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A Case Study: Water Quality in NSS-Adopted Village Mendora in Bhopal

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Abstract: ***Water is the essential element of life for human as well as other creatures on the earth. Quality water is now a luxury as it has become very scare. Scarcity of quality water is due to ongoing water pollution which have been further degraded with the industrial revolution and caused a negative externality. In this paper, first section deals with basics of water, second section talks about review of literature, third and fourth section deals with primary survey of Mendora Village, as primary data and other secondary source of data available in reports, fourth section is the discussion of result and data analysis. Finally in this paper we will propose the way forward as policy inputs so that degrading quality of water will be contained and people of village will have safe and potable drinking water. In conclusion we can replicate the same model in villages those are facing such problems related to water quality.***

Keywords: Madhya Pradesh Pollution Control Board (MPPCB); National Service Scheme (NSS); National Commission for Integrated Water Resources Development (NCIWRD), Hepatitis

1. Introduction

Water not only support the biological survival of human body but also helps in socio-economic aspect like transportations, agricultural and industrial use. Human body contains about 70% of water and to keep it hydrate there is need of minimum 2.5 to 3.0liters water per day. In this planet more than 95 % water available but less than5% are of use so it urges for water treatment and management for availability of maximum water in order to meet the consumption need of human being.

Area of Study: Village profile

Village Mendora is located 16km away from the Bhopal District Head Quarter and comprises of 210 households with total 900 population as per census-2011. This village is surrounded by two great water bodies namely Kaliyasot Dam and Kerwa Dam. These water bodies are main activity center of city dwellers, tourist as well as source of water supply for agriculture, industry and civic use of Bhopal district and its surrounding habitats. How these activities are helping their economy and health of people is further a matter of study? However, water is key element of happy and healthy life and polluted water is the cause of many waters borne vector diseases like Diarrhea, Hepatitis, Typhoid, Cholera, and Dysentery etc, therefore neglecting this crucial issue of water pollution will not only affects the individual who lives in the area but in long terms it affects the others who are out of the ring of village.

2. Review of Literature

Development victimized the water directly and mankind indirectly, vendor driven rapid development have the sole motto of economic profit and to build an entrepreneur kingdom at the cost of human life (Singh & Tiwari, 2023). According to J. Schumpeter anything in incremental is not a development but development must accompany with novelty (Schumpeter, 2005). Development process in India also disturbed the ecological balance, discharge of industrial affluents, sewage and religious contamination dumped into the water bodies like in Shahpura lake of Bhopal (Munoth & Nagaich, 2015). According to UN report on water-2022, approx. .99% of freshwater on earth from ground water and half of that volume of water withdrawn for domestic use by the global population who do not get water from public water supply system. Around 25% of all water withdrawn for irrigation (UNSECO world water assessment Program, 2022). However, it's not always issues and challenges but opportunities also associated with the development, management and governance of water in the Mendora village particularly while District Bhopal in general. So that a clear understanding about the quality water's role in daily life. Water management for optimum use in sustainable fashion so that no one pay the cost of today's use in future.

3. Methodology

In this study, a village visit done by NSS programme officer after conducting a NSS, a long week camp. During a camp students and program officer witnessed the poor quality of water and decided to do case study on the subject matter. This study is based on primary source of information like the water sample collected from the village for the laboratory test and a focus group discussion with the villagers have been done on the issues related to their water management and treatment ways in order to make it drinkable or useable**.**

Figure 1: Visit to Mendora village

4. Findings and Analysis

Gram Mendora (Silly Village) mostly villagers are labor their education status is poor with population of 950. Village is situated beside the Kerwa Dam hardly 2 km from NLIU Bhopal. Many restaurants work well in this area for which the main source of drinking water including household is through hand pump and tube well. The color of water is varied from colorless to light red yellow. Indicate the excess of iron content in water.

Iron is an essential mineral that the body need to carry several important functions including the production of red blood cell however excessive intake of iron from water can have harmful effect on health specially if the water contains high level of ferrous ion which is iron that does not show itself until it is exposed to atmospheric condition. After exposure it become ferric and leaves stains although it is not visible immediately it has staining properties and effect taste of water usually deep well with less exposure to sun light have water with high ferrous iron content. Further, excessive iron in drinking water can also cause stomach and intestinal problem such as vomiting diarrhea and constipation and damage digestive track liver. This high level of iron and drinking water can cause oxidative stress which can lead to liver cell damage.

Figure 2: Potable water

Figure 3: Water for non-potable use

Madhya Pradesh Pollution Control Board (MPPCB) has been established to monitor and regulate the discharge of effluents from Industries the government has also launched several programs to promote the use of organic farming and reduce the use of chemical Fertilizer and pesticides additionally the government has initiated project to improve sewage treatment and sounded Waste Management in urban areas. The efficacy and effectiveness of MPPCB depends upon the will power of the executive body who is implementing the guidelines of board as well as the resident of the area. So, it's a tri-party responsibility that is MPPCB, Executives and the residents of the jurisdictional areas.

5. Conclusion

The average annual per capita water availability in the years 2001 and 2011 was assessed as 1816 cubic meters and 1545 cubic meters respectively which may further reduce to 1486 cubic meters and 1367 cubic meters in the years 2021 and 2031 respectively. As per Ministry of Housing and Urban Affairs, 135 litre per capita per day (lpcd) has been suggested as the benchmark for urban water supply. For rural areas, a minimum service delivery of 55 lpcd has been fixed under Jal Jeevan Mission, which may be enhanced to higher level by states. As mentioned in the report of National Commission for Integrated Water Resources Development (NCIWRD), the percentage of water used for irrigation out of the total water use for the year 1997-98 was 83.30%. Further, as per NCIWRD report, the percentage of water used for irrigation out of the total water use for the year 2025 under high demand scenario was estimated as 72.48%(Ministry of Jal Shakti, 2020).

As the demand for water continues to increase, there is a growing need for efficient water management strategies that prioritize the provision of clean, safe drinking water to all. Access to clean water is a fundamental human right, and it is essential for maintaining good health and promoting sustainable development. However, in many parts of the world, including the Mandera village, the quality of water remains a serious concern. Inadequate access to clean water and sanitation facilities poses a significant threat to the well-being of individuals and communities, particularly in rural areas. Therefore, it is crucial for the local administration to take timely action to address the water quality concerns in Mandera village. Organic ways of water treatment can be a sustainable and cost-effective solution for improving water quality. Such methods often involve the use of natural materials and processes, such as sand filters, activated carbon, and bioreactors, to remove impurities and contaminants from water. These methods are particularly useful in areas where access to modern water treatment facilities is limited or non-existent. In addition to improving water quality, sustainable water management strategies should also prioritize the conservation and efficient use of water resources. This can involve measures such as rainwater harvesting, water recycling, and the use of drought-resistant crops. By adopting such practices, communities can reduce their reliance on unsustainable water sources, such as groundwater and surface water, and ensure the availability of water for future generations. Furthermore, it is essential to raise awareness among the local population about the importance of safe water practices. Community education and outreach programs can play a crucial role in promoting good hygiene practices, such as hand washing and proper sanitation, to prevent the spread of waterborne diseases. Such programs can also help to build trust and foster a sense of community ownership over water resources, which can improve the sustainability and effectiveness of water management strategies. In conclusion, the administration in Mandera village must take urgent action to address the water quality concerns in the area. Sustainable and organic methods of water treatment, as well as efficient water management strategies, can help to ensure the availability of clean, safe water for all. By prioritizing water conservation, community education, and innovative technologies, we can work towards a future where access to clean water is a reality for everyone.

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