

# The WaterCompass

Results of the WaterCompass Tool. The tool was created by Practica Foundation ([www.practicafoundation.nl](http://www.practicafoundation.nl)) and the Akvo Foundation ([www.akvo.org](http://www.akvo.org)), in order to assist people in choosing water technologies. We hope this tool proves useful, any comments can be send to [watercompass@practicafoundation.nl](mailto:watercompass@practicafoundation.nl).

Session information

Date: Tue Dec 10, 2013

Time: 16:24:51

## Options chosen

### Water source

- Rainwater
- Surface water
- Groundwater

### Location

- Densely populated urban
- Densely populated low-income urban
- Moderately populated urban
- Peri-urban, rural
- Remote rural

### Preferred level of delivery

- Household
- Shared
- Small community
- School or institution
- Large user group

### Preferred management level

- Household
- Shared
- Small community
- Municipal

### Affordability

- User-financed
- Donor-financed

### Intended system sophistication

- Labor-intensive
- Intermediate
- Technology-intensive

### Intended use

- Drinking only
- Domestic use
- Domestic small-scale productive use

### Contamination

- Pathogenic (micro)
- Pathogenic (macro)
- Arsenic
- Fluoride
- Iron
- Manganese
- Heavy metals
- Sulphate
- Chlorine
- Salts
- Pesticides
- Nitrate
- Phosphate
- Odor and taste
- Turbidity suspended solids
- Hardness
- Acidity
- Lack of oxygen

### Ground formation

- Sand gravel
- Clay formations
- Compacted formations
- Soft weathered rock
- Bedrock

### Water lifting

- Not required
- 0-8 m
- 8-15 m
- 15-40 m
- >40 m

### Annual precipitation

- less then 200 mm
- more then 200 mm; seasonal
- more then 200 mm; year-round



Mechanized  
drilled wells

# Short descriptions

## Mechanized drilled wells

Well drilling is executed with machine mounted on truck or trailer and may be accompanied by large compressors or mud pumps. Key sub-methods include augering, jetting, down-the-hole (DTH) and cable tool. Each designed for specific geo-hydrological conditions with their own advantages and disadvantages.

Financial - Small mechanized drilling equipment may cost USD3,000-10,000, but those are generally unsuitable for drilling a large number of wells and have limitations in penetrating hard rock and greater depths. Larger rigs cost in the range of USD100,000 or more. A 30m well may cost USD5,000-15,000 and is drilled in 1-2 days.

Institutional - Mechanized well drilling can best be done by a specialized company. They are usually hired by a donor institute or government implementation program. For wells that are drilled by machine, it is common to do a geo-physical survey by a geo-hydrologist to determine drilling depth, drilling method and expected yield.

Environmental - Such wells feature good quality water and resilient well construction if well specified in contracts. Increasing the number of deep wells in an area may result in the lowering of groundwater level.

Technical - It is required to have a specialist supervising the drilling activities and to prepare a drilling contract. Common drilling depths range between 30 and 100 meters.

Social - High acceptance level by users due to good quality drinking water. The constructed (often) deep wells offer an ideal public health improving solution in areas where both surface and shallow groundwater is contaminated. Equipment for pumping might include sophisticated technologies that make local maintenance difficult.

### Relevant remarks

**Location** - selection **Densely populated urban** - Technology might be suitable  
Most suitable in low population density areas with sufficient space for well and protection area.

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