

Abstract

An annual averaged rainfall in the vicinity of Amphoe Muang Khon Kane is about 1100-1200 mm. The effective period of rainfall is July to October. Groundwater storage is replenished by the infiltration of rainfall water which varies with spaces and times. Natural groundwater flow regime in the vicinity of Amphoe Muang Khon kaen is controlled by various environmental factors, namely hydrology, geomorphology and geology of the area.

Fillable capacity of groundwater depends on effective infiltration and characteristics of the soils and rock types. There are two main types of recharge sources, direct rainfall and surface water storage (Nam Phong Reservoir). Topographical terrains are recognised (Hokjareon, 1986) as elongate hilly terrain, undulating-rolling terrain and low land alluvial terrain. Regional recharge area is located in the hilly and undulating - rolling terrains which occupy an area of about 50%. There are two main types of water bearing rocks, a) The unconsolidated aquifers composed of gravels, and silt and clay of the old and recent flood plain during the Quaternary age. b) The consolidated aquifers comprising of the layer of sandstone and shale above the rock salt layer and sedimentary

rocks of the Khorat Groups in which the fractures are filled with subsurface water. Groundwater yields in fractured rocks are variable due to structural geology, eg. density of fractures and heterogeneity of stratifications.

Groundwater flow systems can be envisaged into three systems, viz, local, intermediate and regional. Local and intermediate-regional flow systems involves with shallow and deep aquifer respectively.

Shallow groundwater is portable water but its quantity is variable. Deep groundwater quantity may be skeptical particularly in the discharge regions. General groundwater flow directions are flowing from the western and northwestern to the eastern and southeastern parts of the area. Moreover, conceptual groundwater model is also proposed in order to design for further program of studies.