

Reference indicators

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These tables show some guiding indicators for water and sanitation. The reference for stable situations must be the national standards. As it is difficult to determine reference indicators for all contexts, those included in the tables are only some examples chosen from some programmes.

1 Water and sanitation guiding indicators depending on the situation

	Emergency	Stable situation
Minimum quantity for human consumption (drinking + cooking + hygiene)	15 litres/person/day	National standard 30 - 60 litres/person/day
Nutrition centres	30 litres/patient/day	50 - 220 litres/patient/day
Health centres	50 litres/patient/day	
Maximum distance from water point	500 metres	50 metres
Number of people per water point	15 litres person/day 8 hours of supply: – 500 people per handpump (16.6 l/min.) – 400 people per open well (12.5 l/min.) – 250 people per 3/4" tap (7.5 l/min.)	50 litres person/day hours of supply – 150 people per handpump (16.6 l/min.) – 120 people per open well (12.5 l/min.) 75 people per tap (7.5 l/min.) Household connection
Maximum waiting time	15 minutes	No waiting time, or few minutes
Water quality	0 coliforms / 100 ml	
	Sanitation survey indicates a low risk of possible faecal contamination	
	For populations of more than 10 000 people, in locations where there is a high risk of epidemics, or where there is a high occurrence of diarrhoeas, <i>it is recommended to chlorinate the water</i> and ensure a residual chlorine level of 0.5 mg per litre and less than 5 NTU turbidity	

	Emergency	Stable situation
Water quality	For physico-chemical parameters, use the WHO guideline values and assess the danger of consuming the water for a short period (in emergencies), thus opening up the possibility of using other water sources. If the danger is deemed very high, the water should not be used Total dissolved solids should not exceed 1 000 mg/litre, or a conductivity of 2 000 µs/cm In order to avoid negative health effects, the water should not contain chemical or radioactive contamination	
Defecation areas	At least 50 m away from the nearest water point Trenches: 2.5 m x 0.3 m x 1 m for 100 people	No defecation areas
Latrines	First phase: 1 public latrine per 50 people Second phase: 1 public latrine used per 20 people Third phase: 1 family latrine used per family	1 latrine per family
Access to latrines	More than 50 m from the nearest water point Less than 50 m from the house	

2 Planning guidelines for minimum water quantities for institutions and other uses (Sphere 2004)

Health centres and hospitals	5 litres/outpatient 40-60 litres/inpatient/day Additional quantities may be needed for laundry equipment, flushing toilets etc.
Cholera centres	60 litres/patient/day 15 litres/carer/day
Therapeutic feeding centres	30 litres/inpatient/day 15 litres/carer/day
Schools	3 litres/pupil/day for drinking and hand-washing (use for toilets not included: see below)
Mosques	2-5 litres/person/day for washing and drinking
Public toilets	1-2 litres/user/day for hand-washing 2-8 litres/cubicle/day for toilet cleaning All flushing toilets 20-40 litres/user/day for conventional flushing toilets connected to a sewer 3-5 litres/user/day for pour-flush toilets Anal washing 1-2 litres/person/day
Livestock	20-30 litres/large or medium animal/day 5 litres/small animal/day
Small-scale irrigation	3-6mm/m ² /day, but can vary considerably

3 Planning guidelines for minimum numbers of toilets at public places and institutions in disaster situations (Sphere 2004)

Source: Sphere Project, 2004 (adapted from Harvey, Baghri & Reed 2002).

Institution	Short term	Long term
Market areas	1 toilet to 50 stalls	1 toilet to 20 stalls
Hospital/Medical centres	1 toilet to 50 outpatients	1 toilet to 20 outpatients
Feeding centres	1 toilet to 20 child	1 toilet to 10 child
Reception and transit centres	1 toilet per 50 people 3:1 female to male	
Schools	1 toilet to 30 girls 1 toilet to 60 boys	
Offices	1 toilet to 20 staff	

4 Guiding indicators linked to food security

Table I: Water quantity requirements.

Kitchen gardens	Depends on the type of plant, but as a minimum guideline: 5 litres/m ² /day
Small animals* (goats and sheep)	5 litres/head/day
Large animals*	
– donkeys	20 litres/head/day
– cows	30 litres/head/day
– camels	40 litres/head/day

* In tropical and semi-tropical countries, a standard unit, equivalent to a cow of 250 kg, the Tropical Livestock Unit (TLU), is used. This unit is used as a reference for all animals with the following ratio:

– cows and horses:	1 TLU
– donkeys:	0.4 TLU
– sheep and goats:	0.2 TLU
– camels:	1.2 – 2 TLU

Table II: Recommended microbiological quality guidelines for wastewater use in agriculture¹
(from Cairncross & Feachem 1983, *Environmental health engineering in the tropics*).

Category	Reuse conditions	Exposed group	Intestinal nematodes ² (arithmetic mean ³ no. of eggs per litre)	Faecal coliforms (geometric mean ³ no. per 100 ml)	Wastewater treatment expected to achieve the required microbiological quality
A	Irrigation of crops likely to be eaten uncooked, sports fields, public parks ⁴	Workers, consumers, public	No more than 1	No more than 1000 ⁴	A series of stabilisation ponds designed to achieve the microbiological quality indicated, or equivalent treatment
B	Irrigation of cereal crops, industrial crops, pastures and trees ⁵	Workers	No more than 1	No standard	Retention in stabilisation ponds recommended for 8 – 10 days or equivalent helminth and faecal coliform removal
C	Localised irrigation of crops in category B but only if exposure of worker and the public does not occur	None	Not applicable	Not applicable	Pre-treatment as required by irrigation technology, but not less than primary sedimentation

1. In each specific case, local epidemiological, socio-cultural and environmental factors should be taken into account, and the guidelines modified accordingly.
2. *Ascaris* and *Trichuris* species and hookworms.
3. During the irrigation period.
4. A more stringent guideline (no more than 200 faecal coliforms per 100 ml) is appropriated for public lawns, such as hotel lawns, with which the public may come into direct contact.
5. In the case of fruit trees, irrigation should cease two weeks before fruit is picked, and no fruit should be picked off the ground. Sprinkler irrigation should not be used.