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ARTIFICIAL RECHARGE TECHNIQUE FOR GROUNDWATER

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Abstract : Artificial groundwater recharge is frequently used to cleanse partially treated wastewater or to improve the quality of surface water through percolation through a variable saturation zone. We all know how important water is to our survival. However, according to a recent survey, 40% of the world's population, or around 3 billion people, do not have access to clean drinking water throughout the summer months. As a result, for reducing the problem of water scarcity by using gravity to artificially recharge ground water. As a result, the primary goal of this method is to alleviate the problem of water shortage, increase the water level in aquifers, preserve groundwater resources, and improve the physical quality and quantity of water. It is now the method or a practise of raising the amount of water that enters the groundwater reservoir artificially

IndexTerms **-Artificial recharge , Ground water table , aquifer , water.**

I. INTRODUCTION

As we all know, the amount of water on the planet is nearly constant, but fast population expansion, growing agricultural/industrial, and other uses of water are causing challenges in terms of quantity and quality. Water is a basic requirement and a valuable resource that we must conserve, protect, and manage for long-term use. As a result, water quantity and availability are critical in our daily lives. One of the first steps in good water resource management is to conduct an assessment. For the optional use of groundwater Table, it is necessary to assess the quality and quantity of groundwater recharge. Water is necessary for our survival. According to a poll conducted during the summer season, almost 40% of the population (around 3 billion people) do not have access to clean drinking water. Ground water recharge is a strategy for maintaining the level of ground water. Artificial recharge occurs when human activities induce more water to enter an aquifer than would have entered the aquifer otherwise, whether under pumping or non-pumping conditions. Some artificial recharge procedures have been around for centuries, while others have only recently been established. The efficient application of artificial recharge necessitates a thorough understanding of the physical and chemical properties of aquifer systems. Artificial recharge of groundwater is increasingly important to replenish overexploited aquifers and to compensate for rising water demands. The most common recharge techniques include aquifer storage and recovery, riverbank filtration , and the use of infiltration ponds . A major goal of these techniques is quality enhancement of the injected or infiltrated water.

II. TECHNIQUES FOR ARTIFICIAL RECHARGE OF GROUNDWATER

Artificial recharge methods or a process can be classified into two basic categories or types :

A. WATER DISPERSAL

Releasing water over the ground surface in order to increase the quantity of water infiltrating into the ground and then percolating to the water table. Spreading methods include basin, stream channel, ditch and furrow, flooding, and spray irrigation.

B. WELL INJECTION

Injection wells are used to deliver recharge water directly to the aquifer. Prior to selecting a technique for application, each of the two major types of techniques has advantages and disadvantages that must be assessed in terms of local conditions.

Based on experience, the best way to choose a technique that best fits a certain set of 137 local conditions is to consider all needs, or idiosyncrasies, linked to the techniques' employment, as described below.

Spreading water necessitates:

- Large swaths of land.
- Permeable surface materials, a hydraulic connection between the surface materials and the aquifer, and a downward head gradient are all important considerations.
- Implementation and operation require little building or specialized equipment. of there is little or no pre-treatment of the water.
- Some routine maintenance is required.
- Well injection necessitates a little amount of land.
- Construction of specialized wells.
- Expensive construction and specialist equipment to install and maintain
- Maintenance is required on a regular to frequent basis.

III. RESEARCH METHODOLOGY

The runoff water comes from a variety of sources and may contain dry leaves, small pebbles, and other debris. The runoff water is collected in a container, then pushed via the conveying pipes and then through the filtration media in a short amount of time (in which unwanted particles are separated and impurities are removed by adding a layer of charcoal).

The filtered water is collected into a storage tank, it moves in aquifers through the pervious pipe and moves to the shallow. Now the water is ready for the use

IV. CONCLUSION

- The primary goal of this initiative is to resolve the issue of water scarcity for future generations.
- It is also a technology that aids in the orderly arrangement of waste water as well as the improvement of ground water levels.
- Only when used in conjunction with a sediment concentration on well recharge through fine sand integrated water supply management may artificial recharge be an effective technique of land subsidence mitigation.
- As the world's population grows, artificial groundwater recharge is anticipated to increase. Increasing demands for water while water supplies remain finite; potential climate changes; scarcity of ideal dam sites for surface storage; and increasing difficulty of building dams due to social, environmental, cost, and other concerns are all factors affecting the availability of water resources.
- Dams are also ineffective for long-term water storage due to evaporation losses.
- Wherever possible, artificial recharge, which involves the simultaneous use of surface and groundwater as well as long-term underground storage or water banking, is desired.
- Artificial recharge is particularly significant in water reuse because it provides quality benefits (soil-aquifer treatment) and storage options to absorb seasonal variations in reclaimed sewage effluent supply and demand.

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