

## Using Groundwater

In some cases groundwater comes to the ground surface naturally in the form of a spring, marsh, stream or lake. This happens when the water table comes up to the ground surface, often in or near valleys. In other cases a hole must be dug or drilled into the ground to access the water. Wells have been dug by hand for centuries, and some are still dug in that way today. Where the water table is far beneath the ground surface, or where the rocks are too hard or strong to dig through by hand, a borehole must be drilled. A borehole is usually a vertical hole, less than half a metre in diameter and tens or even hundreds of metres deep. Boreholes are usually drilled with a mechanical drilling rig, although in some cases they can be drilled with hand-operated equipment. Most boreholes are prevented from collapsing by the installation of casing or screen to support them and keep them open, and this is usually done when the borehole is drilled.

Whilst water can be drawn from hand-dug wells in buckets, most boreholes must be equipped with mechanical pumps. Pumps are often hand operated, although in some cases the pump may be powered by electricity or diesel. Powered pumps can deliver much larger volumes of water, and are often used for irrigation, or for water supplies for whole villages or towns. It is important to seal and protect the top of the borehole properly in order to prevent polluted water from draining down into the aquifer from the surface. This is why many pumps are situated on concrete platforms or plinths, which help to drain surface water and spills away from the borehole.

Source: J Davies et al (2002) Development of a curriculum and training of supervision teams in borehole construction in Malawi. British Geological Survey Internal Report CR/02/219N