LIFE IS ALL ABOUT WATER: REVIEW

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Abstract—The scientists from the space agencies when search for life on other planets, the first thing which they search is for water. As we know, the water is the basic need of life and our planet Earth looks blue because of abundant presence of water which amounts to be around 71%. But the problem is that in this available water only about 3% of water is potable. Out of this 3%, less than 1% is available in the form of running water and rest is stored in polar caps and glaciers. This 1% of water is available for around 700 crores people, millions of species of animals, trees and plants. We use this water to run our farms, huge factories, to drink and to bathe. Now if we concentrate on India, it is a water adequate country, means there is neither too little nor too much. But the growing population and increasing garbage becomes the major problem for the water. As the decreasing Dissolved Oxygen (DO) level and the increasing coliform level give a rise to a major problem for the existence of water as the chemical waste in excess amount released untreated from the industries in to the streams.

Index Terms— Earth, Water, Dissolved Oxygen, Coliform Level, Chemical Waste, Population, Water Quality.

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1 INTRODUCTION

IN our National Anthem we call the India as a Land of Monsoon. As on one phase we see that sometimes due to heavy rainfall we fed up and try to get rid of water but on the other hand many parts of India are practically starved for water. As during monsoon the roads, colonies, streets of Mumbai are flooded while some districts of Maharashtra depends upon the tanker to meet their daily needs. According to a non government record, a woman in a village walks an average of 1400 kilometers in a year, just to collect water. A social worker Niloba Jadhav, has been working with water issues. Almost 5000 villages get water from tanker in Maharashtra state only. As we know, many state governments are fighting in courts over water rights. Recently we have seen dispute on the Cauvery water between Karnataka and Tamil Nadu state which has outrage the protest in the city of Bangalore cause the loss of around Rs 22,000-25,000 crores to the major IT firms in the Silicon Valley. Over the Krishna waters Maharashtra, Andhra Pradesh and Karnataka, Punjab and Haryana over Rabi and Beas, Rajasthan, Gujarat, Maharashtra and Madhya Pradesh over Narmada while Godavari is claimed by Maharashtra, Andhra Pradesh, Madhya Pradesh and odisha.

2 CASE STUDIES

2.1 CASE STUDY (I)

An eminent author, Journalist, Environmentalist and water conservationist Anupam Mishra who is associated with Gandhi Peace Foundation discussed about the rising problem of water. According to him in times of British there were about 800 ponds in Delhi and now there are not even five. In another case of independent Kingdom of Mysore, in its jurisdiction there were about 40,000 ponds. These ponds are preserved and managed by the state and the society. As the king give funds to the local people of his kingdom to take care of the ponds and use its water for the purpose of irrigation, washing clothes, bathing and other house hold works. But when the Britishers overtook the rule from king, they refused to give funds and said to society that they themselves maintain and take care of the ponds. Furthermore then the Britishers said that to society as you do irrigation by this water so we will impose tax on this irrigation and later with due course of time they said these ponds are ours.

2.2 CASE STUDY (II)

If we take the big metro cities like Mumbai, which has a population of about 1 crore 24 lakhs meets its water demand by several sources. There are several small lakes available in the vicinity of Brihanmumbai Municipal Corporation (BMC) but they supply traces of water. 90% of

water demand of Mumbai overcomes by Bhatsa, Upper Vaitarna, Lower Vaitarna and Tansa. Every year the Bhatsa river area gets more than 2300 mm rain. But the villages in the vicinity of the Bhatsa are perched from the water where the hinterland of the biggest dam that sends water to Mumbai, "The Bhatsa Project". The pipeline quench the thirst of Mumbai from the reservoir of Bhatsa Dam, on the contrary the irony is that local women must trek up to 5 Km a day in the scorching sun for water. Several women of the villages worked for Rs 2 only a day in the construction of Bhatsa dam but now they don't get water from it. The villagers gave up their land for the dam construction and now they are living in exile. When the villagers petitioned the government in reply they were provided with the tanker. As gradually these tanker makes a tradition in the state of Maharashtra, Rajasthan, Gujarat and popularly known as 'The Tanker System'. This is not only the case of Mumbai, to quench the thirst of the swelling millions of population in bursting Indian cities water travels huge distances through many kilometers in huge pipelines. For Delhi the pipeline of length 300 km is laid for Bengaluru 100 km, Chennai 235 Km, Hyderabad 116 km, Mumbai 100 km.

Fig- Mahim-Bandra Water Pipeline

2.3 CASE STUDY (III)

India got the gift of some of the most sacred rivers like Ganga, Yamuna, Krishna, Godavari, Cauvery etc. But if we have a closer look to the situation of river today, the rivers which we described as bountiful, have become garbage dumps now. For decades, the waste from mills, chemicals and other toxics have been dumped into rivers in large quantities and water which is the elixir of life has turned into poison. In India, the sewage system is directed towards rivers. Sewage lines end in gutters and gutters flow into the rivers. Manoj Mishra convenor of Yamuna Jiye Abhiyaan said that we began consider using our rivers as drainage canals whether it is for liquid waste or solid waste. Along the 1400 kms length of Yamuna, the river dead after 800 kms. 600 kms of river is officially declared that this stretch is polluted to an extent that it is irreparable. The stretch extends from Panipat to Etawah which includes Delhi, Agra, and Mathura. The dead river demonstrates the level of dissolved oxygen (DO) in the water. As the oxygen is very important for the existence of aquatic life, the water of Yamuna at Delhi is so polluted that the DO at Nizamuddin Bridge is zero. Also, there is another parameter to determine the quality of water and is called Coliform level which is the level of harmful bacteria in water. The Coliform level in potable water is maximum of 50 in 100 ml. For the bathing water the Coliform level can be up to 500. While in Delhi this Coliform level is in lakhs and crores.

Fig- Study Area at Nizamuddin Bridge

WATER QUALITY OF RIVER YAMUNA AT NIZAMUDDIN BRIDGE (UPTO JULY 2016)

(A) Dissolved Oxygen (Criteria for 'C' class - 4 mg/l)

Year	Dissolved oxygen range
2014	0.3-2.8 mg/l
2015	0.1-2.4 mg/l
2016	0.4-1.8 mg/l

(B) BOD (Criteria limit-3 mg/l)

YEAR	BOD RANGE
2014	4-36 mg/l
2015	4-40 mg/l
2016	19-45 mg/l

(C) TOTAL COLIFORM (Criteria limit-5000 MPN/100ml)

YEAR	TOTAL COLIFORM RANGE
2014	330000-54000000 MPN/100ml
2015	68000-17000000 MPN/100ml
2016	2100000-9200000MPN/100ml

OVERALL STATUS OF RIVER YAMUNA AT NIZAMUDDIN BRIDGE

S. NO	LOCATION	YEAR	DO		BOD		TC(Total Coliform)	
			Min	Max	Min	Max	Min	Max
1	Yamuna river at Nizamuddin Bridge	2012	0	5.4	4	56	280000	17000000000
		2013	0.3	3.5	5	31	920000	9200000
		2014	0.3	2.8	4	36	330000	54000000
		2015	0.1	2.4	4	40	68000	17000000
		2016	0.4	1.8	19	45	2100000	9200000

2.4 CASE STUDY (IV)

According to water act we cannot release any type of effluents into rivers or canals even sewage cannot be dumped. Also Ravi Aggarwal director of Toxics Link Company told that nowadays the farmers get water for irrigation is the recycled water from industries. But we cannot recycle it completely as some heavy metals or toxics cannot be eliminated from the industrial water. So when our farms are irrigated by this water, crops exhibits an excessive presence of such heavy metals in them like lead, cadmium and these causes severe health problems when consumed. As lead if consumed affects the IQ in children and also like pollution of mercury as if the fish eats mercury and the same fish when we eat it affects our brain's control systems. A study done in Delhi and Varanasi over spinach found that 70% of the spinach contains lead far in excess of safe limit. There are certain provisions before the effluent releases into the drains. But those procedures are costly therefore industrialists dug deep wells and put them in it. It is called as deep well injection and after wards it becomes the part of the ground water. Therefore by this the water which is preserved for millennia now destroyed.

3 CONCLUSIONS

The best way for a city to meet its water demand is to install the rainwater harvesting plant. A Bureaucrat Shanta Sheela Nair IAS has emphasized on the rain water harvesting in Chennai and is known by the name of Jal Nayika. She directed that the rainwater harvesting plants ranges from no cost projects to low cost and to high cost projects. The only way to get rid from the problem of water scarcity is by storing the water. This will restore the problem of water deficiency up to a great extent. Various government organizations like Central Pollution Control Board (CPCB), National Green Tribunal (NGT) and also several state pollution control bodies are engaged in the work of purification of various river waters.

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