

[OPEN](#)
[JOURNAL](#)
[SYSTEMS](#)

[Journal](#)
[Help](#)

USER

Username

Password

Remember me

Log In

NOTIFICATIONS

- [View](#)
- [Subscribe /](#)
[Unsubscribe](#)

JOURNAL

CONTENT

Search

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)

FONT SIZE

INFORMATION

- [For Readers](#)
- [For Authors](#)
- [For Librarians](#)

Groundwater Quality and Vulnerability Mapping of an Unconfined Coastal Aquifer

S. Sathish, L. Elango

Abstract

Groundwater quality mapping is very essential to identify regions where groundwater is suitable for various uses. A study of the vulnerability of groundwater for pollution in a region is required as it will provide information for taking precautionary measures. Groundwater is being extensively used for domestic purposes in the region south of Chennai, India. The present study was carried out with the objective of preparing a groundwater quality map and vulnerability map of the south Chennai coastal aquifer. Groundwater samples from fifty representative wells distributed over the entire area were collected and analyzed

for electrical conductivity and major ions. Based on the recommended limits of these parameters for domestic use the area was divided into different zones. A spatial index was assigned for these physio-chemical data layers showing groundwater with good, moderate and poor quality and these layers were integrated by overlay analysis using ArcGIS. From this overlay analysis, the groundwater quality and vulnerability map was prepared. By superimposing all the layers based on quality index, the vulnerability of groundwater was determined periodically. Finally, the periodic vulnerability index was overlaid and vulnerability map of this unconfined aquifer was represented by means of relative index value. The groundwater quality map of the region can be used as a tool for suitable and efficient management of groundwater by regulating pumping from the poor quality zone. The groundwater quality mapping should be periodically carried out as this aquifer is under stress and bounded by surface water bodies of poor quality on all sides.

Keywords

hydrogeology; overlay analysis; special index; vulnerability index; Chennai; India

Full Text: [PDF](#)

Refbacks

There are currently no refbacks.