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Effect of Industrial Effluent on Groundwater: A Case Study of Kala Nala, Ichalkaranji, Kolhapur, Maharashtra, India

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Abstract: ***Water is the basic and most important necessity of lively-hood. Everyone knows how precious the water is! Whenever there is no water to our taps, we become helpless. No life can exist without water. Water is as essential as an air. It has been estimated that two third of human body is constituted of water. Water is essential for not only survival of human beings but also for animals, plants and other forms all living beings. Seventy percent of all the available water in India is polluted. About 73 million workdays are lost due to water related diseases.***

Therefore, the evaluation of water quality of the rivers, groundwater and impact of polluted groundwater on environment and health has drawn attention of the researchers. The present study is also an attempt on the pollution level of Kala Nala basin and its effect on groundwater and vicinity area. Total thirteen groundwater samples were collected from different locations within 6 km stretch of Kala Nala and its adjoining areas. The samples of the different points were collected from surface water, dug wells and borewells, the water from which is used for drinking and other purpose. The study reveals that, the effect of industrial effluents on groundwater around in Kala Nala basin.

Keywords: Groundwater quality, Health, Social Awareness.

I. INTRODUCTION

Groundwater is one of the prime sources of fresh water. Water is used to fulfil many different needs and perform many different functions. These uses can be divided into three broad categories; water for life, water for citizens and water for development. Water for life is usually given the highest priority as it concerns the provision of water for the survival of human beings and other living beings a well. Water for citizens concerns the provision of water for public health and for public institutions, and is related to the social rights of the individual and community. This function takes in to account the interest of the society. Water for development is an economic function and is related to production activities such as irrigation, industry etc. However, development consumes the largest quantity of water from surface and groundwater resources. Due to industrial effluents groundwater continuously degraded and it affects on health of all living things.

II. STUDY AREA

The study area is bounded between latitude16.69 N to 16.67 N and 16.66 N to 16.76 N, longitude74.46 E to 74.49 E and 74.47 E to 74.48 E, in Survey of India Toposheet numbers47 L/6, on scale 1:50000. The area is covered by Deccan trap of Upper Cretaceous to Lower Eocene in age. The main source of water for drinking, irrigation and industrial purposes is from dug wells, bore wells and surface water.

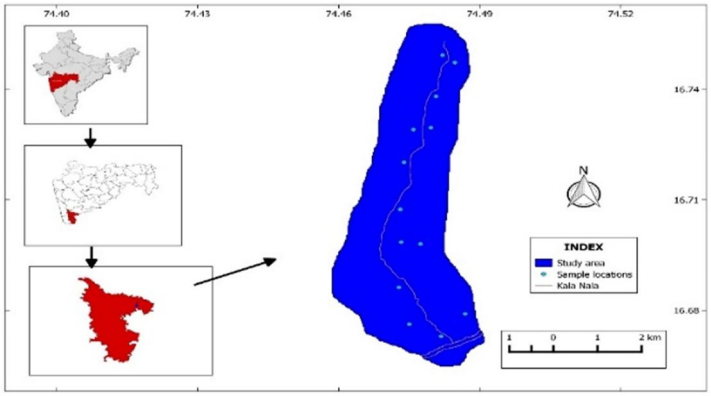

Fig.1: Study Area with sample locations

III.FIELD WORK AROUND KALA NALA

After visited area of Kala Nala basin, we observe the groundwater contamination due to industrial effluents, health of crop is seriously affected, the disease like cholera, typhoid, dysentery, infectious, hepatitis are some of water born disease observed in nearby areas. Also plastic wastes are present in this water. Without further treatment the groundwater directly meets the river.

a b

Fig.2 a and b Groundwater contamination due industrial effluents

IV.REMEDIAL MEASURES

A. Need to treat wastewater from Ichalkaranji before it enters into the nallas and ultimately the rivers.

B. All industrial processes are not connected to the CETP. The processes/plants that are connected are not discharging 100% of their wastewater to CETP due to the costs involved.

C. Need to take measures towards water quality monitoring and restoration of Kala Nala.

D. Awareness programmes and street shows for water supply, wastewater management and water storage through involvement of youth, schools, NGO's and institutes are needed.

E. Eutrophication and Need to promote conservation, recycling and reuse of water in industries to reduce industrial water demand, especially during summers.

a b

c d

Fig.3. (a, b, c, d) Sewage treatment plant and Kala Nala

V. CONCLUSIONS

On the basis of field observations, we conclude that, the groundwater is highly contaminated. The major contribution is from industrial effluents. Due to this soil effloresces has occurred and hence crop health as well as human health become affected.

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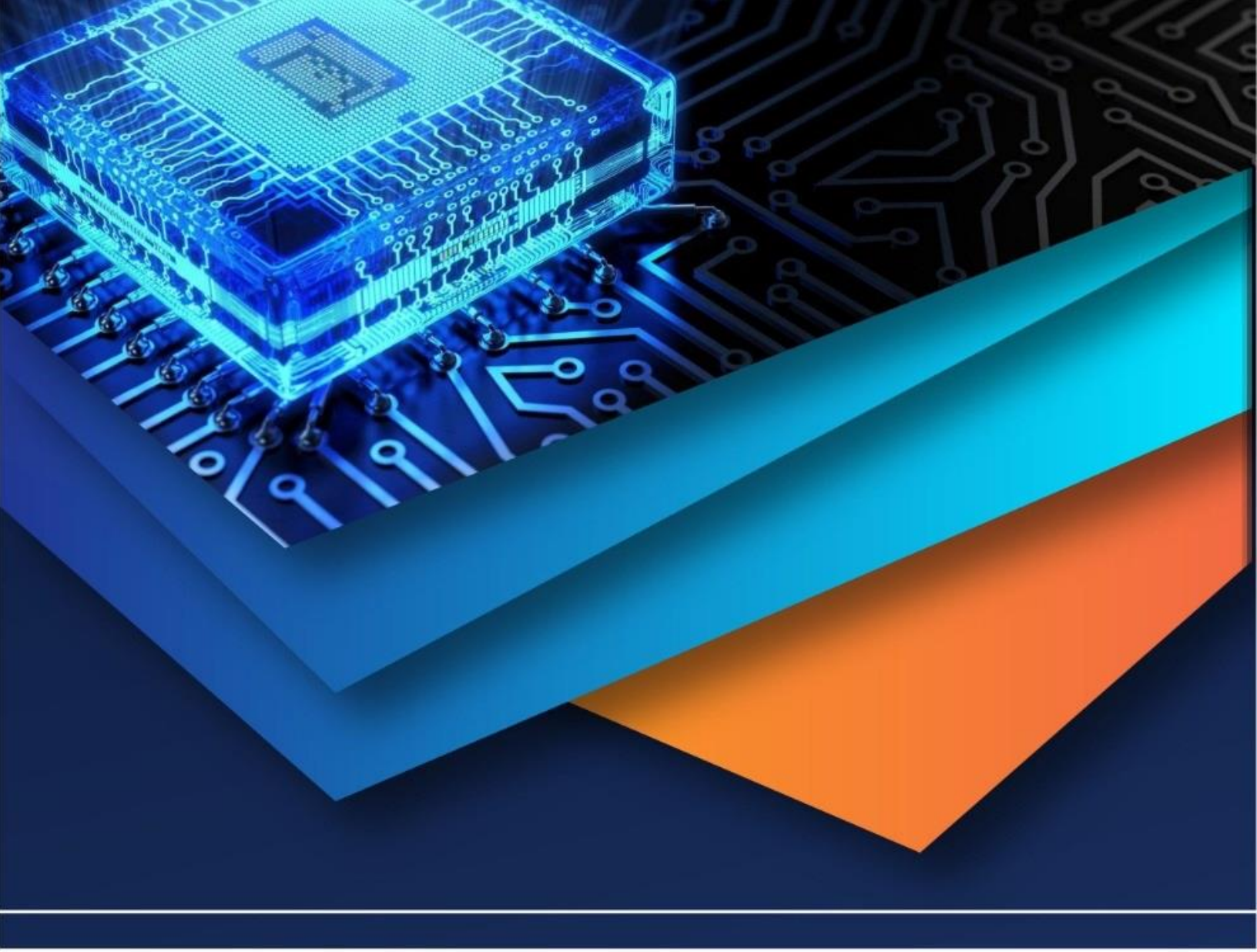
REFERENCES

[1] Aradhi K. Krishna, 2009. Assessment of heavy metal pollution in water using multivariate statistical technique in an industrial area of Patancheru , Medak District, Andhra Pradesh, India. Journal of hazardous materials 167 (2009) 366-373.
[2] G.S Gill and Harish Arora 2010. Determinants for contamination risk zonings of groundwater – a case study of an industrial town of Punjab. Water availability and management in Punjab 1-24
[3] T. Rajaram, Ashutosh Das 2008. water pollution by industrial effluents in India: Discharge scenario and case for participatory ecosystem specific local regulation. Futures 40 (2008) 56-59.
[4] Kaushik. A, Sharma H.R, Jain. S, Dawra. J, Kaushik. C.P, (2010), Pesticide pollution of River Ghaggar in Haryana, India, Springe
[5] Ahemd,S.S.,Muzumdar,Q.H., Jahan, C. S., Ahmed, M. andIslam,S.(2002):Hydro-chemistryand classification of groundwater, Rajshani city corporation area, Bangladesh, Jr.Geol. Soc.,India, Vol.60(10),pp.441-418.
[6] APHA, AWWA, WPCFC (1992): Standard methods for the estimation of water and waste water (19THEdn),
[7] Washingaton. D. C., pp. 6-187.
[8] Gibbs, R. J. , (1970): Mechanisms controlling World's Water Chemistry, Science, Vol. 170, pp. 1088 – 1090.
[9] ISI, Indian Standards Institution, (1983): Indian Standards Specifications for Drinking water, Pub. No. IS10500-1983, Indian Standard Institution, New Delhi. [5] Karanth K. R. (1987): Groundwater assessment, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 720p.
[10] Panaskar, D. B., Yedekar, D.B. and Deshpande, S.M. (2007): Assessment of groundwater quality of Nanded City, Maharashtra, Gondwana Geological Magazine Special Vol. No. 11, pp. 77-86.
[11] Pawar, N. J. (1993): Geochemistry of carbonate precipitation from the groundwater in the basaltic aquifers: An equilibrium thermodynamic approach, Jr. Geol. Soc. , India, Vol. 41, pp. 119 – 131.



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