

# Appendix 1.

## Measuring Soil Infiltration Rates

The method outlined below (adapted from Davis and Lambert, 2002) gives a general feel for the infiltrative capacity of the soil under test – and provides relevant information for infiltration from soakpits or latrines. Such a test should be undertaken at the same depth as the base of the pit to ensure that the test is not distorted by any variation in material with depth.

**Method:** Force an open steel cylinder (i.e. without ends) of about 300mm diameter a few centimetres into the soil so that it stands upright. Place an upright ruler or gauge stick marked in millimetres into the cylinder. Fill the cylinder with clean water and measure the fall in water level at convenient intervals (5, 10, 20, 30 minutes) as water infiltrates into the soil.

**Interpretation:** Determine the infiltration rate during each time period and take the average of the results. This will give a very rough guide to the infiltration rate, which is likely to be all that is required for this application.

$$\begin{aligned} &\text{The percolation value (or infiltration rate) in mm /day} \\ &= \frac{\text{drop in level (mm)}}{\text{time (days)}} \end{aligned}$$

e.g. If the water level drops 12mm in 30 minutes:

$$\begin{aligned} \text{Infiltration} &= 12/30 \times 60 \times 24 = 576 \text{ mm/day} \\ &(\text{typical value for sandy loam}) \end{aligned}$$

*Note: The value in mm/day is always equal to the value in litres/m<sup>2</sup>/day.*

For soakpits or pit latrines to function correctly the infiltration rate for clean water should be at least 120mm/day.