Webinar #4
Surge Training: Emergency WASH

6 October 2022

Good webinar behaviour

- Please keep your microphone on mute and your video switched off
- If in need of technical assistance, please send a message to Jessie at +6019 779 9374
- The total length of the webinar will be 1 hour 15 mins (presentation, followed by Q&A session at the end)
- If you have any question, please raise it during the Q&A session at the end or post them in the chat box

Moderator and resource persons

Moderator

Suvechhya Manandhar is the PMER Coordinator for WASH Division in Nepal Red Cross Society. She has been involved in WASH sector for the last six years. Her main responsibilities are to strengthen WASH in PMER sector and generate reports for different WASH projects.

She has prior experience of working in different departments within the National Society. Suvechhya is a member of the IFRC surge roster.

Resource persons

Wendy Neoh is the Senior Officer, Emergency WASH based at the IFRC Asia Pacific Regional Office. She works closely with WASH and Health counterparts in Asia Pacific National Societies and IFRC delegations in the region. Her main responsibilities are to strengthen emergency WASH preparedness and response through technical and programme management support.

Before joining the IFRC in 2014, she was managing and implementing developmental WASH programmes in various Southeast Asia and South Asian countries, at a Malaysian-based NGO.

Jessie Lucien is the Health Programme Officer, who is providing technical support for the web platform and the webinar series, as well as managing administrative and financial matters, in relation to the surge training in Indonesia.

She has been providing support to the Health and WASH team in the IFRC Asia Pacific Regional Office since 2013.

Resource speakers

Ewinur Machdar (Ewi) is the COVID-19 Operations Coordinator in IFRC CCD Indonesia and Timor-Leste.

She has more than 18 years of work experience in INGOs and Red Cross Movement as a WASH delegate. She has been deployed in both emergency response and developmental programmes in various countries. Ewinur is member of IFRC surge roster and Australian RC delegate pool. She has co-facilitated various WASH trainings including ERU M20. Ewinur is joining us from Jakarta, Indonesia.

Akbar Eka Prasetya joined the Indonesian Red Cross (PMI) as a volunteer in 1999 at the PMI North Jakarta branch. In 2013, he joined as a staff at the PMI Emergency Water and Sanitation Centre located in Jatinangor, West Java. In 2015, he was then transferred to PMI NHQ in Jakarta under the Water and Sanitation Subdivision.

His key responsibilities are to deliver emergency WASH services nationwide and managing community WASH projects. He is also responsible in developing and strengthening the capacity of PMI WASH members. Akbar is joining us from Bali, Indonesia.

Sanitation in emergencies: Part 1

Surge training: Emergency WASH

Learning objectives

- To understand what is sanitation
- To understand how to select the right option for excreta disposal
- To be familiar with different technical options for excreta disposal in emergencies
- To understand the issues to be considered about usage of toilet

World statistics

Waterborne diseases are the top 10 killer disease (WHO 2019)

An estimated **4 billion diarrheal cases** each year

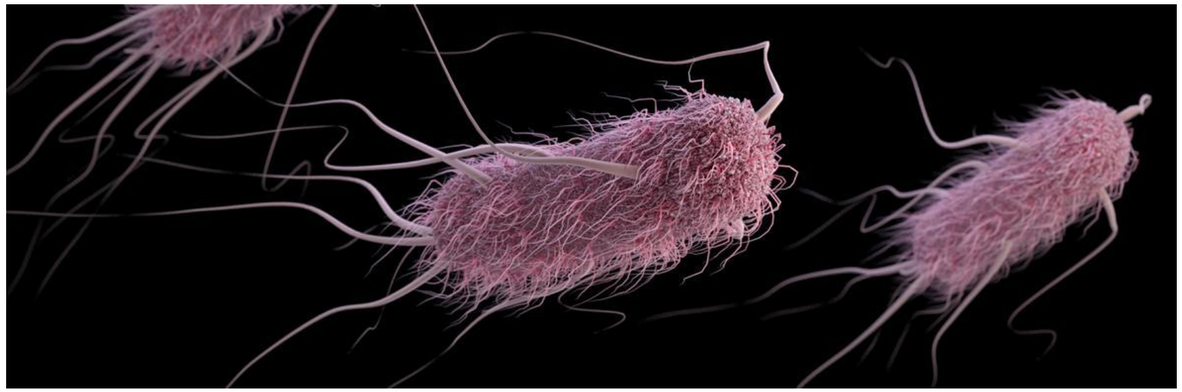
1,53 million deaths reported in 2019

(of which 90% are children aged 5 years and under)

- 1 in every 4 people in the world, especially in Asia & Africa do not have access to clean drinking water.
- Nearly half of the total population in the developing world, suffers from water-borne diseases and lacks safe water care and environmental services.

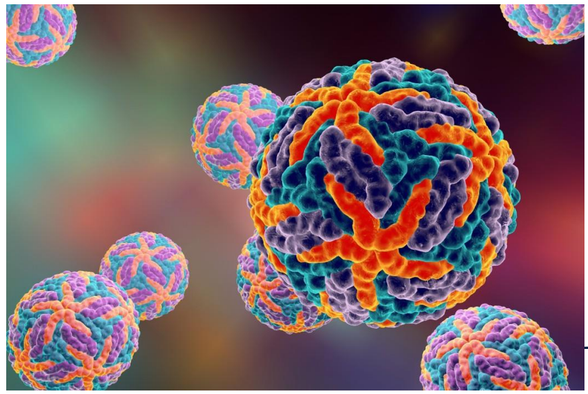
Water related diseases

Water-borne diseases	Water-based diseases	Water-washed diseases	Water-related (vector) diseases
Caused by drinking of water contaminated by human or animal excrement, which contain pathogenic microorganisms	Caused by parasites found in intermediate organisms living in contaminated water. E.g. transmitted through swimming in dirty water	Caused by poor personal hygiene resulting from inadequate water availability	Caused by insect vectors especially mosquitoes, that breed or feed near contaminated water
Cholera, typhoid, dysentery, diarea	Guinea worm, leptospirosis Schistosomiasis,	Scabies, trachoma, typhus, and other flea, lice and tick-borne diseases	Dengue, filariasis, malaria, yellow fever



E.coli

Shigella



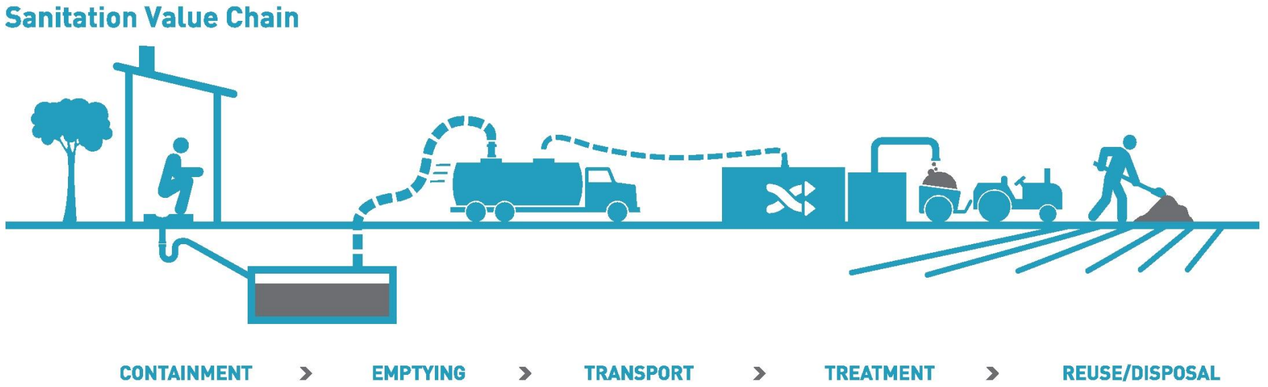
Dengue virus

What is Sanitation?

- Liquid waste:
- Grey water (kitchen wastewater)
- Black water (human excreta), which covered from containment to the disposal
- Drainage (stormwater)

- Solid waste

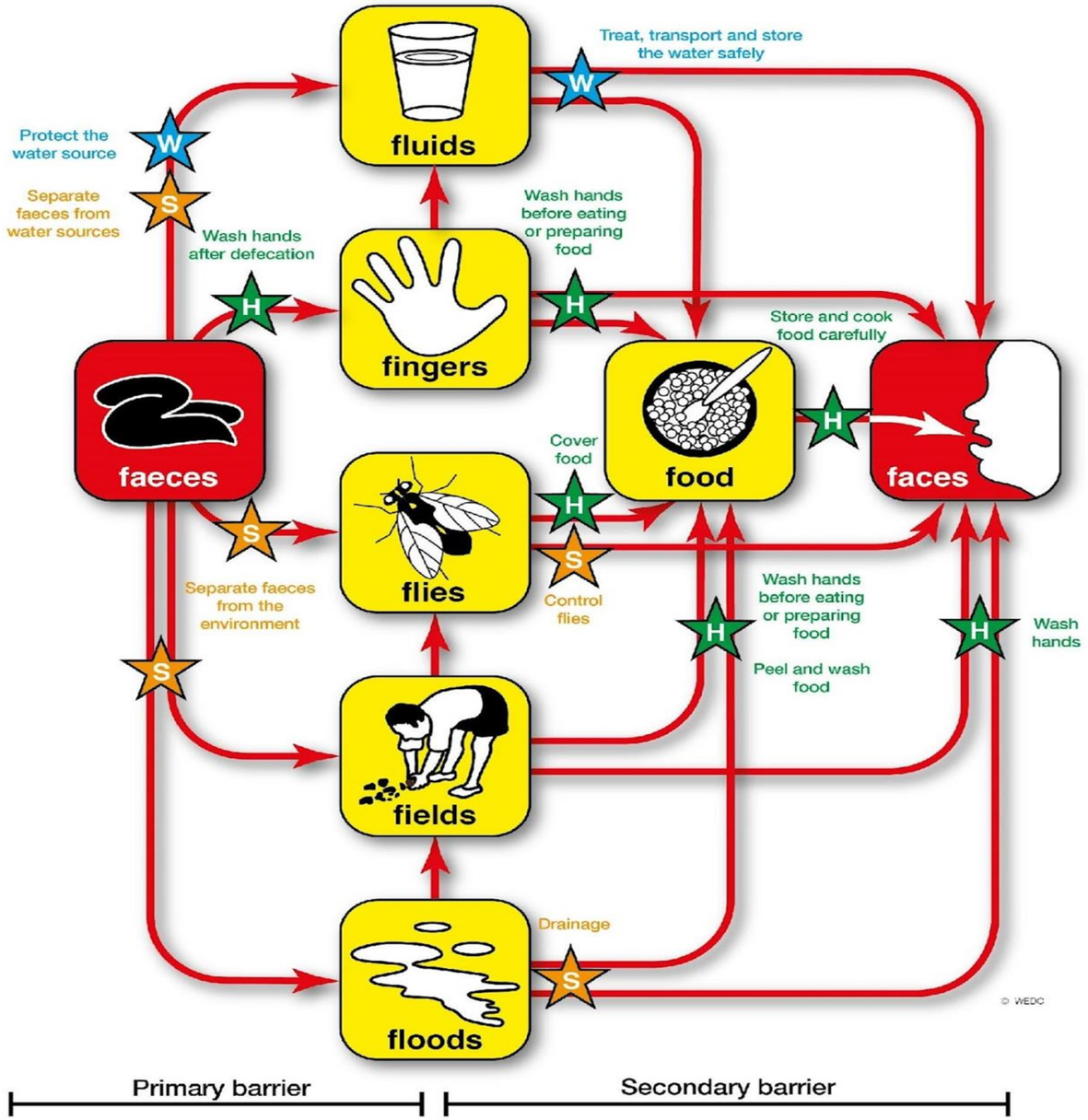
- Vector control



REMEMBER!!!

Manage the entire sanitation chain and component in an integrated manner! All are interlinked and failure to do that will cause health risk.

Transmission of diarrheal diseases



The ‘f’ diagram

The movement of pathogens from the **faeces** of a sick person to where they are ingested by somebody else can take many pathways, some direct and some indirect.

This diagram illustrates the main pathways. They are easily memorized as they all begin with the letter ‘**f**’: **fluids** (drinking water) **food**, **flies**, **fields** (crops and soil), **floors, fingers** and **floods** (and surface water generally).

W WATER

S SANITATION

H HYGIENE

Barriers can stop the transmission of disease; these can be primary (preventing the initial contact with the faeces) or secondary (preventing it being ingested by a new person). They can be controlled by water, sanitation and hygiene interventions.

Note: The diagram is a summary of pathways: other associated routes may be important. Drinking water may be contaminated by a dirty water container, for example, or food may be infected by dirty cooking utensils.

How do we do excreta disposal in an emergency

Inputs from operations team	Cycle
• Community consultation process to feed into design, siting and maintenance of emergency hardware facilities • Ensure understanding of different target groups • Provide feedback on modifications in design of facilities • Baseline survey: monitor sanitation coverage	Rapid assessment & planning design ↓ Implementation: **1st phase** – Immediate action ↓ In-depth assessment & planning design ↓ Implementation: **2nd phase** – medium term action ↓ Monitoring

Sphere standards: Excreta management

Excreta management standard 3.1: Environment free from human excreta

- All excreta is **safely contained on-site** to avoid contamination of the natural, living, learning, working and communal environments.
- **Key indicators**:
  - No human faeces present in the environment where people live, learn and work
  - All excreta containment facilities are sited appropriately and are an adequate distance from any surface or groundwater source

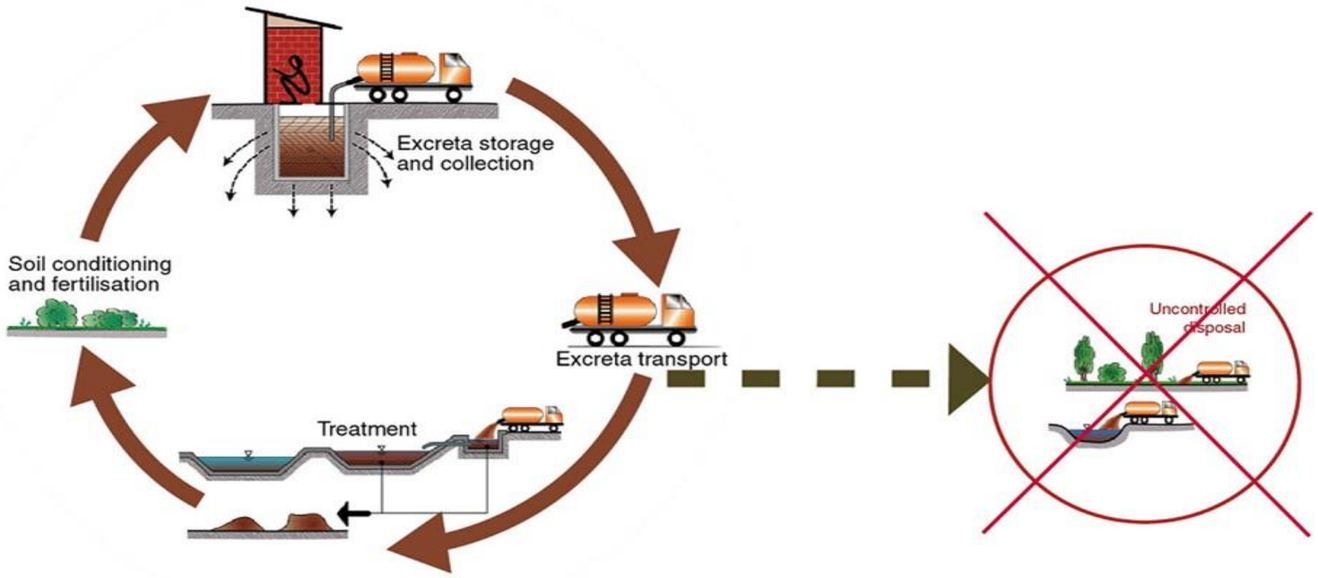
Excreta management standard 3.2: Access to and use of toilets

- People have **adequate, appropriate and acceptable toilets** to allow rapid, safe and secure access at all times.
- **Key indicators**:
  - Communal toilets are an immediate solution with a minimum ratio of 1 per 50 people, which must be improved as soon as possible. A medium-term minimum ratio is 1 per 20 people, with a ratio of 3:1 for female to male toilets
  - Maximum 50 metres between dwelling and shared toilet, 30 m from water points
  - the bottom of any latrine or soak-away pit is at least 1.5 m above the water table
  - % of toilets that have internal locks and adequate lighting
  - % of toilets reported as safe by women and girls
  - % of women and girls satisfied with the MHM options at toilets they regularly use

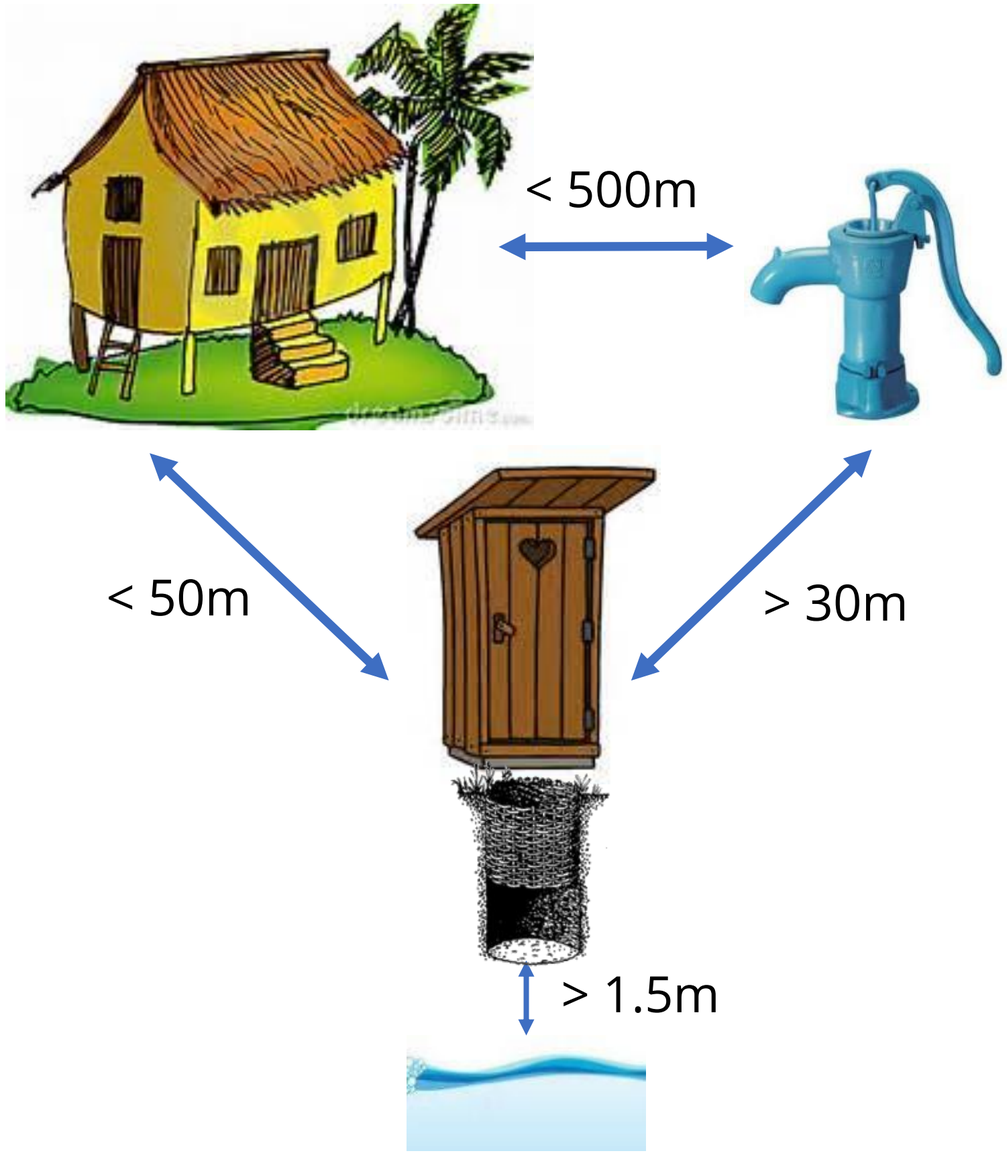
Sphere standards: Excreta management

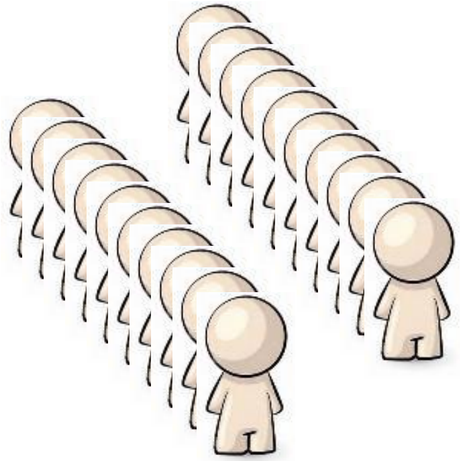
Excreta management standard 3.3: Management and maintenance of excreta collection, transport, disposal and treatment

- Excreta management facilities, infrastructure and systems are safely managed and maintained to ensure service provision and minimum impact on the surrounding environment.
- **Key indicator**:
  - All human excreta is disposed of in a manner safe to public health and the environment



Sphere standards: Key quantitative indicators





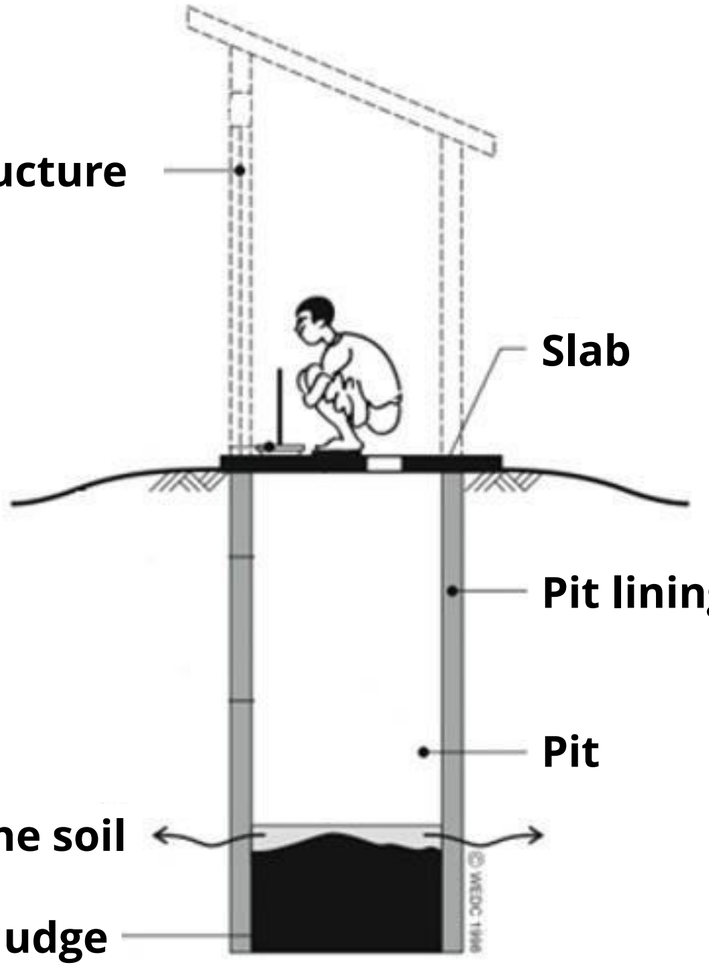
20 users

RATIO
3 : Female
1 : Male

Question: In your village, 160 people were affected by floods and have to evacuate to a nearby school, how many temporary toilets do you need to build and how many units should be built for women, and how many for men?

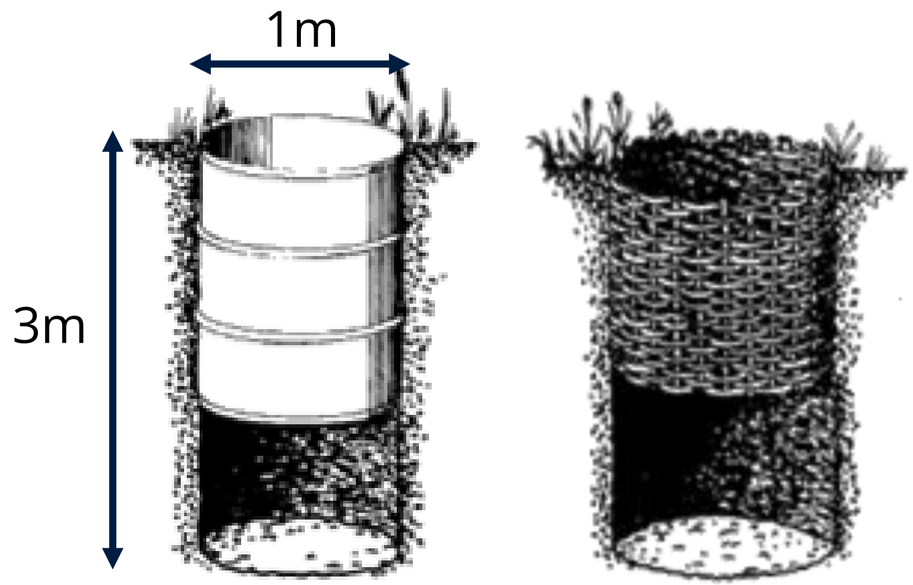
Answer: 8 toilets, 6 for women: 2 for men

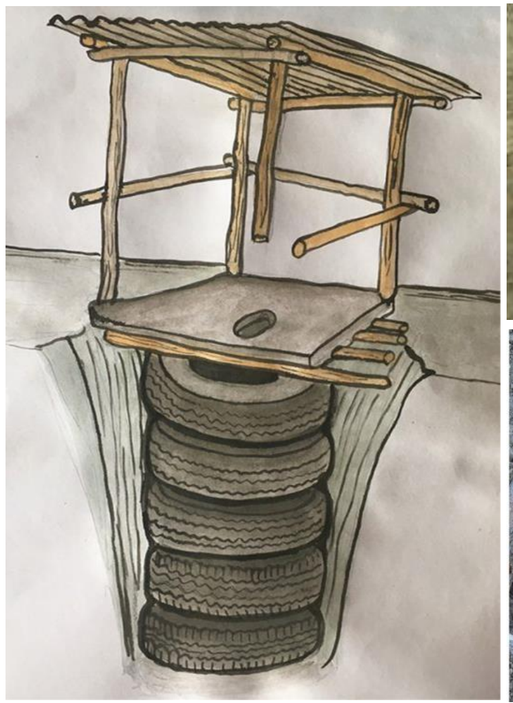
Latrine components: The basics



Latrine component: Pit

- Dimension: 1m across and 3m deep
- Best shape: Circular
- The top 0.5m of a pit should be lined (but depends of soil):
  - Hard/firm soil: no lining likely to be needed
  - Soft/loose soil: need to line to prevent the sides from collapsing
- Different pit lining material: locally available and acceptable



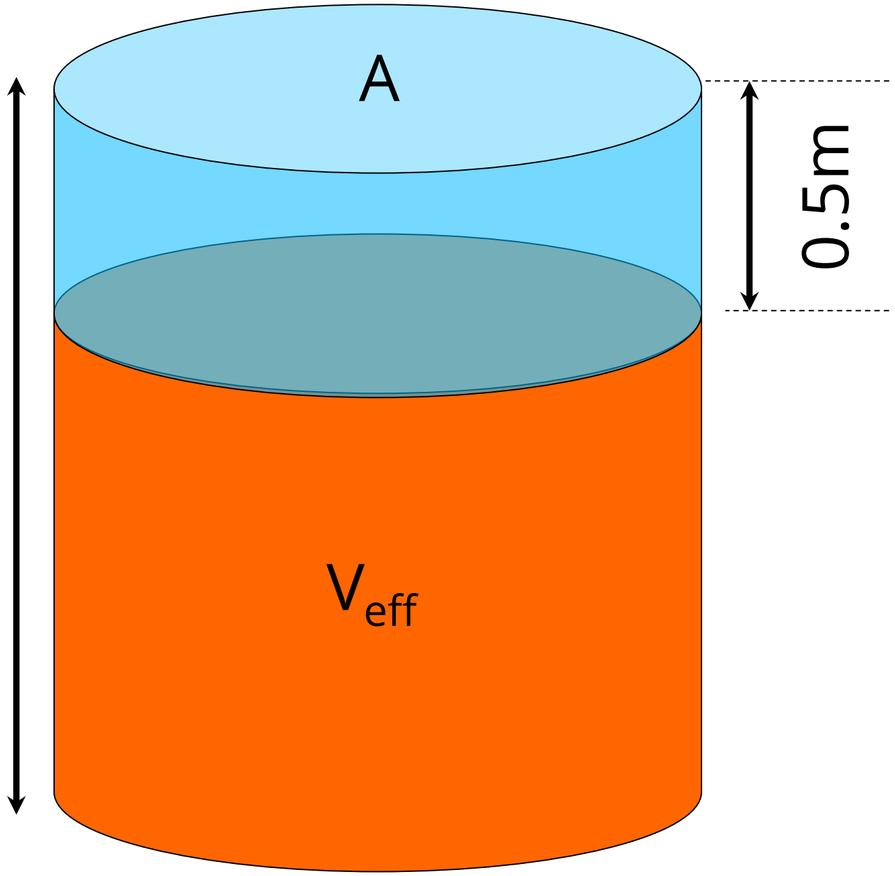


Calculating pit size: Formula

- Effective volume (m^3):

$$V_{eff} = \frac{(N \times S \times D)}{1000}$$

N = number of users
S = sludge accumulation rate (l/p/y)
D = design life (y)



Total pit depth = V_{eff} / Area + 0.5

0.5 m = free space for the faecal content to be covered with soil at the end of design lifetime

Sludge accumulation rates

Wastes deposited and conditions	Sludge accumulation rate “S” (l/p/y)
Wastes retained in water where degradable anal-cleansing materials are used	40
Wastes retained in water where non-degradable anal-cleansing materials are used	60
Wastes retained in dry conditions where degradable anal-cleansing materials are used	60
Wastes retained in dry conditions where non-degradable anal-cleansing materials are used	90

Tools& Resources

A guide to the development of on-site sanitation (WHO)

Calculating pit size: An example

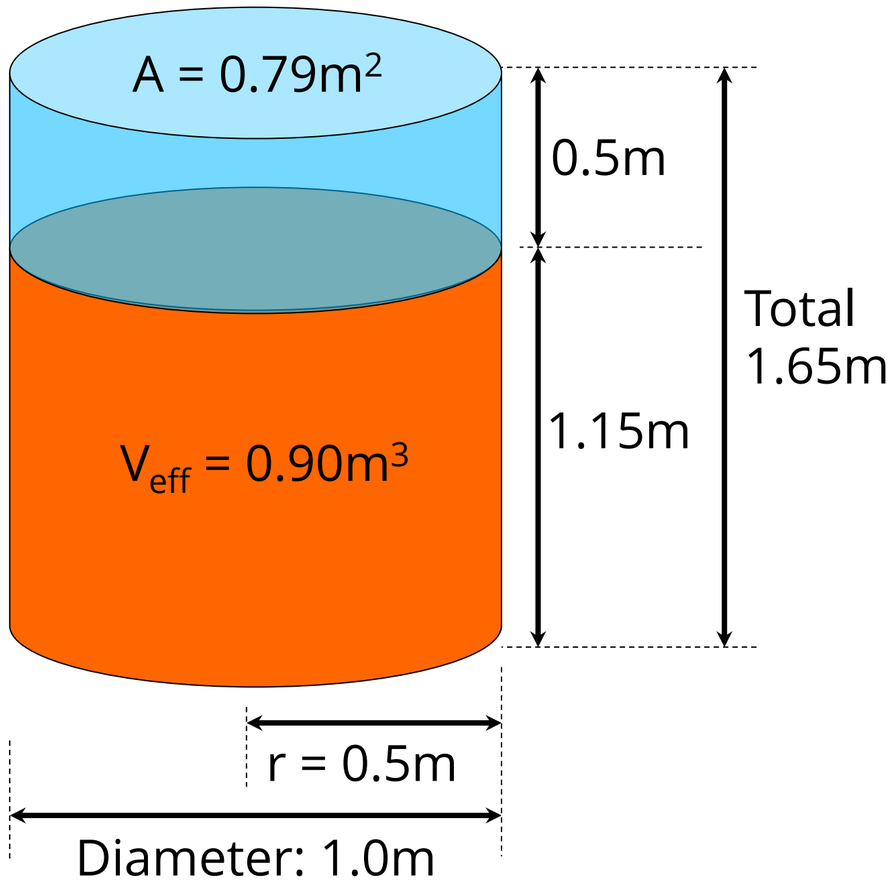
N = 20 people
S = 90 (l/p/y)
D = 6 months = 0.5 years

$V_{eff} = \frac{(20 \times 90 \times 0.5)}{1000} = 0.90\ m^3$

Circular pit diameter = 1m; radius, r = 0.5 m

Area, $A = \pi \times r^2 = 3.147 \times 0.5 \times 0.5 = 0.79\ m^2$

Total pit depth $= V_{eff} / A + 0.5$ m
$= 0.90\ m^3 / 0.79\ m^2 + 0.5$ m
$= 1.15$ m $+ 0.5$ m
$= 1.65$ m



Latrine component: Slab

- Support weight of a person
- Easy to clean
- Larger than the pit and rest firmly on foundation/base
- Smooth surface and slope towards the squat hole
- Prefabricated or manufactured locally
- Concrete, wood, ferrocement or plastic

Latrine component: Superstructure

- Privacy and dignity
- Roof
- 10-15cm opening for ventilation
- Sturdy door
- 1 m^2 (area inside the toilet)
- Frame: timber, PVC pipe
- Fitted with plastic sheeting, local materials
- User involvement in design

Sanitation in emergencies: Part 2

Surge training: Emergency WASH

Technical options

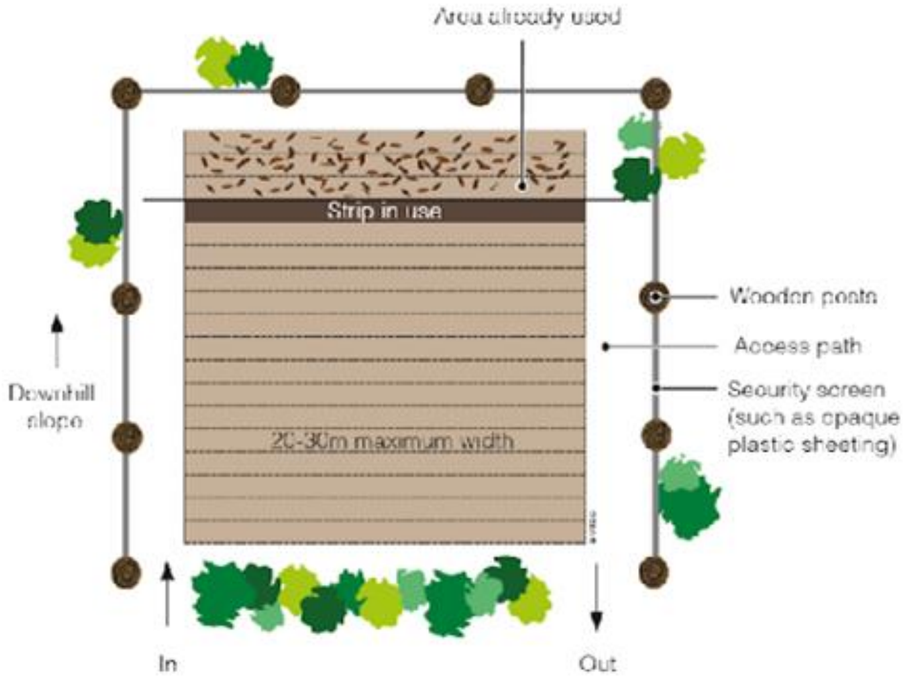
As time progresses

Safe excreta disposal type	Application remarks
Defecation field	First phase: 2-3 days if a huge number of people need immediate facilities
Trench latrines	First phase: up to 2 months
Simple pit latrines	Plan from the start through to long-term use
VIP latrines	Context-based: middle to long-term response
Ecological sanitation/Ecosan	Context-based: high water table and flood
Septic tanks	Middle to long-term phase

Technical design: Organizational options

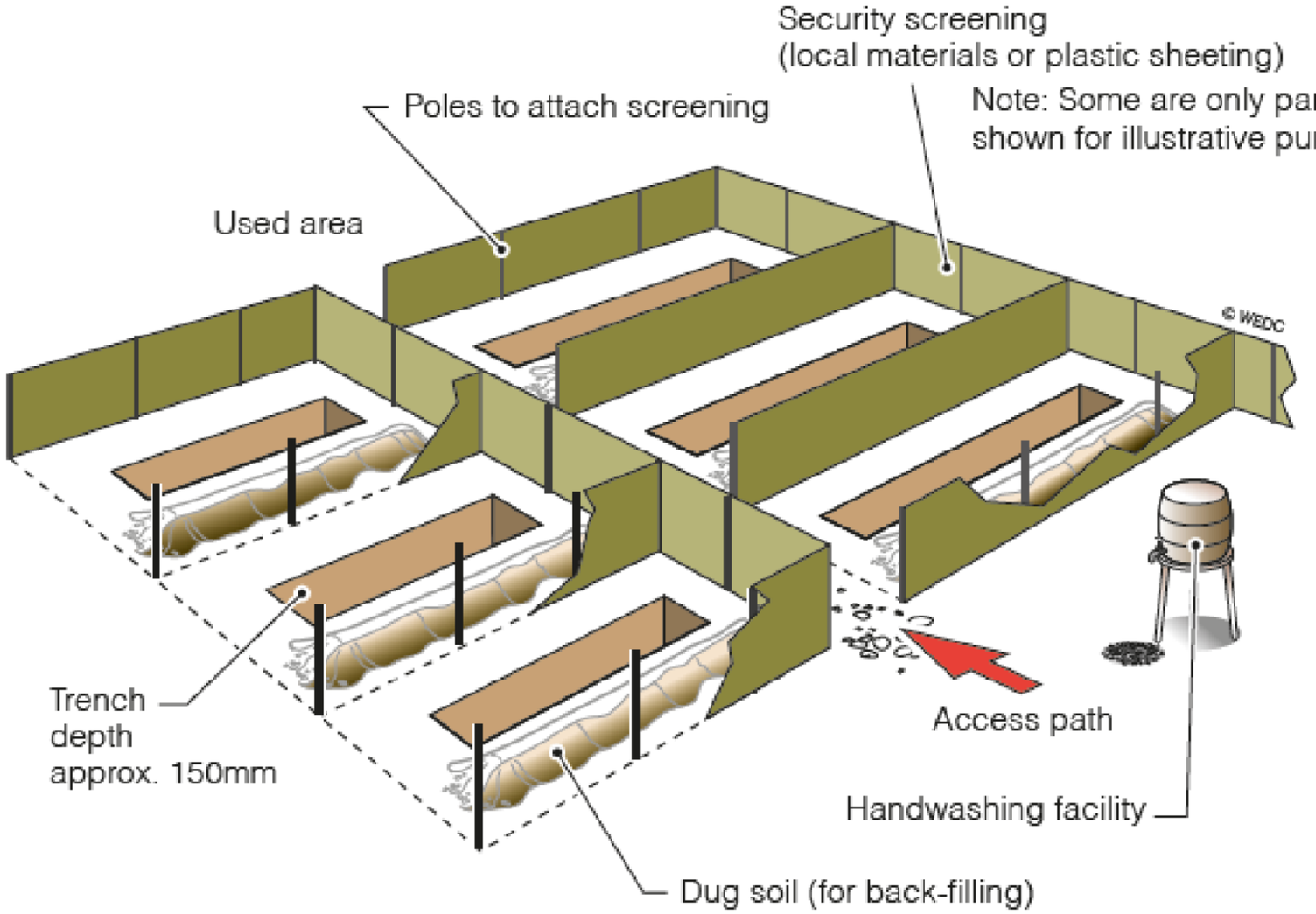
Public facilities	Family facilities	Communal facilities
Designed, built, maintained and cleaned by an outside body on behalf of the users. They belong to an outside body and not owned by the users.	Usually designed and built by the users (with or without designs, tools and materials provided by others). They may be used by several families. The latrine belongs to the family/families.	Similar to public facilities but which are managed by the community as a shared resource (market, school, etc.). This facility belong to the community.

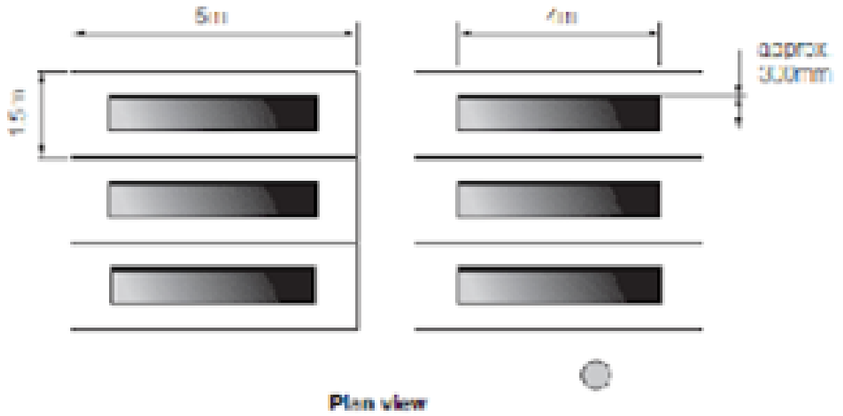
Immediate option: Open defecation fields



Wherever possible, avoid defecation fields and install trench latrines as the first option

Immediate option: Shallow trench latrine



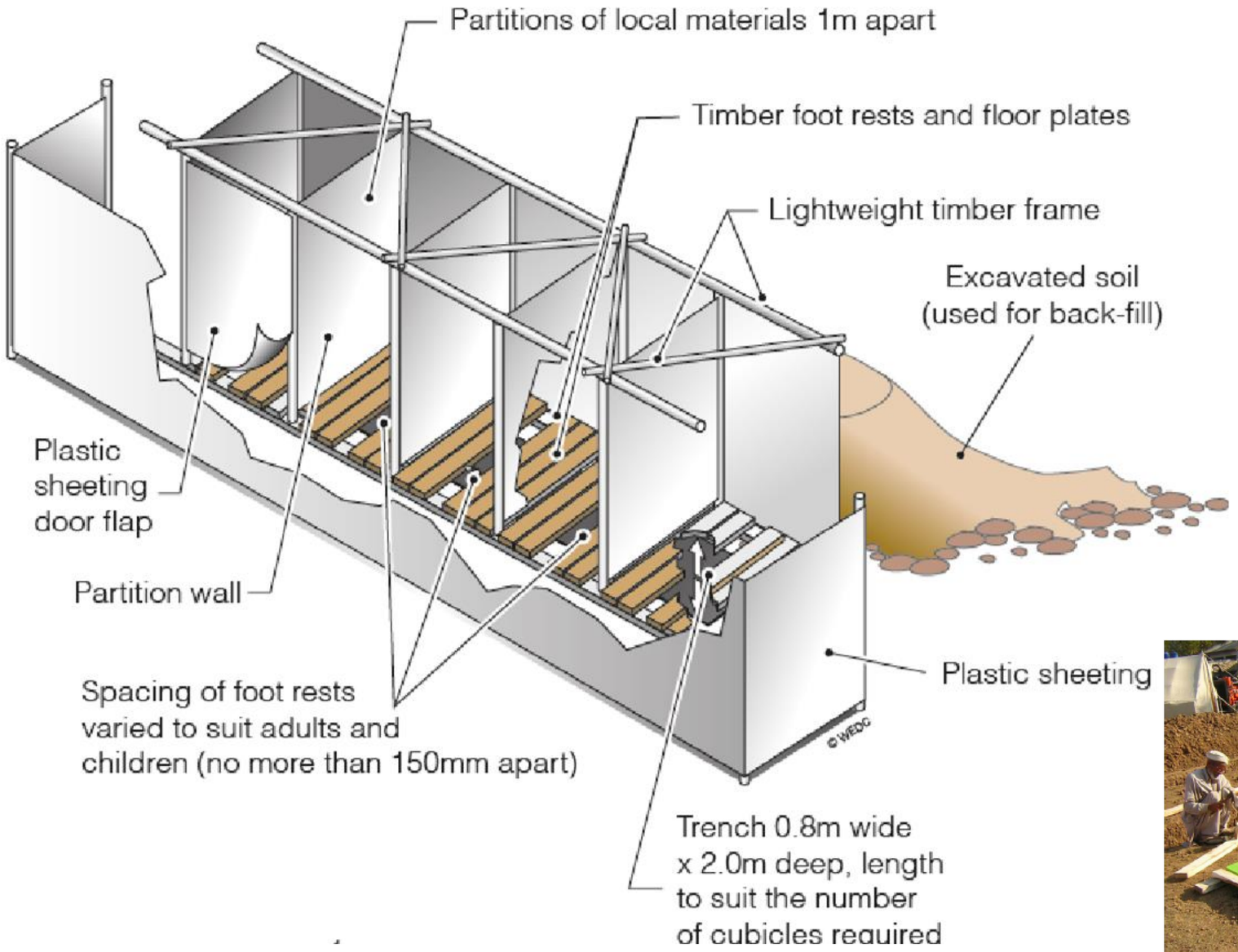


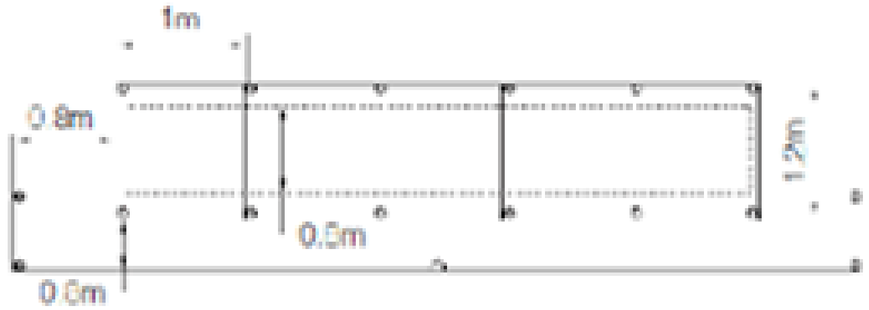
Trench measurements

Depth: Approximately 150mm
Width: 300 m
Length: 4 m

Divide the fields into 1.5m wide strips with access paths

Immediate option: Deep trench latrine





Plan view

Trench size is deeper and wider than shallow trench latrine

Depth: 2 m

Width: 0.8 m

Immediate option: Biodegradable plastic bags

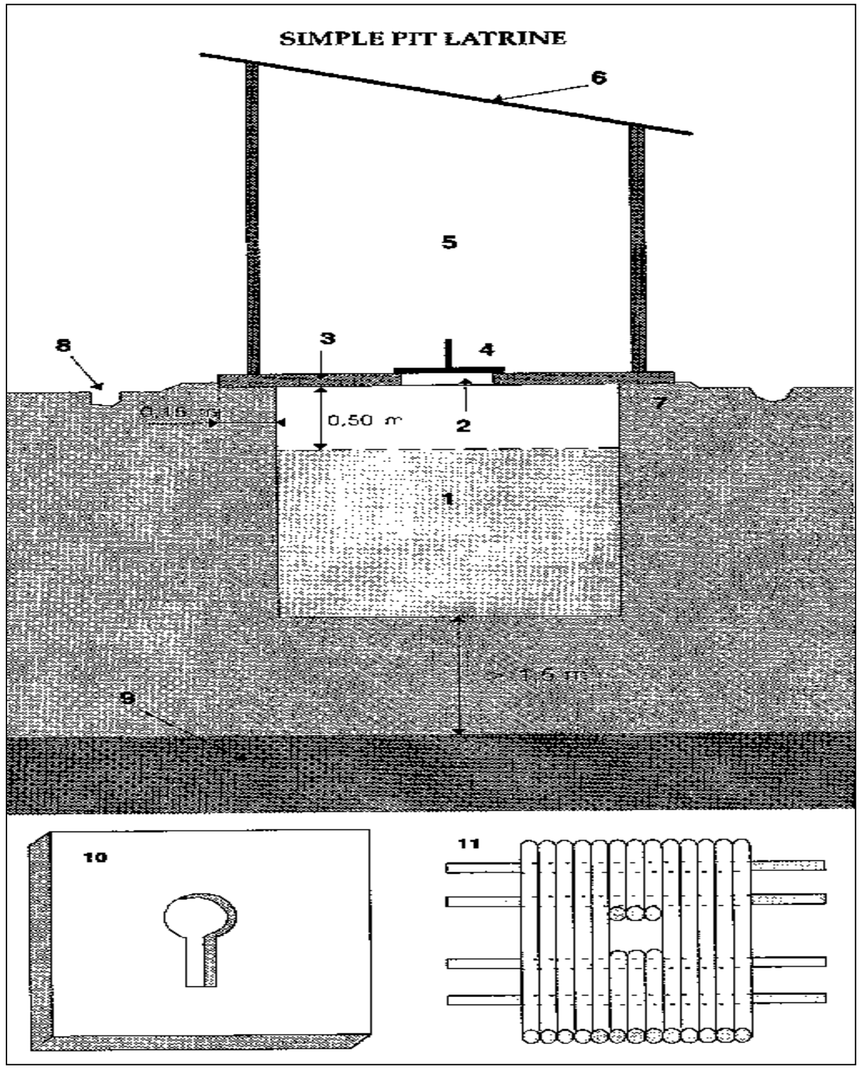
- Self-sanitising biodegradable personal single-use bags
- Contains urea which sanitises faeces and urine
- Pathogens are inactivated after stored for 2-4 weeks at 20 degree celcius

Tools & Resources

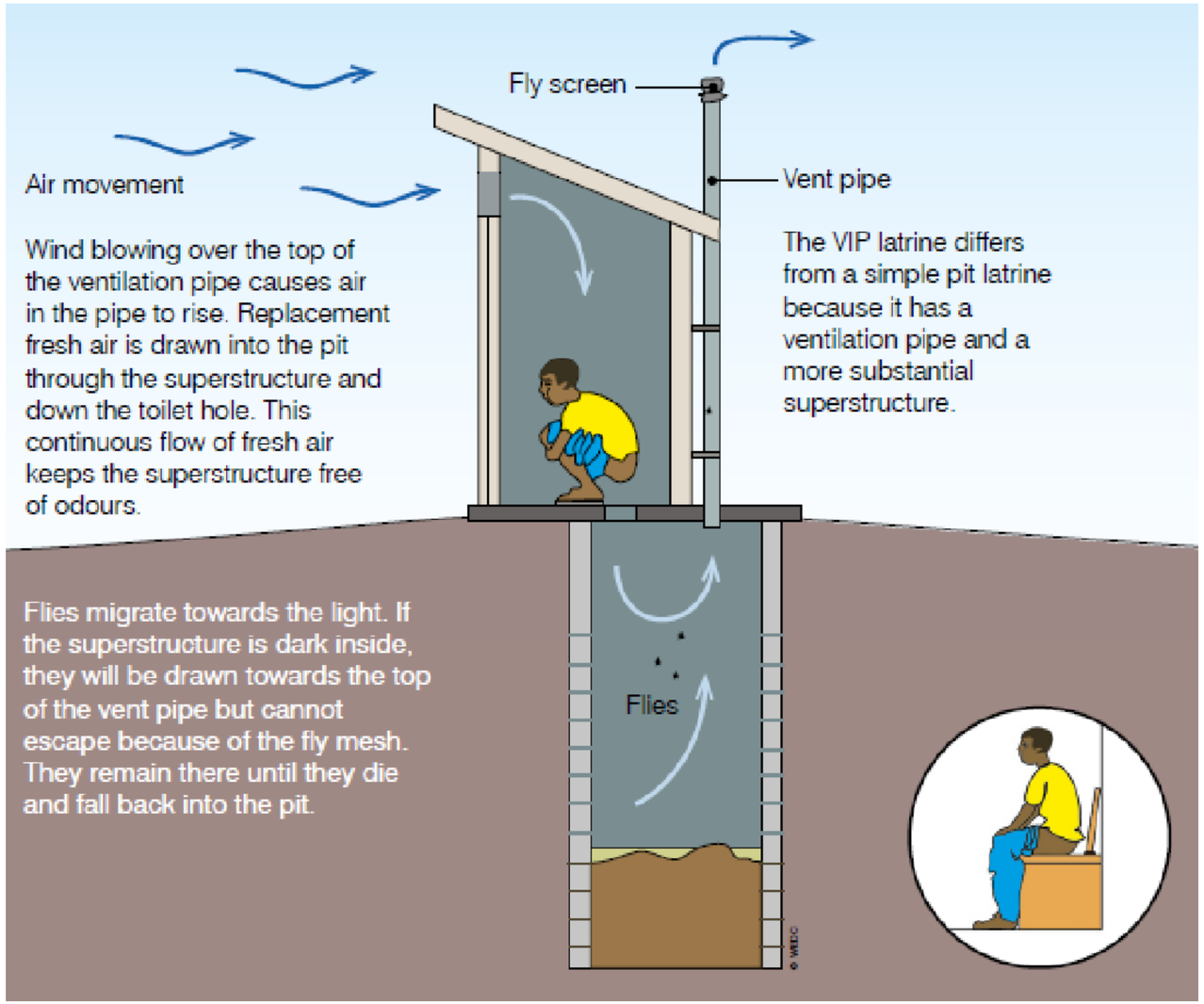
Peepoo

Longer-term option: Pit and VIP latrines

Pit latrine

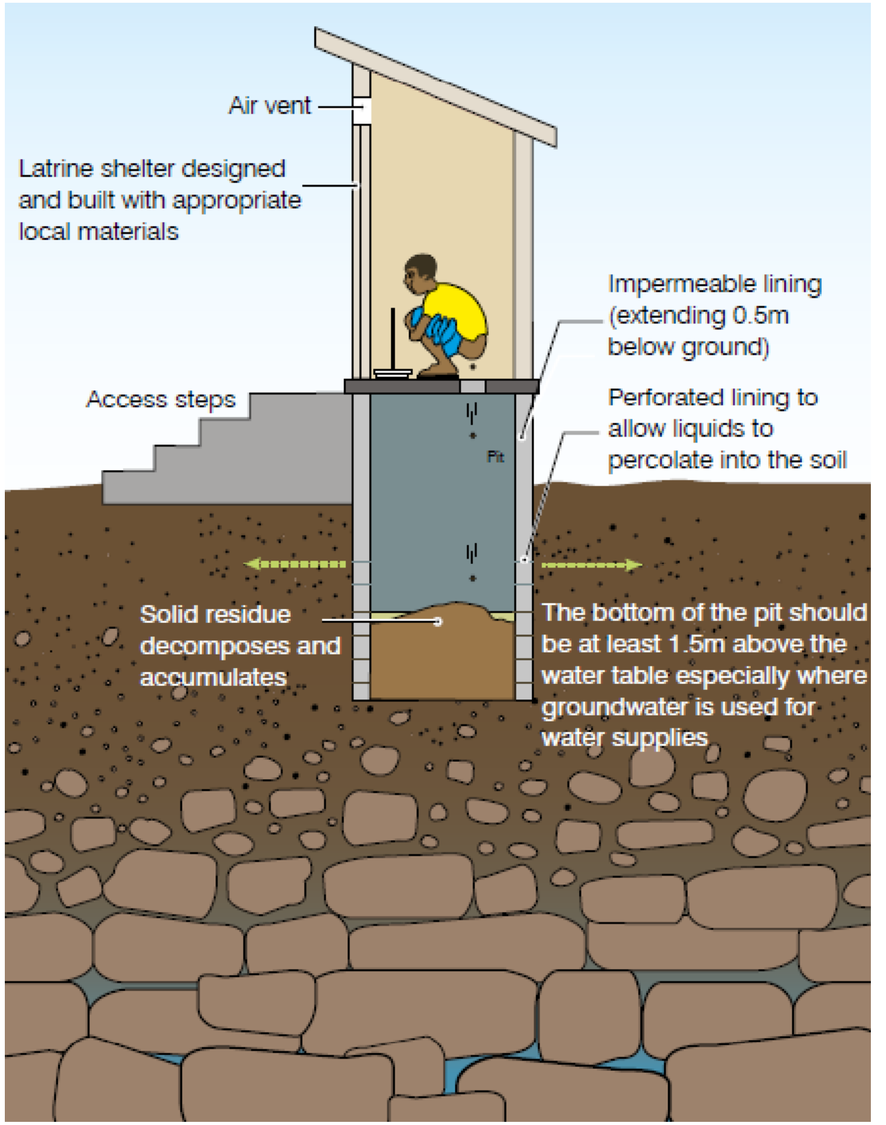


Ventilated improved pit (VIP) latrine

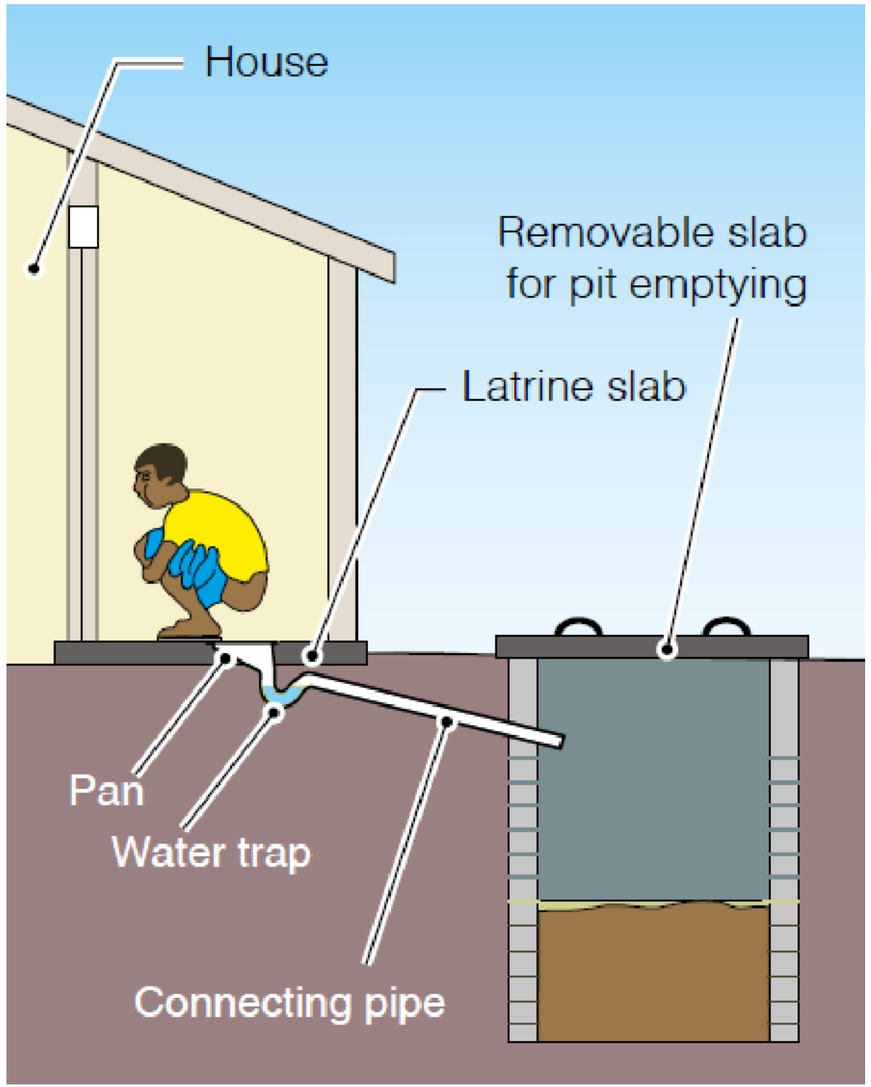


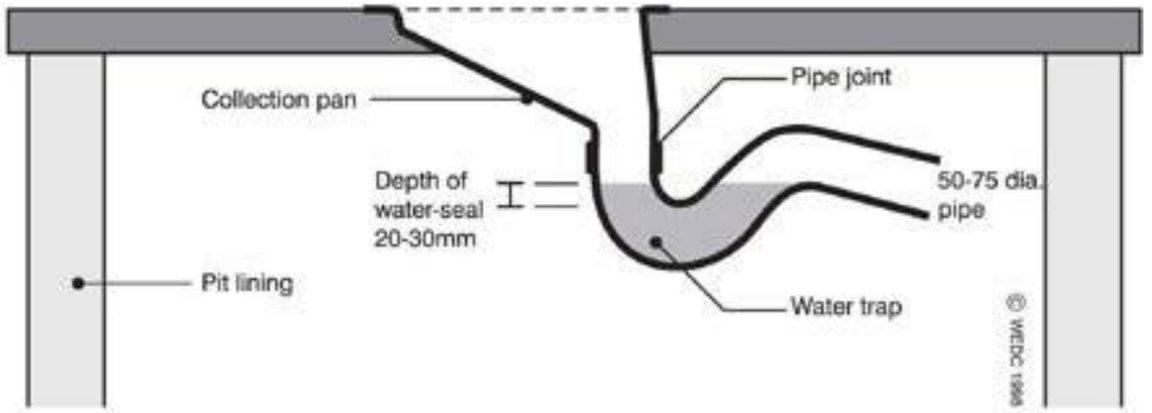
Longer-term option: Raised latrines

- A raised latrine may be the most appropriate option for areas with seasonally high water table.
- Pit should be lined with appropriate and locally available materials – clay bricks, porous concrete, large stones, oil drum, etc.
- Excavated material can be used to build up a mound/embankment around the latrine.
- The slab should be constructed at least 0.5 metre above the water table.



Longer-term option: Pour flush latrines





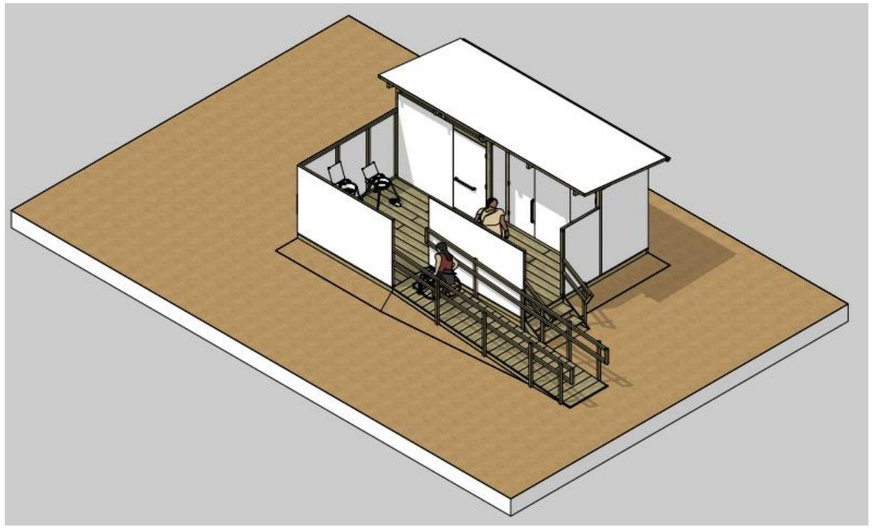
Design considerations

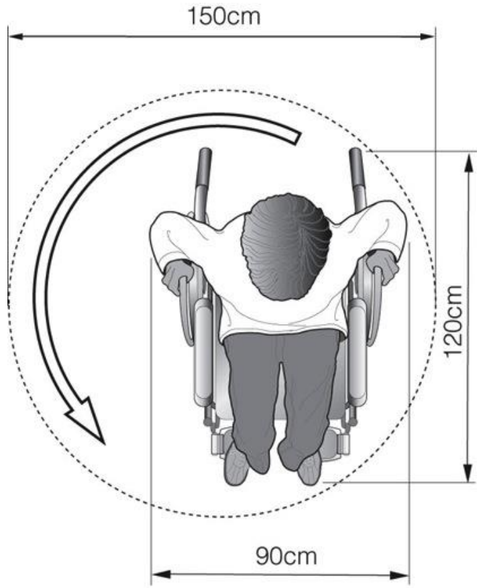
Siting, organizing and implementation

- Safe distance (refer to Sphere standards) - number of people and time
- Safety and accessibility - lighting, location, distance, screening, design, separate for male and women and children; ensuring everybody can use
- Discuss with community and local tradition
- Space for additional latrines
- Land availability and type (contamination issues) - O&M
- Construction resources (local materials; superstructure)
- Construction of hand washing facilities

Design considerations

- Different needs of different users → disability, gender, age, religion, think about carers





Tools & Resources

[Inclusive WASH - MHM friendly and accessible facilities for emergencies]

Maintenance of facilities

- Design and build for hygienic use and easy cleaning
- Define responsibilities for cleaning and maintenance
- Provide appropriate resources for cleaning
- Conduct hygiene promotion campaigns on the use, cleaning and maintenance of toilets
- Establish collection, transportation, treatment and disposal systems in line with local systems (in collaboration with local authorities responsible for sewage management)

Hand washing facilities

- Hand washing facilities should be provided as an essential component of the toilet
- Work with your team to choose the right technology (jugs, tippy pipes, etc.) and create a system to ensure water and soap are available at all times
- Place the facility so that hand washing occurs after contact with faeces
- Comply with drainage requirements and ensure wastewater does not pose a health hazard or breeding ground for problem vectors
- Consider sink/basin/tap height to ensure accessibility to all user groups

Children’s faeces

- Children’s faeces is a major source of contamination
- Important to dispose children’s faeces carefully and also practice good hand washing with soap when handling children’s faeces

Key messages

- Excreta disposal solutions **firstly found by the people themselves**
- **Upgrade progressively**, rather than allowing poor conditions to continue → most importantly is to address the problem of faecal contamination with simple sanitation options and scale up as time progresses
- Facilities and resources are only useful if they are used effectively by people → **understand needs and preferences of your users**
- Staff focused on "**software" and "hardware**" must work together
- Be aware of what resources are available around you – **use what you have**!

Q&A session

What's next

- Link to the dedicated **website** will be emailed by end of today (where you can find resources, webinar recordings, presentation slides, etc.).

- The **quiz** will cover key messages from the webinar presentation (*tip: refer to the presentation slides & listen to the recording if need be, before taking the quiz!*). The quiz will be valid from now onwards until **5pm KL time, 11 Oct 2022**.

- For webinar #4, there will be **15 questions** with a passing mark of **80%**. You will be allowed **2 attempts** for each quiz and for each attempt, you will be given **30 mins** to complete. You will need to pass all quizzes to be eligible to apply for the face-to-face training in November.

- By participating in this webinar, you will be now added to our regular **Health and WASH newsletter mailing list**. If you prefer not to receive these newsletters, please unsubscribe at any time by clicking the link in the newsletter.

If you have any questions in relation to the webinar series or the surge training, please drop a line to wendy.neoh@ifrc.org

Next webinar (the last one!)

11 October 2022
5pm KL time

Webinar #5:
Hygiene promotion in emergencies and menstrual hygiene management