

Declining groundwater level in Bihar

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Abstract: Water is an important natural resource for human survival as well as for sustaining the life of every living being on earth. Since the middle of the 20th century, the water crisis has taken the form of Catastrophe in the 21st century due to the excessive exploitation of water and its inefficient Management by humans. Neither the government management units have taken any concrete initiative to maintain the availability of water, Nor the water policy is unclear. In order to meet the water requirement of the growing population there has been a relation between imbalance in its demand and supply. Due to more and more exploitation of groundwater by humans, the groundwater level is continually falling. The availability of water in Bihar state has always been more than ever, but in 2019, the whole Bihar is also not untouched from Water crisis due to the indiscriminate use of water. The need is that concrete initiatives should be taken by the government as well as the government departments to conserve water and work on the management of this by preparing the water policy.

Key Words: Declining Groundwater level, Discharge, Water Crisis, Irrational Exploitation, Natural resources, Human Existence.

1. OBJECTIVE:

The purpose of this topic of study is to prepare sensitivity in the diagnosis, and public awareness due to groundwater level in Bihar. With the help of this article people will increase their sensitivity to water and they will understand its importance and will make balanced exploitation. Other objectives of the article are as follows :-

- a. Maintaining the availability of water.
- b. Maintenance of water resources.
- c. Taking appropriate steps keeping in mind the factors affecting the groundwater layer.
- d. Promoting the water cycle and complete use of water.
- e. Reducing the use of water by adopting a scientific method in agricultural method.
- f. Show an effective solution in the direction of rainwater harvesting.

2 DATA BASE :

There is a wide Expansion of water on 70.8 % areas of the Earth's surface. Therefore Earth is also called an aquatic planet. About 97.2% of the earth's water is contained in the oceans as Saline water. 2.15% is present in glaciers in the form of ice, 0.6% is groundwater and other water is present in rivers, lakes and other groundwater sources. By the end of the 20th century, there was an average drop in water availability in India. At the time of independence, the average per capita water availability in the country was 5000 m³ per year, which came down to 2000 m³ per year by 2000 AD. According to one estimate, by 2050, the per capita water availability is expected to be less than 1000 m³ per year.

3. STUDY AREA :

The study area mainly covers the whole Bihar with latitudinal extension for 24° 20' 10" to 27° 31' 15" and Longitudinal extension from 83° 19' 50" to 86° 17' 40". The average annual rainfall here is 1176 mm. According to the 2011 census the total population of the State 10,40,99,452 thus the population density of the state is 1106 Persons per square kilometers.

4. INTRODUCTION :

Water is an important natural resource for human life. We get this from the Natural Sources existing in nature. These water sources are affected due to imbalance in the ecosystem. Which reduces the amount of clean water available to the organism. After the industrial revolution, there has been a several water crisis in many countries of the world. Many states of India are also facing a fragile water crisis like Maharashtra, Rajasthan, Odisha, Telangana, Bihar etc. Many districts of Bihar in the last 25 years the situation of underground water level has become worrisome. In some districts the groundwater level has fallen to 22-25 feet. Accordingly, to a recent study, the main reason for the decline

in groundwater has been the unintentional exploitation of water. Accordingly, due to the removal of the water body boundary, naturally occurring groundwater recharge has also decreased.

4.1 Causes of declining in ground water :-

According to the 2001 census the population of Bihar 8,28,78,796 which increased to 10,40,99,452 by 2011 according to an estimate by 2022 Bihar's population will reach around 13 crores. Use of clean water for drinking and other activities for this growing population there will be a need which will put tremendous pressure on the underground water due to the increasing population where the water requirement has increased, the per capita water availability is also decreasing over time. It is important that by 2040 the per capita water availability will be less than 1000 cubic meters per year. It is clear that due to reduced population's ability due to increasing population, the pressure on ground water also increased, which resulted in its declinings. After colonization, industrial revolution increased pressure on water sources because the migration of rural population happened rapidly towards the cities. Along with the construction of modern cities, water was widely used to carry out multi faced activities. To meet these requirements of water, the surface and groundwater were exploited. Groundwater concerting in the city led to a low level of recharge of groundwater. As a result, groundwater levels in many cities Reached Critical Zone and Semi Critical Zone.

The problem of water Pollution Related to the culture of bottled water. Companies selling bottled water, exploit the water heavily as a result the groundwater level declines. It is worth mentioning that many cities of Bihar are major consumers of bottled water.

It is being used to soil the surplus water sources for the housing supply of the growing population. Many Wells and small lakes are now almost exhausted. The water of these surface water sources was absorbed into the ground and used to enrich the groundwater. But with the changing times, the greed for land and wealth, property increased among the people who worked to destroy these water sources. However, due to climate change, the order of rainfall also started deteriorating as a result many water sources dried up. The land mafia has completed it. They filled the pond and erected buildings on them.

Groundwater is created due to the arrival of water from various sources on the ground into the ground, one of these sources is the rain water which reaches inside by rushing through pollinated rocks. Water also collects in the rock formation. When a rock is completely filled with water, it is called saturated rock. Due to the closure of Rock foliage water is not able to go down. In this way, water collected due to non discharge. This collected water is called Aquifer.

The forest area is constructed due to indiscriminate felling of forest. Due to which there is an imbalance in the mechanism of the situation. For example, every year, 1% of the earth's area is covered in desert due to the cutting of forests. This affects the water cycle and causes problems of flood and drought due to erratic rainfall. Bihar agriculture has mainly two sources of irrigation, rain water and groundwater. Bihar is being seen as a potential area of the second Green Revolution, irrigation is needed to increase the yield of crops. To meet these irrigation pressures increases on the ground water. As a result, this water is heavily exploited.

4.2 Effect of over exploitation of ground water :-

Excessive exploitation of groundwater has adversely affected human life as well as the ecological system. Many problems arising from this. There is a shortage of clean drinking water for human life, as well as many types of polluting elements are being included in the groundwater. The main drainage of groundwater such as arsenic, cadmium, copper, Mercury, lead, etc. This is done with hand pumps and tube wells. Water is pumped to much deeper depth than the tube well and the submersible as a result, Wells of lower depth dry up, which leads to a crisis of clean water. Agriculture is also being affected due to the falling groundwater level. Crop production is declining due to crop plants not getting proper irrigation. Farmers are being affected by the decrease in food production, which negatively impacts the economy. Water is an Essential element for the development of the state infrastructure. But due to falling groundwater levels, construction work is being happened, economic pace is being blocked and unemployment is increasing, successful household products are decreasing due to declining income of the state. Which is a matter of concern.

Human health is severely affected by the use of contaminated water. A small amount of fluoride is necessary for the growth of our teeth and bones. The enamel is the upper layer of teeth, which is fluoride formed, but if it exceeds 1 PPM, it is harmful to the teeth and bones. The disease caused by excess of fluoride is called fluorosis. Lungs, kidney, Liver are affected due to arsenic. The use of nitrated water causes disease called cyanosis in children. Thus the situation of groundwater in the state is quite serious and worrisome. Necessary steps should be taken in this direction soon. There are also some suggestions which can be followed by improving the level and quality of groundwater. But before that we will the government of Bihar get information about the steps taken by government bodies.

5. Governments and social efforts to maintain groundwater level

5.1. Government initiatives in groundwater monitoring and Management:-

The central ground water board was established in 1972, Task is to initiate government initiatives towards monitoring and management of groundwater. It is important that a ground water department has been set up in the state, which undertakes supervision, as well as continuous groundwater monitoring.

Water supply is a state subject under the 7th schedule of the Indian Constitution. It is the responsibility of the states to take concrete steps towards water management. In this series, the government of Bihar gave the work of drinking water management and implementation to the Gram Panchayat under several decision plans. Water at the rate of 70 liters per person per day will be provided under the scheme. Water supply in areas with polluted water will be done under the pipe water supply scheme with the Help of world bank project.

The ministry of Environment and Forest constituted the central water authority board under the Environment Act 1986. Its purpose was regulation and control of groundwater management and development.

5.2. Government and non-governmental steps to manage groundwater:-

- To determine the depth of the tube and samersabal. The Bihar government will have to prepare a concrete action plan, which can take the right steps at the right time.
- Public awareness will have to be created at the local level and they will have to be trained in water harvesting.
- Farmers will be advised to grow those crops in which the water consumption is minimized. Drip and sprinkler irrigation Systems will have to be adapted for irrigation.
- It is necessary to adopt ground water recharge techniques. In this direction, rainwater harvesting can be made effective by following states like Rajasthan, Tamil Nadu, and Kerala.
- Traditional pond water and other rainwater harvesting sources have to be preserved and it should be kept free from the crutches of, Land mafia.
- Full use of water management will have to promote full-cycle and step consumption system.
- More plantation work require to increase the water storage capacity of the soil and promote groundwater.
- All rivers will have to maintain the same water capacity by linking traditional rivers so that flood control can be achieved, and groundwater pressure can be reduced by meeting local water needs.

6. CONCLUSION :

From appropriate studies, it is concluded that the pressure on ground water level in Bihar is very high, due to which the water crisis is taking a very catastrophic form here. This is causing a lot of imbalance in the situation here. Water level can be maintained by taking responsible steps by reducing the pressure on groundwater sources, which will sustain the existence of human life and will Continue on the economic progress or, the states.

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