



MANAGEMENT OF WATER RESOURCES: A SUSTAINABLE APPROACH TO DELINEATE POTENTIAL GROUNDWATER RECHARGING SITES IN POONCH DISTRICT OF JAMMU AND KASHMIR, INDIA 185211

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ABSTRACT

The demand and requirement for fresh water in Poonch District, J&K India has swiftly increased as the area experiences constant water stress conditions due to drifting rainfall pattern and shortage of surface water resources. Therefore, management of accessible groundwater resources has become critical to fulfil potable water requirements in the area. The present study was conducted to focus on the potential and possible options available for the harvesting of groundwater which in turn would help in revitalizing of dried out water bodies in this far-flung part of the country and enhance the water desires of the people. Therefore in this study, a GPS approach was used to delineate potential artificial recharge sites in Poonch District, J&K India.

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INTRODUCTION

Groundwater has now emerged as a prime water resource due to its near widespread availability, steadiness and low capital cost. It is the most chosen source of water to meet the requirements of various user sectors in India and account for about 30% of the total freshwater. Demand for fresh water resources in the world is perceptibly increasing as a result of rapid industrialization and population growth. Hence, groundwater withdrawal has become an essential part in many of the water management approaches, especially for rural areas. The dearth and inaccessibility to the surface water resources cause inhabitants to exploit groundwater for their domestic, agricultural and industrial uses. Groundwater table depletes when water extraction rates are higher than the rate of replenishment. Hence, an area with excessive groundwater extraction rates experiences a noteworthy volume decline in the groundwater reservoirs. This can cause depletion of water levels in wells, spring, streams and lakes, deterioration of water quality, land subsidence and higher pumping costs. Artificial recharge is a type of controlled recharge where surface water is put on or in the ground for permeation and succeeding movement to the aquifer to enhance the groundwater resources. Artificial recharge is the practice of increasing the amount of water entering to the subsurface reservoirs by artificial means.

However, locating the probable sites for artificial recharge is very complicated and depends on many mutually dependent factors including rainfall, drainage density, lineament density, slope, soil permeability, land use/land cover, geology and geomorphology. The influence of different factors on the artificial recharge process is diverse. All these factors play an important role in recharging ground water resources.

Based on the accessibility of surface water resources, Poonch District is one of the region experiencing water stress conditions erratically due to rocky and mountainous nature of the landscapes. Poonch is the border district of Jammu and Kashmir state with a geographical area of 1674 Km² and an average elevation of 981 m above sea level. Temperature of the district ranges from 2.5°C to 31°C as the area experiences hot summers and moderately cold winters. Geographically district consists of various hills and small valleys of meandering and twisting rivulets. Water bodies located in higher reaches of district are mostly seasonal and completely depend on rainfall. The springs and the streams are the only sources of handy fresh water for the masses of the region. As the district has a population of 4.76 lakhs out of which majority inhabits rural and hilly areas. Therefore, the challenge remains to execute the water requirements of people through these springs and the streams. The springs serving the masses inhabiting upper reaches are getting dry. With the lack of regular community water supply in the higher reaches, individuals have left with no alternate but to walk longer distances right through the uneven and coarse landscapes to meet their domestic water requirements. Because of insufficiency of water the farming activities in Poonch area

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potential sites are located in Mankote, Surankote and Mandi tehsils of the study area due to the presence of large scale Oak forests along with other vegetation as these forest areas are capable of absorbing rainwater swiftly thereby helping in recharge of ground water resources. Therefore it is suggested to develop possible and diverse measures such as rain water harvesting techniques as a mean of recharging springs and ground water to overcome the water crisis in this rural part of the country.

Recommendations

1. In plain areas, in addition to conventional ground water structures like dug wells & springs, shallow to medium depth bore wells can be constructed for developing the ground water resource.
2. Conventional water resources like springs need to be revitalized, developed and protected on scientific lines for diverse use.
3. Small ponds and tanks can be developed for enhancing water resources. The existing structures can be rejuvenated and renovated for harvesting water for use locally for the domestic requirements.
4. Rainwater harvesting practices may be adopted in hilly areas since the district receives plenty of rainfall. Because of hilly terrain, maximum runoff takes place, and a very minute quantity adds towards ground water recharge
5. Mining of the riverbeds should be prohibited as it leads to fall in the water levels and it also damages the natural river system.
6. General masses should be made aware for the proper utilization, conservation and protection of available water resources.

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