





Groundwater mapping and locally engaged water governance in a small island terrain: Case study of Karainagar island, Northern Sri Lanka

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Abstract

Groundwater is a vital resource under threat in island communities. Karainagar, a 22 km² island, is one of seven islands off the coast of Jaffna in Northern Sri Lanka, with its population of just about 11,000 persons, experiences seasonal water shortage, and salinity in groundwater as twin threats impacting on their lives. This paper reports on a 3-year study (October 2019 to September 2022) to map groundwater dynamics of Karainagar island spatially and seasonally and discusses the patterns revealed in terms of community needs, policy implications, and governance ideas that could already be considered by relevant authorities and citizens jointly. Thirty-six dug wells used for drinking, domestic, agricultural, and public purposes were selected, and water level, salinity, and pH changes recorded along with daily rainfall. This paper offers a thorough description of the geography, land use, distribution of wells, and water bodies, followed by discussion of the current status of the groundwater in Karainagar island. Year-to-year differences in rainfall pattern resulted in different rates of change and range

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