they found that WQI for river water (upstream, Kallahally and downstream) rwere 58.6, 67.82, 69.63 respectevely. This clearly indicate that , with river flows the pollution load was increased.

Arjun B. Bhosley et al [46] , worked on Godavary river, they observe the highest   and lowest consentration of iron was 5.63 mg/L and 1.30 mg/L respectively.

Singh A. P. et al [47], had analysed the physic-chemical parameter of Ami river , they found that the physic- chemical parameter were changed due to paper mill effluents.

Ram P. et al [48] had studied the concentration level of heavy metals in Ganga river water and its sediment, they find that due to the alkaline nature of river water , these were detected in sediment of river.

Ashraf Muhamed et al [49] had worked on periyar river water, the result was that the river water should used for drinking water for Cochin City after water quality management.

Muruganesan A.G. et al [50] had worked on Chittar water at Coutallam , and were found that physic-chemical parameter of river water were within the limit. However , the total and faecal coiliform exceede the permissible limits, indicating a poor status of the river.

III. CONCLUSION

Now a days water pollution becomes global challenge. The water of entire world is polluted due to anthropogenic activities. It is a serious problem for us. The study shows that the river water of different parts of the world are highly polluted, the situation is alarming for us. The water quality parameters of several rivers in various country are highly vary from the permissible limit. The government of various countries takes several steps for reducing pollution, but it is the duty of common person to do not pollute the water sources.

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