Prime Scholars Library

Journal of Science and Geosciences

Commentary

Vol. 10 (2), pp. 21-22, June, 2022

Available online at
https://primescholarslibrary.org/

Effects of excessive usage of ground water

Jagath Almasri*

Department of Civil and Environmental Engineering, Utah State University, Logan, USA.

Received: 01-Jun-2022, Manuscript No. JSG-22-68743; **Editor assigned:** 03-Jun-2022, Pre QC No. JSG-22-68743 (PQ); **Reviewed:** 24-Jun-2022, QC No. JSG-22-68743; **Revised:** 04-Jul-2022, Manuscript No. JSG-22-68743 (R); **Published:** 13-Jul-2022, DOI: 10.51268/2736-187X.22.10.72.

DESCRIPTION

Water is utilized as a coolant in thermal power plants as well as for drinking, irrigation, transportation, washing, and waste disposal. The earth's surface is shaped by water, which also controls the climate. Groundwater is becoming rapidly depleted in many areas due to excessive use for home, agricultural, and drinking uses, which lowers the water table and dries out wells. Many of these wells are now unsafe for consumption due to contamination in groundwater aquifers. Groundwater tables are lowered by excessive groundwater extraction, which can harm wetlands, ground movement and lead to saltwater intrusion in coastal aquifers. Water is traditionally discharged into rivers and streams. The majority of civilization has developed and been provided along riverbanks, but regrettably, this growth has been responsible for pollution of the rivers.

EFFECT OF GROUNDWATER USAGE

Subsidence

Ground subsidence is a phenomenon that occurs when the rate of groundwater removal exceeds the rate of groundwater recharge. Surface-level ground movement caused by the intensive abstraction of groundwater is known as ground subsidence. It is believed to be the result of sedimentary deposits that include groundwater consolidating, with consolidation taking place as a result of rising effective stress. The pore water and granular structure of partially saturated or saturated deposits support the total overburden pressure.

It happens when groundwater is pumped out of the earth too frequently, especially in places with unconsolidated sediments and sedimentary rocks. Compaction of the sediment results from water removal. Compaction and subsidence can also be brought on by a building's weight.

Waterlogging

Waterlogging is another issue brought on by heavy irrigation on poorly drained soils. This happens in poorly drained soils where water cannot permeate deeply, as is typical for salinization. For instance, the soil may be covered by an impenetrable clay layer. Additionally, it happens in topographically undrained locations. The water table in the ground ultimately rises to the upper level of the groundwater from below as a result of irrigation water (and/or seepage from canals). The majority of the time, growers don't detect water logging until it is too late because tests to detect water in soil are reportedly highly expensive.

The soils become flooded as a result of the elevated water table. When soils are waterlogged, water seeps into the air gaps inside the soil, effectively suffocating plant roots lack oxygen. Water logging also damages soil structure.

Saltwater incursion

Aquifers that contain freshwater can get contaminated with saltwater due to saltwater incursion. A cone of depression is formed in the fresh water lens if significant amounts of fresh water are removed. The level of salt water rises 40 feet for every foot that the water table is lowered. In addition to the Salinas Valley in California, this problem primarily affects island or coastal towns.

Pollution

The most frequent cause of groundwater pollution is sewage. Other sources of contamination include

hazardous waste disposal facilities, underground storage tanks, and landfills. Where the ground is porous or there are conduits to the water table, surface pollution can harm groundwater. As groundwater seeps through the earth, pollution spreads. Groundwater contamination cleanup is both very expensive and complicated. Groundwater quality in the future could be threatened by the dumping of high-level nuclear waste.

CONCLUSION

The level of groundwater dropped as a result of increased groundwater extraction that was significantly more than natural recharging. The amount of water stored in reservoirs decreased as a result of the unpredictable and insufficient rainfall. Groundwater levels decreased as a result of this. When groundwater withdrawal rates exceed recharge rates, sediments in aquifers become compressed, which causes the overlying land surface to sink. This phenomenon, known as land subsidence, causes pipes to break and canals to reverse flow, resulting in tidal flooding and structural damage to buildings.