Hydrogeological and groundwater terms that are often used by groundwater specialists:

Porosity: Porosity refers the portions of soils and rocks which are not occupied by solid matter, but possibly by water and air. These portions are normally called voids, interstices, pores or empty spaces. Since these empty spaces serve as water conduits or storages, they are very important when groundwater problems are concerned. Porosity may be classified as primary or secondary. Primary porosity are those which are originated by the same geological processes which gave rise to the various geological formations, and are found in sedimentary, igneous and metamorphic rocks. Secondary porosity are those which develop after the rocks were formed, and are found in all types of rocks as joints, fractures, faults, solution openings, etc. Porosity governs the amount of groundwater that could be stored in rocks.

Permeability: Measure of the easy of flow of water through rocks. The permeability of soils or rock materials constituting the porous media is a function of their effective porosity, structure, texture and geological history. By structure is meant the grain size, distribution, orientation, arrangement and shape of the solid particles.

Storage, storage coefficient, storativity*:* The storage coefficient (or storativity) is defined as the volume of water that an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in the component of head normal to that surface. For a vertical column of unit area extending through a confined aquifer, the storage coefficient S equals the volume of water released from the aquifer when the piezometric surface declines a unit height. The storativity S is a dimensionless quantity involving a volume of water per volume of aquifer. In most confined aquifers, values fall in the range 0.00005 to 0.005. The value for unconfined aquifers range from 0.01 to 0.3. This coefficient can best be determined from pumping tests of wells or from groundwater fluctuations in response to atmospheric pressure or ocean tide variations.

Transmissivity: The coefficient of transmissivity is the rate at which water flows through a vertical strip of the aquifer one meter wide and extending through the full saturated thickness, under the hydraulic gradient of one (100 %). It indicates how much water will move through the formation. It can also be defined as the product of the average hydraulic conductivity and the saturated thickness of the aquifer. It is one of the most important parameter in groundwater system analysis

Aquifer: A water bearing formation that releases water at economical rate. Aquifer is confined aquifer when its is under pressure from overlaying impervious rocks. When penetrated by a well the water level in the well is higher than the water strike depth. If the water level comes to the surface it forms an artesian well. An artesian well is reflection of pressure resting on the groundwater both from elevation and pressure heads.

Yield: Yield of a well is the volume per time discharge of a well. Aquifer yield is the amount of water that could be withdrawn out of it without causing major changes in water storage. Yield of a well is independent from yield of an aquifer.

Confined aquifer: A water bearing rock formation which occur between impermeable layers (aquitards or aquicludes) and whose water table is not connected to atmospheric pressure.

Unconfined aquifer: An aquifer whose water table is open to atmospheric pressure, have free water table, also known as phreatic aquifer

Unsaturated/ vadose zone/soil water zone: The unsaturated zone or vadose zone is the zone above the water table where the pore water pressure is less than atmospheric. The unsaturated zone, the pore spaces contain some air and some water.

Water table/groundwater level: Subsurface waters are divided into two main categories: the near-surface unsaturated or vadose zone and the deeper saturated or phreatic zone. The boundary between these two zones is the water table, which is technically defined as the surface on which the pore water pressure equals atmospheric pressure.

Saturated zone: The zone below the water table where water pressures are greater than atmospheric and the pores are saturated with water. Groundwater is the term for water in the saturated zone.

Artesian wells: A naturally flowing water well that is the result of sinking a well into a confined aquifer where the pressure of the water exceeds atmospheric pressure such that the water level emerges to the surface without need of pumping.

Safe yield/Sustainable yield: A complex concept with no clear definition relating to the volume of water that can be extracted under varied physical, environmental, and economic circumstances. It can generally be defined as the amount of groundwater which can be withdrawn from an aquifer annually without producing an undesirable result.

Over exploitation or mining: In case of abstraction of groundwater more than an aquifers stainable yield it said that 'aquifer is mined' or 'over exploited'. 'over-exploitation mean thus storage depletion in excess of the maximum sustenance storage of the basin of groundwater aquifer and/or where water quality has deteriorated as a result of abstraction.

Exploration: The process of applying traditional and scientific methods (geological, geo-morphological, Remote Sensing; geophysical etc) to map groundwater occurrences and estimate its reserve and use.

Exploitation: The process of pumping/abstracting groundwater resources for use

Wells (exploration, exploitation, monitoring): Water wells are drilled at various stages of groundwater exploration and use. In groundwater assessment phase the objective is to map and look for groundwater occurrences. In this stage water wells could be drilled to verify conceptual models and define aquifer geometries and property of the aquifers. These wells are called exploration wells. During groundwater abstraction stage exploitation wells or also called production wells or pumping wells are drilled. In order to make sure sustainability of the pumping and monitor the impact of pumping on groundwater resources observation wells also called piezometers are inserted into the aquifer so as to monitor water level changes and changes in other properties of the aquifer (eg. water quality changes). Observation wells are also called monitoring wells. A borehole drilled to obtain information on the geology/groundwater conditions in a specific place. (In some cases these are retained and equipped as monitoring wells). Monitoring borehole is borehole constructed to allow collection of long-term data on variations in groundwater levels or quality