Annex 4 - Determining the required infiltration capacity of the pit

The table below provides a quick guide by using several general assumptions.

	Flushes per day		
Flush volume	2	3	4
1 litre	**1.5** mm/hr	**1.5** mm/hr	**2.0** mm/hr
5 litres	**3.5** mm/hr	**5.0** mm/hr	**6.0** mm/hr
10 litres	**6.0** mm/hr	**8.5** mm/hr	**11.5** mm/hr

Suggested minimum design infiltration rates: *table above assumes 1 litre for anal cleansing pppd, 1.5 litre urine pppd, adds a +25% safety factor, assumes 0.2m^2 pit surface area pp and is rounded up to the nearest 0.5mm/hr.*

The actual specific required infiltration capacity of the pit can be determined using the method below.

The specific required infiltration capacity will depend on the type of latrine pan used. For example, a pour flush latrine that requires 7 litres to flush, which is used by 5 people who on average each flush twice per day will require a daily infiltration of 70 litres, plus 1.5 litres of urine per person (total 7.5 litres) plus any water used for anal cleansing that falls into the latrine pan, in this example 0.5 litres per person per day (total 2.5 litre). Therefore a total of 80 litres. As the number of users can some days be higher, for example due to visitors, it is advisable to add a safety factor of at least 25%. Therefore 80*1.25 = 100 litres per day.

Daily Water into the Pit (liters) = (Liters required to flush the toilet type x Expected flushes per person per day + Liters of water used for anal cleansing +/ 1.5 liters urine) x Maximum number of expected daily users x 1.25 Safety factor

From community consultation and/or observation

Required Minimum Infiltration Rate (mm/hr) = **Daily Water into the Pit (litres)** / Area of the proposed pit (m2) / 24

Soil type	Basic infiltration rate (mm/hour)

sand	less than 30
sandy loam	20 - 30
loam	10 - 20
clay loam	5 - 10
clay	1 - 5

FIELD INFILTRATION TEST

Equipment required

Shovel/hoe
Hammer (2 kg)
Watch or clock
5 litre bucket
Timber (75 x 75 x 400)
Hessian (300 x 300) or jute cloth
At least 100 litres of water

Important note: If possible, you should try to conduct a site filtration test during the peak of the rainy season or at least get information from locals on the ground water level at peal of rainy season.