

Groundwater Management study in confined and unconfined aquifers - Case study in Puttalam town area

Ranjana U. K. Piyadasa
Department of Geography
University of Colombo

1. Introduction

Studies of the basin water cycle management play different and important roles in hydrological and hydrological investigations undertaken for estimating and forecasting water resources. The ground water regime studies are auxiliary important and serve as information on the inter-relation between surface and ground water or between the water of different aquifers. The condition of natural water recharge and conditions of ground water response under the influence of natural and artificial factors.

Coastal areas represent zones where land and sea meet and comprises variety of complex environments including deltas, estuaries, bays, marshes, dunes and beaches. Coastal aquifers have boundaries in contact with seawater and are always under dynamic equilibrium with it. Withdrawal of fresh ground water from these aquifers may result in intrusion of saline water in coastal aquifers. Ground water in coastal areas of Northwestern regions of Sri Lanka occurs under unconfined to confined conditions in a wide range of unconsolidated and consolidated formations. Coastal areas of the Puttalam town area are rapidly being transformed into settlement areas. The poor water supply facilities have encouraged people to have their own source of water digging shallow wells. But, shallow groundwater in the Puttalam town area is identified as saline water.

Due to the over exploration for domestic and agricultural pumping in the coastal confined and unconfined aquifers in the study area has resulted lowering the groundwater levels as well as expect to increase the sea water intrusion. This has been a cause of reduction in the ground water reserves as reflected in the

lowered water table. It is always considered as a readily available and safe source of water for domestic, agricultural and industrial use (Bear, J. (1979), Gavich, E.K, Lysbewa, A.A, and A.A. Semionowa (1980). The objective of the present research study is to evaluate the impact on seawater intrusion due to various groundwater pumping scenarios in the Puttalam town area.