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A Study on Strategic Directions of Drinking Water Security in Rural India

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ABSTRACT
As one of the most important components of the Earth's hydrosphere, water consists of an inorganic chemical substance that is colourless, odourless, clear, and transparent. Even though it does not contain any calories or organic nutrients ,each and every type of life needs it. Throughout a person's lifespan, water that offers no immediate threat to their health, including any differences in sensitivity that may happen at various periods of life, is defined as safe drinking water in the 2017 WHO report. On the molecular level, yes. A covalent bond between two hydrogen atoms and one oxygen atom represents the stable balance of alternative and repulsive forces between the atoms in the compound. On Earth, there are 96.5 percent oceans, 0.9 percent salt water, and only 2.5 percent fresh water. This is the global water distribution (drinking water). Drinking water refers to water that is used in beverages or in the preparation of food. Its daily intake for a healthy person is determined by the amount of physical activity a person engages in and the surrounding environment. Furthermore, developed countries have been extremely well-managed when it comes to their citizens' tap water needs. Third-world countries and on other hand, are the constant victims of acute water shortages and floods. As a result, water and sanitation-related diseases account for 80% of all disease in these countries. As a outcome, the principal goal of this paper is to develop a region-specific and need-based strategic blueprint for the sustainable management of water resources, It could be beneficial in dealing with the basic social rights to food and liquid.

Keywords: *water, drinking, ground water, rural India*

I. INTRODUCTION

UN General Assembly "RESOLUTION," on July 28, 2010, explicitly acknowledged that the unpolluted drinking water is very necessary for the realisation of all other mortal rights, including the right to life. A mandatory draught is therefore provided to encourage all governments and organisations to think about providing clean, safe drinking water, sanitation, and other essentials for the poorest nations on the planet, as well as transferring money, technology, and human resources. The World Health Organization (WHO) specifies the bare minimum amount of safe, sufficient, and affordable drinking water needed to fulfill the demands of individuals and relatives. Article 1.1 of the General Comment No.15 of the Committee on Economic, Social, and Cultural Rights states: "The human right to water is indispensable for leading a life of human dignity." In order for other human rights to be realised, this is a necessary condition. Furthermore, it has a significant impact on the achievement of the Millennium Development Goals (MDGs) (MDGs). Only 2.5% of world's fresh liquid supplies are sufficient to meet human survival demands, according to a comprehensive analysis of water distribution patterns.

Fresh water is concentrated in frozen and subsurface forms, with only a small amount of surface water available for immediate human consumption. About 20.9 percent of the land's surface water is collected in lakes, while rivers account for only 0.49 percent, and the remainder is trapped in glaciers. We want to know how we can better manage our water resources in light of our ever-growing population and our watery needs in today's world. Concerns about food and water security have become a point of contention for sustainability, particularly in Third World countries. Thus, this study aims to propose and develop workable solutions to ensure that the population has been accessed to the safe drinking water, and irrigation. To ensure everyone has access to safe, clean, and acceptable drinking water, the study focused on the most important parameters. For the most basic needs (WHO), 50 to 100 litres of water per individual per day is sufficient.

Water that is free of microorganisms, chemicals, and radiological hazards is what is meant by the term "safe." National and local water quality standards were mandated by World Health Organization guidelines. Approval is contingent upon the product's having a pleasing appearance, odour, and taste for both personal and domestic use. Every type of facilitation must be acceptable regardless of the cultural context, including life cycle, gender, and privacy requirements. Finally, it's a matter of being able to get around. Everyone should access to the safe drinking water and toilet facilities at home, school,

work, or a health care facility, as this is the right thing to do. A water source must be within a distance of 1,000 metres. United Nations World's water development report in 2021, over two billion people in water-stressed countries have been affected by a lack of water availability. Every month of the year, at least 25% of the world's population must deal with severe water scarcity. Despite a physical availability of water, more than 1.6 billion people often face water scarcity, which means they lack the necessary infrastructure to obtain water. 2007 Complete Evaluation of Agricultural Water Management.

Additionally, when the population of the planet increases, so does the capacity of the world's built reservoirs. Since the 1980s, there has been an annual increase in fresh water consumption of roughly 1%. These changes are mostly the result of a mix of rapid population expansion, shifting consumption patterns, and economic development. Global water withdrawals for agriculture (irrigation) and aquaculture and livestock use account for approximately 69 percent of total water withdrawals. In some developing countries, this percentage can rise to as high as 95%. "(Food and Agricultural Organization, 2011a).

II. CLIMATE CHANGE EFFECT

There are numerous ecological interactions in the rural environment, which necessitates constant monitoring in order to make the best decisions. The ability to better monitor water quality in rural areas has also been greatly enhanced by technological innovations. Remote sensing was used to keep track of seasonal changes in the Gulf of Kutch's water quality. Seawater and marine effluent discharges intrusion and natural disasters just like a tidal wave pose constant threats to rural aquifers' groundwater quality. Tuticorin city's rural areas have been found to have an lavishness of the major cationic and anionic groups (calcium, magnesium, sodium and potassium) they are making groundwater extremely inflexible and high pH and unsuitable for human consumption. The mathematical recreations, on the other hand, can predict and visualise the long-term effects of various human undertakings on the rural water atmosphere. Within a fascinating study, the city of Mumbai's sewage pumping system was really a very effectively counterfeit using MIKE 21 software to determine the maximum amount of habitat damage possible.

III. INDIAN CONCERN

There are an estimated 2,00,000+ people who die each year due to the absence of access to safe drinking water, and 21 major cities are on the verge of running out of groundwater by 2020, which will have a direct impact on about 100 million people. Thought and planning can take place in the current situation. (TPA).

- There is no piped water service in 84 percent of rural households.
- 75% of families not have access to safe intake water.
- It is likely that 70 percent of India's water is polluted.
- In terms of water quality, India ranked 120th out of 122 countries.

When it comes to potential harm to humanity, the World Economic Forum ranked water shortages as the third most significant global risk.

- mass-murdering weapons
- weather extremes
- crises in water supply

Facts like those cited above necessitate the development of more detailed, goal-oriented strategic plans in order to meet the pre-requisite conditions necessary to meet water demand for drinking, domestic use, and agricultural irrigation. Here, the country's Central Water Commission (CWC) has used the country's Ultimate Irrigation Potential (UIP) to create a catalog. As a result, the resources of India's 28 states and 8 union territories have been separated so that people can get a better idea of what they can do.

A road map for harnessing potential is provided by segregation of states and Union territories. The Zones of the UIP are as follows:

A state or territory with a minimum Ultimate Irrigation Potential of up to 500 thousand hectares is considered to be in Potential Zone 1. the states of Assam, Arunachal Pradesh, Mizoram, Himachal Pradesh, and Goa are among those evaluated by the Central Water Commission on a regular basis.

A harvestable zone is defined as an area with an Ultimate Irrigation Potential greater than 1000 TH Ha (ranged from 500 to 5000 Thousand hectares). It stretches from north to south and east to west across the entire continent of North America.

Regions in Zone 3 have an Ultimate Irrigation Potential (UIP) that is close to the national average. Localized or area-specific planning is needed in this economically viable and viable zone.

Areas with maximum UIP that can be optimally exploited by a state's resources are found in this Zone. In addition, this zone contains the country's maximum irrigation potential. Bihar, Uttar Pradesh, Madhya Pradesh, Maharashtra, Andhra Pradesh, Orissa, Punjab, Madhya Pradesh, Gujarat, Rajasthan, Haryana, West Bengal, and Karnataka are just a few of the states in the region. This zone covers areas that have an Ultimate Irrigation Potential (UIP) that is close to the national average UIP and above.

According to total irrigation potential in the country, this zone-wise breakdown of the country's ultimate irrigation potential has been drawn. For more information, please see the Water Commission of India's Annual Water Report ZSS (Zone-Specific Strategies) are a means to better utilise irrigation potential and fit Resource Management Techniques (RMT) in a more precise manner (RMT). As a result, resource shortages at the federal and state levels will be alleviated as a result of RMT. IPC (Irrigation Potential Created) and IPC (Irrigation Potential Utilized) are two major issues in Indian irrigation, and they are both hampering agricultural productivity as well as causing water crises and disputes in the country. We hope these ZSS will help close the gap between the amount of potential created and how it can be used. Using the information in this paper, policymakers could create projects based on local need and potential, as well as guidelines for stepping up irrigation efforts in high-potential areas. Additionally, this analysis could help to reduce the gap between the amount of irrigation potential created and the amount of water that is actually used.

IV. CONCLUSION

By 2024, about 83 percent of households will have access to drinking water at their doorstep through functional tap water connections as part of the mission's flagship programme, which was launched in August of this year (FTWC). This programme aims to provide every household with 55 litres of water per day on a regular and long-term basis. About 48.8 percent of the country's 140 million hectares (mha) of agricultural land is irrigated by agriculture, which accounts for 80% of our country's current water supply. The trouble of Indian agriculture is illustrated by the fact that 51.2% of the country's agricultural land is rain-fed. Despite the fact that the sector and the economy are expected to grow at an astronomical rate.

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