

Study on ground water sources of Investigations in India

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Abstract: Ground water has played an important role in ensuring the food security of the country. Ground water is sometimes called an invisible resource. It sustains critical eco-systems, such as lakes, wet land and woods. This finite resource currently caters to more than 60 percent of irrigated agriculture, 85% of rural drinking water supply and more than 50% of urban water supply.

Keywords: Food security, invisible resource, eco-system rural drinking water supply.

1. Introduction

Ground water is becoming an unimportant source of water. Supply is many region since there has been a tremendous increase in the demand for fresh water due to growth in population. Everybody uses it. It is mostly free, available to those with access and the means to extract it. It sustains critical ecosystem such as lakes, wet lands, and woods. Recently various authors carried out extensive studies on ground water quality and its suitability for various purposes. According to report published by the central water commission in 2019, the utilizable water available in India is 1,122 Billion Cubic Meters (BCM) per annum, and this availability varies over time and space. The total requirement of the country for different uses for a high demand scenario for the years 2025 and 2050 has been assessed as 843 BCM and 1,180 BCM respectively. This implies that even if we store every drop of available water, we will still fall short in 2050, unless we manage demand.

Cabinet announced total Bhujal Yojana. An ambition Rs.6000 crore scheme to accelerate the conservation of ground water India is home to 18% human population and 18% global livestock with only 4% global fresh water resources [1].

With the concerted efforts of the Government of India and State Government. So far, more than 3.71 corers rural households have been provided with new tap water connections. As a result more than 6.95 corers (36.3%) rural households in the country are getting assured and potable tap water in their homes. Schemes implemented in the water sector in the past did help to improve ground water conditions to some extent through improvement in availability. But did not focus reducing demand through more efficient use.

India is the largest user of ground water in the world, using more than a quarter of availability global resources. Its major driver is ensuring the success of the 'green revolution' through millions of energized tube wells. This finite resource currently caters to more than 60 percent of irrigated agriculture, 85% of rural drinking water supply, and more than 50% of urban water supply.

2. Related Work

Need of Study

An adequate quantity of good quality water is essential for health as is access to sanitation facilities with appropriate disposal of sewage. The pH value of water is an important indication of its quality and it dependent on the carbon dioxide – carbonate – bicarbonate equilibrium. Ground water is water that exists underground in saturated zones beneath the land surface. The upper surface of the saturated zone is called the water table. Earth is estimated to hold about 1,460,000,000 cubic kilometers of water.

The breakdown of where all that water resides is estimated as follows: Ocean (sailing) 1,149,120,000 cubic kilometers caps and glazing (freight) 31,244,000

cubic kilometers ground water (fresh and saline)
8,906,000 cubic kilometers streams and lakes (fresh)
132,862 cubic kilometers ground water resources are unique in most regions and available in large volumes and of a quality that is generally good (or) sufficient for its intended use [2].

Categorization of assessment Units based a ground water Quantity:

The categorization based on status of ground water quantity is defined as stage of ground water extraction as given below:

Stage of ground water extraction	Category
< 70% -	Safe
> 70% and < 90% -	Semi critical
> 90% and < 100% -	Critical
> 100% -	Over Exploited

As per April, 2015, the water resource potential (or) annual water availability of the country in terms of natural run off (flow) in rivers is about 1,869 billion cubic meter (BCM)/year². However the usable water resources of the country have been estimated as 1,123 BCM/year. This is due to constraints of Topography, and quean distributions of the resource in various river basing, which is difficult to extract the entire available 1,869 BCM/year [3].

The overall contribution of rainfall of the country's annual ground water resource is 68% and the share of other resources, such as canal seepage, return flow from irrigation, recharge from tanks. Ponds and water conservation structures taken together is 32%. Due to increase in the country, the national per capita annual availability of water has reduced from 1,816 cubic meter in 2001 to 1,544 cubic meter in 2011 this is a reduction of 15%.

Comparative status of level of ground water development in India in the past 20 years

Level of ground water development of destructs in 1995	Explanations	%
a) 0-70% safe	Areas which have ground water potential	92
b) 70-90% (semi critical)	Containing ground water	73-71
c) 90-100% (critical)	Intensive monitoring and evaluation	4
		9-10
		1
		4-4

d) > 100% (over exploited) Conservation methods 3 14-15 % of district in 2011

As ground water resources in the country, continued to be under increasing stress, the need for a shift in approved in the management of ground water was felt, success stories of initiatives taken up at House Bazaar, Ralagaon Siddhi, and elsewhere in the country provided inspiring examples of community based ground water management [4].

The water table in the village rise from 70-80 feet to 20 to 25 feet, change in cropping pattern was bought about (from Jawar, bagra to onion, potato, horticultural crops etc and the standard of living improved considerably due to economy [5].

3. Conclusion and Future Scope

The goal of Atal BhujalYojana is to demonstrate community led sustainable ground water management. As per estimates in 1951, per capita annual fresh water 5,177 cubic meters which came down to 1,545 cubic meters in 2011. It is estimated that in 2019, it is about 1,368 cubic meters which is likely to further go down to 1,293 cubic meters in 2025. It is present trend continues, in 2050, fresh water availability is likely to decline to 1,140 cubic meter. A key feature of this outcome focused scheme is the Disbursement of Incentive funds (disbursement linked indicators – DLI's) to states based on performance against selected indicators. The selection of DLIs has been guided by actuations that need to be done for sustainable management of ground water.

Measurability, and ease of verification, and the capacity of stakeholders to achieve the results schemes implemented in the water sector in the posted help to improve ground water conditions to same extent through improvement in availability. Thus, over exploitation of the ground water which has increased due to recent climate changes, along with recurrent droughts have contributed to the leading rocks with fluoride compounds.

Thereby releasing the volatile element into the water sources, making it the safe for drinking. This has over time posed ordinal challenge for the management of water resources. Maintaining availability and quality of

drinking water. Ground water is collected with wells and pumps, as it can flow naturally to the surface via seepage offspring. Ground water can be thousand of years old, although typically it is extracted within years can decades, after it originally moves underground through small openings within pores material, called Aquifers.

The Dynamic ground water resource of the country has been jointly estimated by state ground water department and central ground water board, based on the methodology recommended by ground water estimation committee 1997 (GEC-97). The ground resource was estimated as on March 2008, the national level report on is Dynamic ground water Resources of India was finalized and approved by the R & D advisory committee in its severe the meeting hold at New Delhi.

On 19th August 2005 as per the report, the Annual Replenishable ground water resource for the entire country is 433 billion cubic meter (BCM). Net annual ground water availability is estimated as 399 billion cubic meter. Whereas the annual ground water draft for irrigation domestic & industrial was 231 billion cubic meter and their stage of ground water development for the country as a whole is 58%.

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