A4

Glossary

Adsorption A process of adhesion to the surface of a

material.

Alluvium Soil or sediments deposited by a river or other

running water comprising gravel, sand, silt and

mud.

Aeolian sand Material which has been transported by

the wind and as a consequence is worn and

deposited as small, rounded particles.

Aguifer A formation of rock or sediment that contains

quantities of water that can be released in

usable quantities.

Aquitard A formation of rock or sediment with a low

permeability that stores groundwater but delays

its flow elsewhere.

Arid Relates to climates or regions with an average

annual rainfall of less than 200mm.

Biofouling Bacterial slime of algae and micro organisms

which grows on immersed equipment such as well-points and pipe work. Excessive accumulation creates blockages of screen

apertures and pipe work.

Caisson A concrete or brick structure on the bed of a

river constructed for abstracting water.

Clastic sedimentary rocks are rocks composed

predominantly of broken pieces or 'clasts' of

older weathered and eroded rocks.

Collector well A vertical well shaft incorporating one or more

horizontal screens that allows groundwater to infiltrate from riverbed sediment, the base of the river channel or from a gravel or sand bed.

Compaction The process of granular material becoming more

closely packed together.

Confined aquifer An aquifer that is bounded above and below

by formations of lower permeability. The aquifer itself is not in direct connection with the atmosphere and does not have a free water-table.

Contaminant A chemical or biological suspension that is

detrimental to water quality and reduces its usability for drinking, food preparation or

washing.

Dryland Land that may have vegetation suitable for

grazing livestock but is too arid for crop farming.

Endogenous river A regularly flowing river or stream that

originates within arid lands. Such rivers often do not reach the sea but drain into inland basins where the water evaporates and is lost in the

ground.

Ephemeral river A stream or river which does not flow at all times

of the year.

Erosion Wearing away of rock and land surface largely

by the actions of material carried by water or

wind.

Evaporation The loss of water due to a change from liquid to

vapour phases, made worse by high temperatures

and wind.

Evapo-transpiration The total loss of moisture from the soil and

open water through evaporation and by transpiration from growing plants in the form

of water vapour.

Exogenous river A perennial river flowing through a dryland

area with a source outside the arid zone.

Flood plain Flat land alongside a river that consists of

alluvium deposited by the river when in flood.

Groundwater Water that occurs beneath the land surface and

which fills the voids of the alluvium, soil, or

rock formation in which it is situated.

Gravelbed A deposit of rounded stones between 2mm and

80mm diameter that were formed by the action of moving water, usually mixed with finer materials such as sand or clay and typically the

surface will be vegetated.

Hafir A lined or unlined artificial reservoir collecting

water from a river channel or rainfall from

surface run-off.

Headworks Infrastructure around a pump, generally

concrete work, intended to keep the pump

surrounds clean and drained.

Hydraulic head Potential energy contained in a mass of water

due to differences in elevation and atmospheric

pressure.

Infiltration The flow of water downward from the land

surface into and through the upper soil layers.

Infiltration gallery One or more horizontal screens placed adjacent

to or directly beneath a shallow source of water

to increase the supply.

Jetting A process of installing a well-point into

sediment using a jet of water.

Manifold A chamber with one or more inlets that reduces

the velocity of water through a supply system.

Mineral salts Salts released from rocks that are dissolved in

water. Fast draining aquifers tend to contain few salts, slow draining aquifers may be more saline.

Offset (false well) A well adjacent to a river with water artificially

supplied from river alluvium.

Open surface A water surface open to evaporation.

Paleo river channel

(fossil riverbed)

A river channel that occurred at a time when the climate of a region was wetter than at present and no longer has a flow of water.

Permeability A measure of the ability of rocks or sediments to

allow the flow of water, measured in metres per

unit time.

Perched aquifer An aquifer that is not connected with the main

body of groundwater due to an underlying layer

of impermeable material.

Perennial river A stream or river with continuous flow.

Persian Wheel A vertical wheel with buckets for lifting water

from a depth approximately the radius of the

wheel, usually animal-powered.

Porosity The ratio of the voids or open spaces in

alluvium (and rocks) to the total volume of the

alluvium or rock mass.

Potable water Water of sufficient quality to serve as drinking

water that does not contain disease producing vectors or pathogens and whose chemistry does

not cause long-term health problems.

An underground tunnel constructed into a Qanat

(karez or foggara) hillside to access an aquifer. The tunnels gently rise to the aguifer to allow the water to drain

under the influence of gravity.

Run-off Water moving over a land surface which is not

absorbed into the soil.

Safe water Water that is not harmful for human beings or

contaminated to the extent of being unhealthy.

Sand-abstraction The process of taking water from the saturated

sediment of sand rivers.

Sandbed A layer of sediment whose grain size is between

0,06mm and 2mm (finer than a gravel bed).

A seasonal unlined well excavated in river Sand well (scoop well)

channel sediment to access saturated sediment.

Saturated sediment Sediment in which all pores, voids and

interconnected openings are filled with water.

Seasonal river River or stream that flows only during and

following rainfall and is dry at all other times.

Sediment Layers of coarse to fine grained rock particles

deposited by flowing water or by wind action.

Seepage A diffuse flow of water from an aquifer.

Self jetting well-point A well-point incorporating a valve to allow

> direct installation by jetting. When pumping commences the valve closes forcing water to

enter the well-point through a screen.

Semi-arid Relates to climates or regions with an average

annual rainfall of less than 600 mm.

Specific yield The ratio of the volume of water in a soil or

rock, that will flow by gravity drainage, to the

total volume of the material.

Shadoof A hand device used to raise water by way of a

counter-balanced pole, with a bucket at one end

and a weight on the other.

Transmissivity A measure of the volume of water that can

move horizontally through the entire saturated thickness of an aquifer, measured in metres squared per unit time and used to determine the

potential yield of a well or well-point.

Unconfined aquifer An aquifer which is not bounded on top by

an aquitard, the upper surface of which is the

water-table.

Wadi A dry riverbed in an arid zone that contains

water only during times of heavy rain. As flow is often the result of an intense localized storm a

wadi typically has no source or outlet.

Water-table Level in the ground below which rock strata are

saturated with water.

Weathering Breakdown of rocks resulting from the action

of wind, rain, temperature change, plants and

other organisms.

Well-point A pipe or screen with openings large enough

to allow water to enter and small enough to exclude most of the water-bearing sediment. The size of openings in the well-point is

determined by analysis of the size of particles in

the alluvium.

Well-screen A holed or slotted mechanism for separating

water from sediment, see well-point.