

Chapter 1

Definition

Hydrology : the science that treats the waters of the Earth, their occurrence, circulation, and distribution, their Chemical and physical properties, and their reaction with the environment, including the relation to living things. The domain of hydrology embraces the full life history of water on Earth.

GW hydrology : science of the occurrence, distribution and movement of water below the surface of the earth

Geohydrology : identical connotation

Hydrogeology : differs only by its greater emphasis on geology

1.1 Scope

Saturated zone (water occupying all the voids within a geologic stratum)

--- important for engineering works, geologic studies, water supply developments

Unsaturated or aeration zone (voids are filled with water and air)

1.2 Historical Development

Qanats (Fig 1.2.1, 1.2.2)

Groundwater theories ----- Henry Darcy (1803-1858)

1.3 Trends in water withdrawals and use

US case - USGS (Table 1.3.1 and 1.3.2)

Thailand case - water situation and water account

1.4 GW utilization

US case – (Table 1.4.2)

Thailand case - water account

1.5 GW in the hydrologic cycle

Fig 1.5.1

Fig 1.5.2

Fig 1.5.4

1.6 Hydrologic budget

Fig. 1.6.1/ example 1.6.1

Look for Case study

1.7 Publication sources

Internet

USGS

DGR - Thailand (www.dgr.go.th)