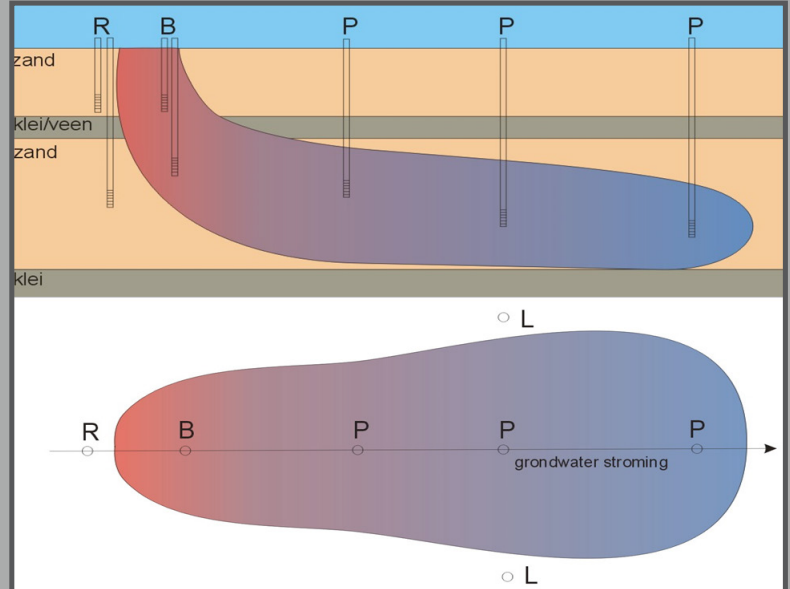




## Setting up a Groundwater Monitoring Network

Setting up a Groundwater Monitoring Network When we have to configure equipment to set up a groundwater monitoring network, we must think about the following considerations:

- **Access to the site.** Some sites are remote, some sites where data may be sensitive and data retrieval might be a problem or access is not possible for different reasons. This will be very important when planning data retrieval frequencies.
- **Installation of measuring equipment** (in the well and above the ground). There may be existing restrictions that limit our installation possibilities such as vandalism, visual impact, animals, etc.
- **The environmental risk for operators.** Monitoring points may be, for example, inside a decommissioning nuclear power plant or in a contaminated site, so access may be restricted for health and safety reasons.
- **Environmental risk of the site.** Many sites are inside protected areas because of fauna or plant life conservation so operations and equipment on the site may be restricted.
- **Frequency of visits to the site.** This is a very important point when programming recording intervals and budgeting for a project. Very frequent visits to remote points may be avoided by installing a telemetry system.
- **GPRS/3G signal.** We must think about the place where we are going to install the data transmission system. We will probably have to hide it under the ground, so the signal will



always be weaker than outside. Testing before final installation is compulsory to avoid further problems with the data transmission signal.

- **Data importance.** We have to ask ourselves about the consequences of losing a data series because of such issues as a component in the system malfunctioning. If the data is extremely important we have to install a back-up solution that will negate data redundancy. Many telemetry solutions include the possibility of having data backed up, even in the worst situations.
- **Expected water level fluctuation.** This value will allow us to adjust the measuring range of our equipment and take care that everything that must remain dry is not covered by water.
- **Last but not least: budget.** This is a very important factor. Before starting the design of a network, we must clarify the availability of funds, not only for equipment and installation but also for on-going maintenance of the system and site visits.