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A River Health Index: River Narmada Part-3

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Abstract: ***The Motto of A River Health Index is with consideration of Original condition of river we trying to understand the changes in the health of the river.Intense of this research paper is to make available actual facts about Health of Narmada River and aware public, social groups, NGO's, Government officials, state and centre government Leadership about sensitive issues about.***
This is the first step towards checking the health of river Narmada. For this activity, from starting point to end point of River Narmada on every 100Km of distance, three times in a year water and soil samples taken and laboratory testing on that samples done.
Keywords: River Health Index, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), PH, Total Hardness

I. INTRODUCTION

Water quality analysis is one of the most important aspects in surface water studies. Water quality is a critical factor for assessing the pollution level. Water sample were collected from different sampling stations for evaluate the water quality status of river Narmada.
Water is an elixir of life. It is precious natural resource and important component for human survival. It's found abundant amount on the earth. Out of the total water reserves of the world, about 97% is salty water (marine) and only 3% is fresh water. Even this small fraction of fresh water is not available to us as most of it is locked up in polar ice caps and just 0.003% is readily available to us in the form of groundwater and surface water. Due to its unique properties water is the multiple uses of all living organisms. Water is absolutely essential for life. Most of the life processes take place in water contained in the body. Human beings depend on water for almost every development activity.
Water is used for drinking, irrigation, and transportation, washing and waste disposal for industries and used as a coolant for thermal power plants. Water shapes the earth's surface and regulates our climate. With increasing human population and rapid development, the world water withdrawal demands have increased many folds and a large proportion of the water withdrawal is polluted due to atmospheric activities. Rivers are the most important water resources. It has long been used for discharging the wastes. Unfortunately the rivers are being
Polluted by indiscriminate disposal of sewage and industrial wastes and by human activities
Pollution of the river first affects its physic-chemical quality and hence systematically destroys the community disrupting the delicate food web. "The objective of the present study is to assess the water quality of river Narmada and also assess the condition of river Narmada in upper, middle and lower Narmada basin."

A. River Heath Index

River is Living Organism on earth, it breath, it get hungry and thirsty, its heath also good or bad. It's also suffering from dieses due to human behaviours. If no one care for than it may be threat that it will be suffer from severe dieses and it may death due to. So, like every human, health check up of all rivers also needs to be done.

II. LITERATURE SURVEY

Jha (2009) [1]. Studied physical, chemical and biological characteristics of surface water in and around Jabalpur city, M.P. to evaluate the suitability of water for irrigation and domestic uses. Samples of water were collected from various localities such as Narmada and Pariyat water supply system, various Ghats of Narmada River, various tals and tanks, main drains of the city such as Omti nala and Moti nala and were analyzed for pH, electrical conductivity, temperature, dissolved oxygen, five days Biological oxygen demand, fecal coliform, turbidity, total solids, nitrates and phosphates. Water quality indices "WQI" developed in 1970 by the U.S. National sanitation foundation were calculated for these water samples. The results conclude that the water quality of water supply systems, various ghats of Narmada River is of medium quality and can be used for domestic use after suitable treatment. The

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water quality of various tanks and drains falls in the range of bad quality waters by index rating and can be used for irrigational purposes. This study is helpful to environmental planning and pollution control measures applicable to the area.

Gadekar (2012) [2]. Observed that the water quality of river is deteriorated due to domestic, industrial effluents direct discharge in to river and various human activities along the banks of the river. Instead of analysing the single parameter and predicting the quality of river does not define the actual quality of the river for serving required purpose. So, the seasonal river quality monitoring by analysing various physico-chemical parameters and by integrating them is very much necessary in order to determine and maintain the water quality of the rivers.

III. HEALTH CHECK UP AND RESULTS

Health Check of River Narmada Started from Starting Point of River Amarkantak. Following Parameters checked with sample taken in different months formulated in bellow table.

Table-1: River Health Check up at Amarkantak, Madhya Pradesh

Sr.No.	Parameter	Unit	Acceptable Range	July'2012	October'2012	Febuary'2013
1	Temperature	Deg C	...	23	23	21
2	Turbidity	NTU	1	9.9	10.8	11.0
3	PH	%	7 to 8.5	7.92	7.67	7.2
4	Conductivity	Uho/cm	...	155	355	175
5	Total Hardness	Mg/Ltr	200	157	92	128
6	BOD	Mg/Ltr	...	1.35	1.69	2.0
7	COD	Mg/Ltr	6(who)	15.5	13.9	16.8

Table-2: Soil Check up at Amarkantak, Madhya Pradesh

Sr.No.	Parameter	Unit	General Range	July'2012	October'2012
1	PH	%	6.5 to 8.5	7.1	...
2	EC	Mu/cm	> 1	0.16	...
3	Organic Carbon	%	0.5 to 0.75	0.48	1.6
4	Nitrogen	Kg/h	200 to 263	409	415
5	Phosphorus	Kg/h	10 to 23	12.31	12.97
6	Potas	Kg/h	200 to 400	987	1092

Table-3: River Health Check up at Kankarana, Alirajpur, Madhya Pradesh

Sr.No.	Parameter	Unit	Acceptable Range	July'2012	October'2012	Febuary'2013
1	Temperature	Deg C	...	28	32	29
2	Turbidity	NTU	1	2.1	2.1	2.5
3	PH	%	7 to 8.5	8.2	8.6	8.2
4	Conductivity	Uho/cm	...	230	225	250
5	Total Hardness	Mg/Ltr	200	150	155	182
6	BOD	Mg/Ltr	...	3.8	3.7	4.0
7	COD	Mg/Ltr	6(who)	...	...	...

IV. CONCLUSION

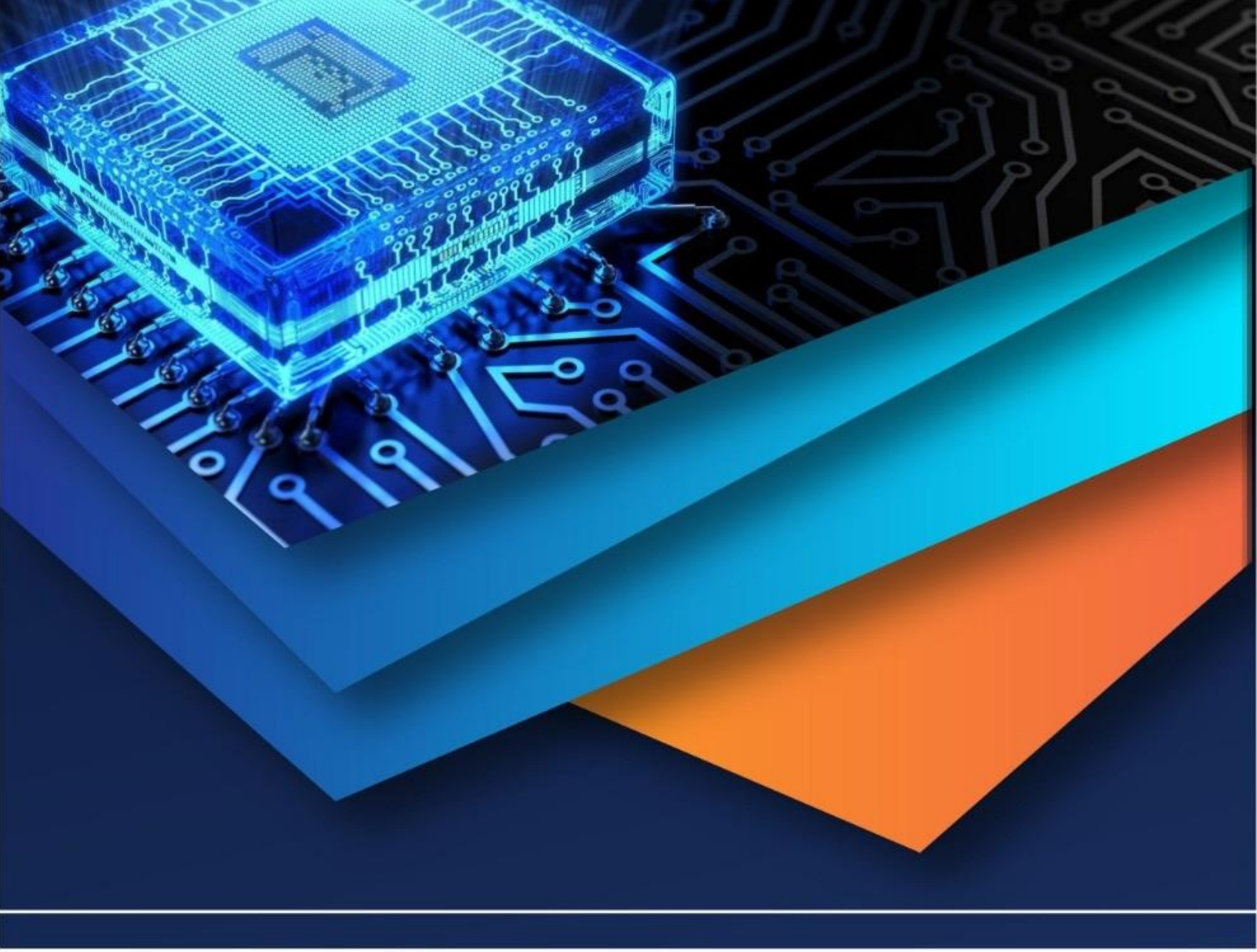
In the present study it is our efforts to evaluate many parameters and its characteristic behaviour of a river water samples in different seasons and different sampling stations, health of river Narmada effected due to domestic, industrial effluents direct discharge in to river and various human activities along the banks of the river. So, the seasonal health monitoring by analysing various parameters and by integrating them is very much necessary in order to determine and maintain the health of the rivers. Major Experimental data analysis shows that condition is stable as not major deflection in COD,BOD,PH.

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