Excreta Disposal in emergencies

1 Day WASH Cluster Module

June 2008

Excreta disposal course timetable: afternoon session objectives

S7 **45 mins**	**Short-term solutions:** **Case Study 1**	Work in groups to consider the cluster response to a particular emergency scenario.
S8 **45 mins**	**Excreta disposal:** **medium term options**	Familiarity with considerations when providing on-site sanitation options.
S9 **30 mins**	**Excreta disposal:** **Operation & maintenance**	The importance of O&M for continued health benefits, including hygiene promotion, handwashing facilities, latrine attendants etc
15 mins	**Coffee Break**	
S10 **45 mins**	**Excreta disposal:** **Institutional sanitation and sewerage systems**	Options for medium-term solutions in institutions & urban sewered systems.
S11 60 mins	**Urban sewerage:** **Case study 2**	Work in groups to consider the cluster response to a particular urban emergency scenario.
15 mins	**Coffee Break**	
S12 **30 mins**	**Workshop summary and conclusions**	Wrap-up session, further information sources.

Session 7: Case Study

- **What:** A major earthquake
- **Where:** Remote mountainous region in winter, heavily populated, farming villages, far from capital.
- **How:** Shall we coordinate the emergency response, prioritise, supply WASH

Session 8: Medium-term options for excreta disposal

Some considerations:

- Rehabilitate or rebuild?
- Family or communal?
- On-site or sewered?
- Pit or tank?
- Slab or seat?

Family or communal?

- Household/family latrines are preferable, but are not always possible – may be a longer-term goal
- Camps/crowded situations probably need communal
- Involve affected community in the decisions about types of toilets and siting

On-site or sewered?

With a displaced population the most likely option is on-site for the medium term:

- A sewered system is only going to be practical if the infrastructure already exists
- With planning, on-site options can be developed to be upgraded at a later date
  - if the site is permanent

Pit or tank, slab or seat?

Technical choices will need to be made – the decision will depend on:

- Nature of the emergency – length of time toilets will be needed
- Ground/soil conditions
- Cultural preferences of affected community
- Availability of resources

Family Latrines: simple pit latrines

Most common type of latrine to be built:

- Simple and easy to construct,
- Round or square pit,

at least 2m deep

- Cover with planks or

concrete slab

- Squat hole with cover
- Superstructure for privacy

Family Latrines: VIP latrines

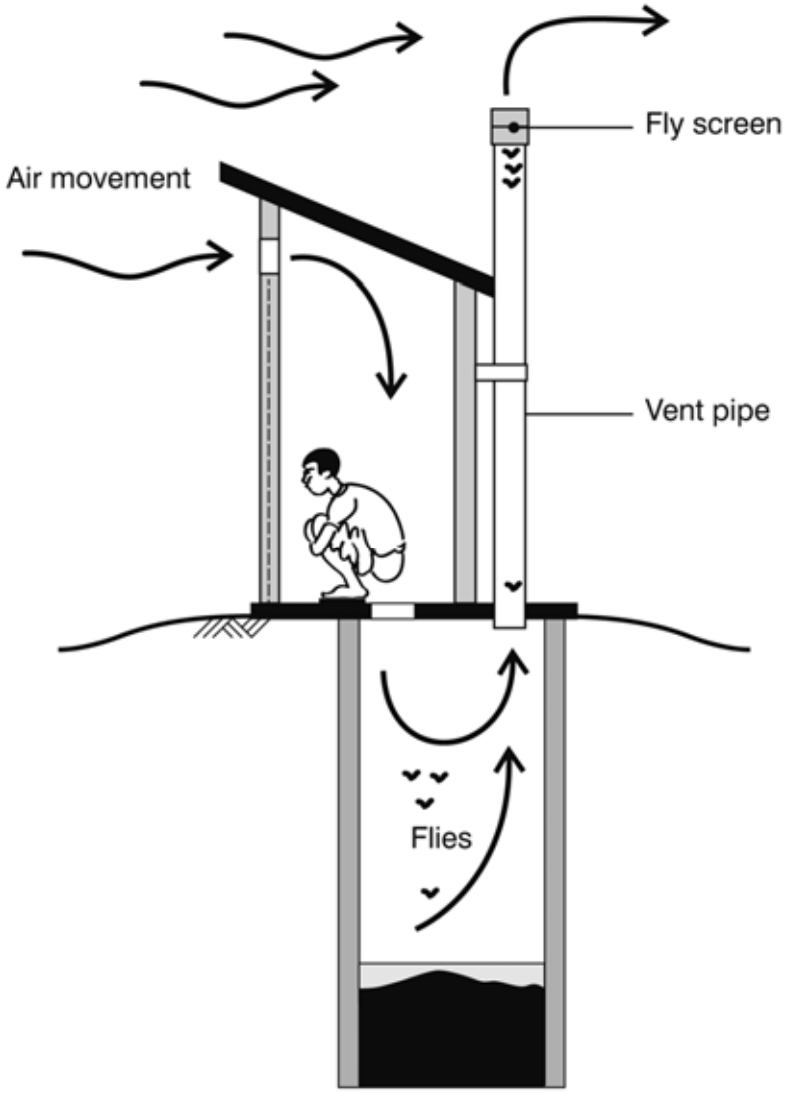


Image courtesy of WEDC. © Ken Chatterton.

- As simple pit but the external screened pipe adds odour and fly control
- Superstructure must allow ventilation through pit

Family Latrines: Pour-flush latrines

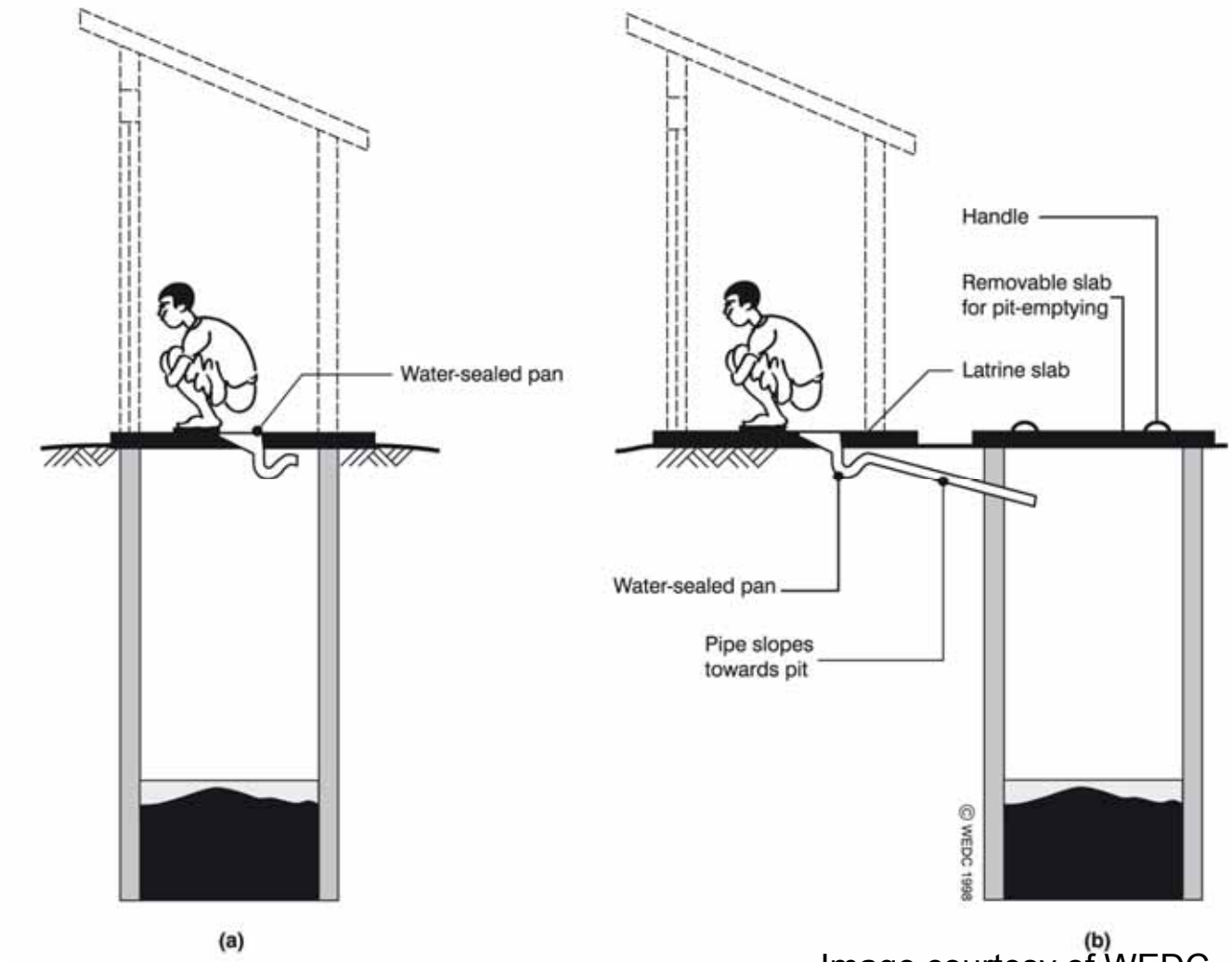
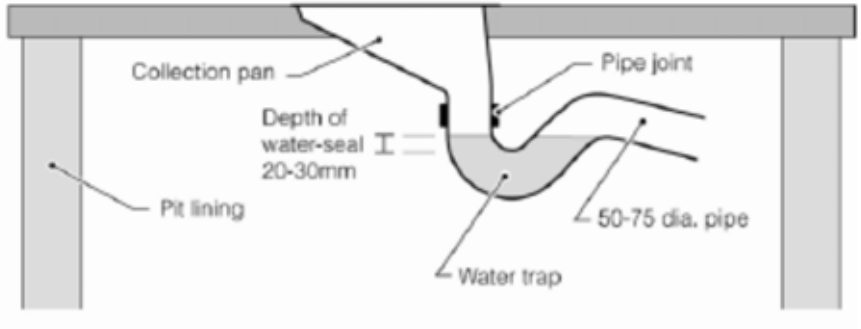


Image courtesy of WEDC. (c) Rod Shaw.

Family Latrines: Pour-flush latrines

Needs:

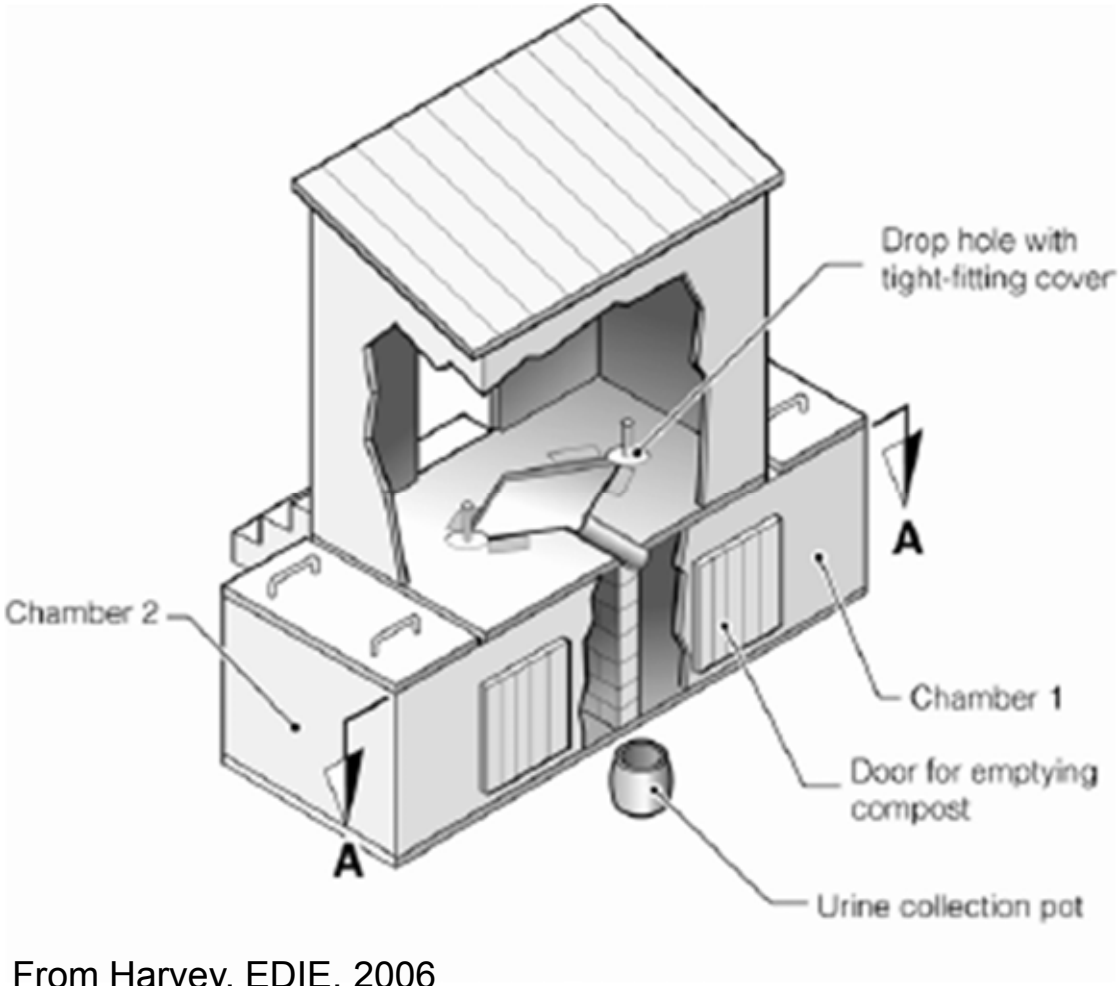
- a ready source of prefabricated slabs or pans with a U-bend
- Plentiful water supply for flushing with each visit



From Harvey, EDIE, 2006

Image courtesy of WEDC. © Rebecca Scott.

Family Latrines: Composting latrines



From Harvey, EDIE, 2006

Two pits with compost chambers and urine diversion

Doors for emptying compost

Family Latrines: Twin pit latrines

Twin pits are useful where traffic is known to high, where only shallow pits can be dug, or where long life is needed.

- One pit can be emptied whilst other is in use
- Can be twin-pit VIPs, pour-flush or eco-san

Communal Latrines

Overcrowding and lack of time/resources often dictates the need for communal toilet blocks in the medium term after an emergency.

These can be:

- Communal simple pit or VIP latrines
- Communal pour-flush with septic tank
- Communal aqua privies
- Urinals

Communal Latrines: Pit latrines

Example emergency pit latrine, MSF, Gihogazi, Burundi, 2003.
Photo: Ken Gibbs, RedR.

Communal Latrines: Pit latrines

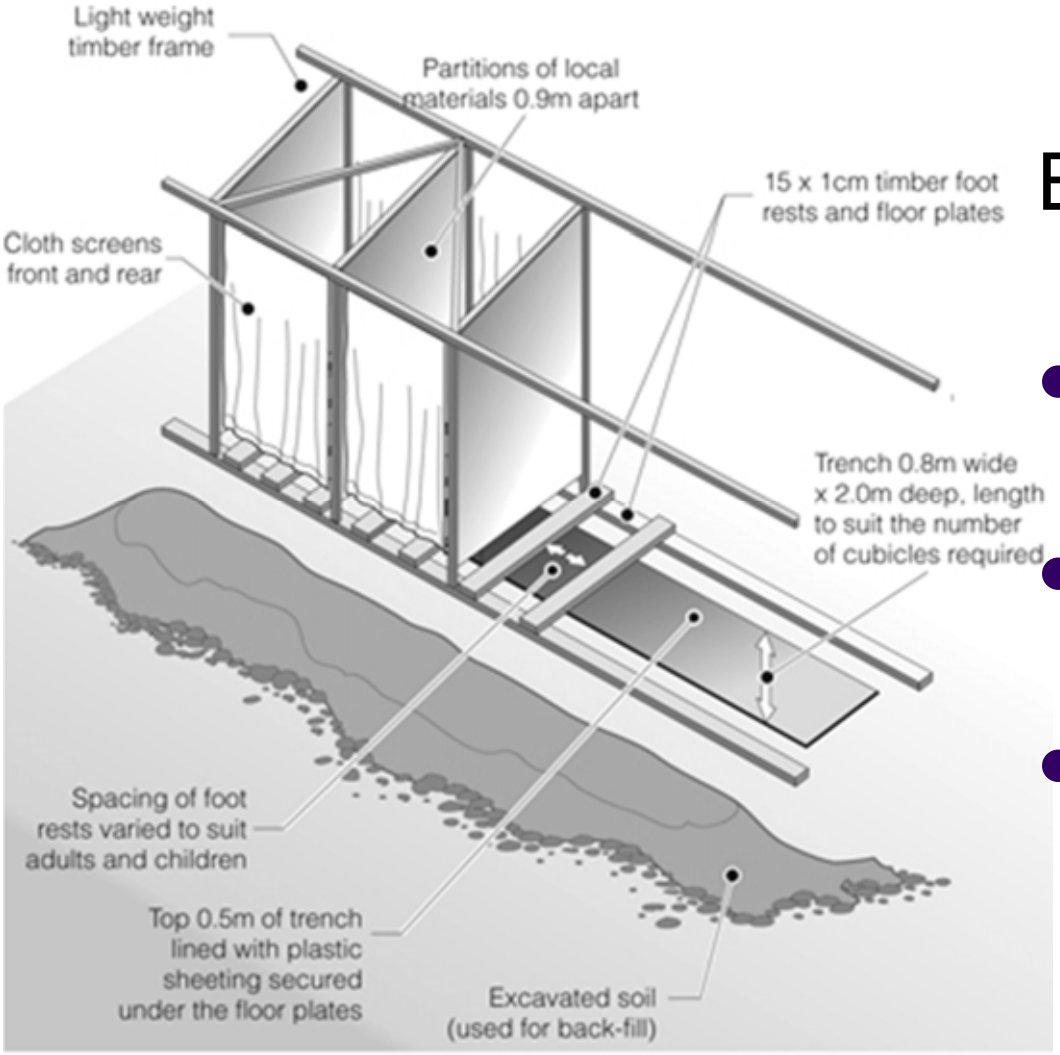


Image courtesy of WEDC. (c) Rod Shaw.

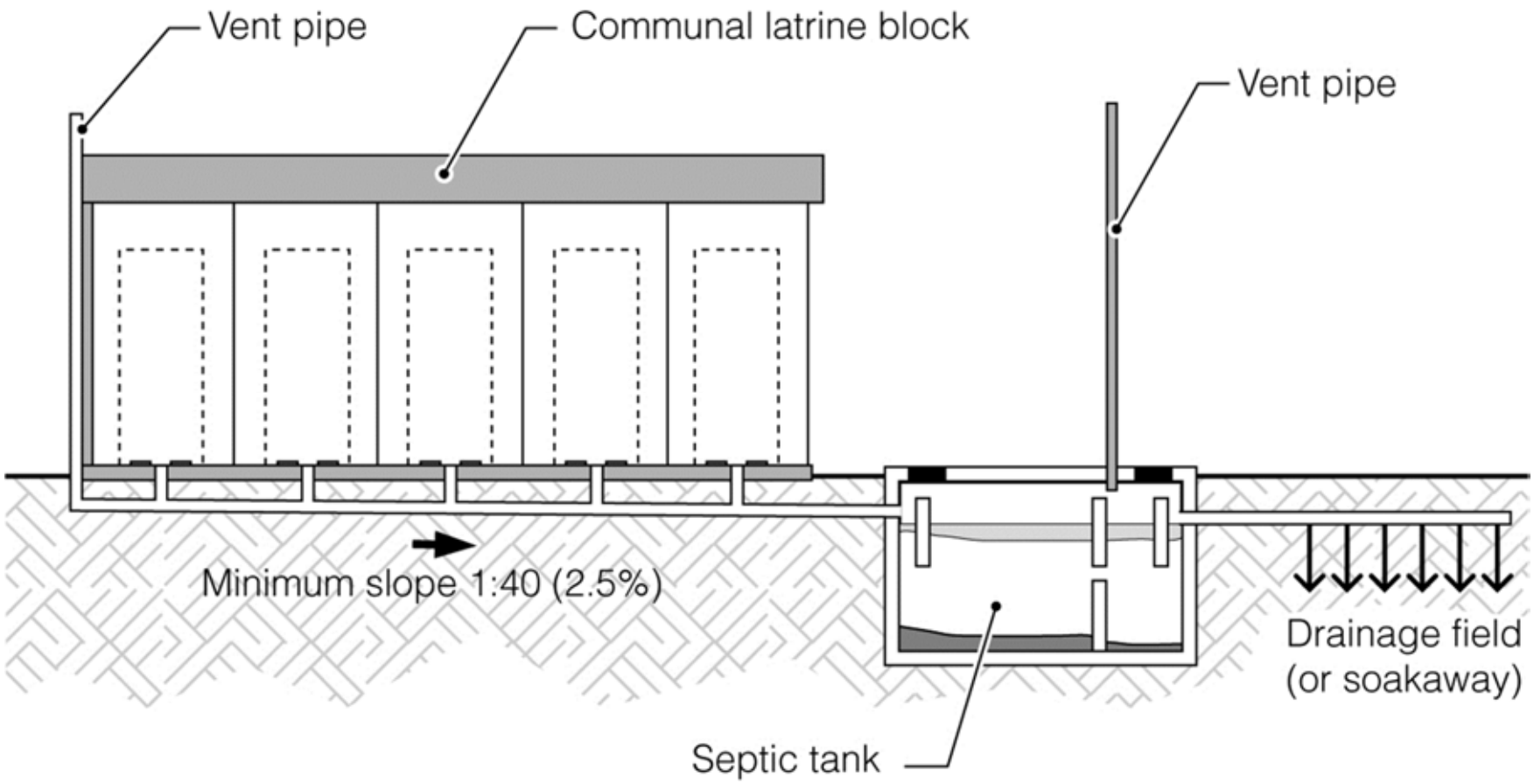
Basic communal pit latrine:

- Un-lined trench
- Timber footrests
- Lightweight superstructure

Communal Latrines: VIP latrines

Image courtesy of WEDC. © Peter Harvey.

Communal Latrines: Pour-flush latrines with septic tank



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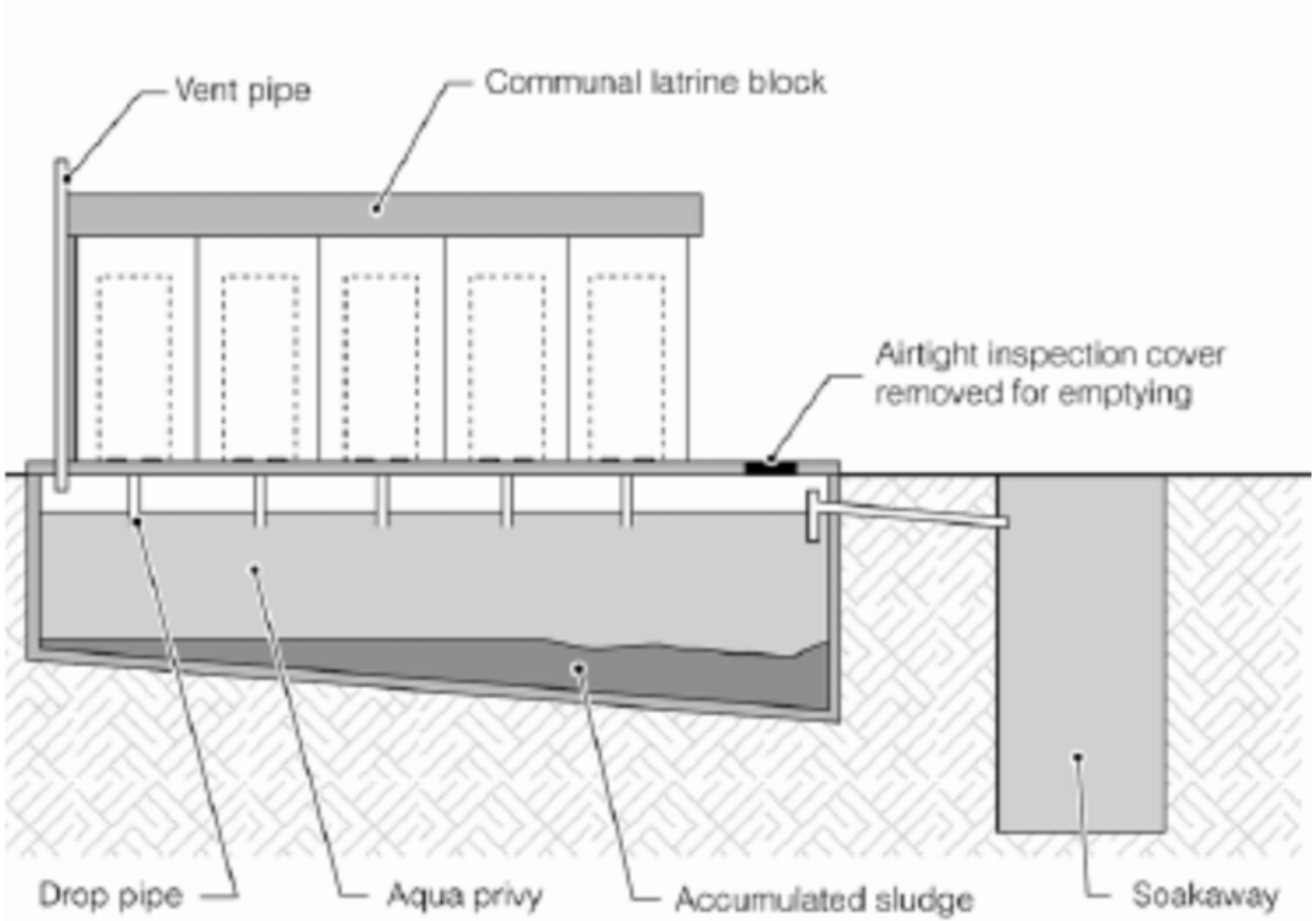
Communal Latrines: Aqua privies



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Communal Latrines: Urinals

- A simple structure to collect urine and allow it to soak to a pit
- Needs regular flushing with water to reduce odours
- Significantly reduces number of male toilets needed, leading to impact on time and cost

Session 9: Operation & maintenance for excreta disposal

O & M is vital to maintain the health barriers between people and faeces

Particularly important for communal toilets – need attendants for maintaining:

- Cleanliness
- Lighting at night
- Anal cleansing materials/water
- Hygiene promotion
- Handwashing facilities
- Fly control

Latrine Attendants

Kalma Camp
Darfur example

- Over 60,000 people
- 95 attendants
- 3 attendants per block, working 3 shifts a day
- Clean area and slabs
- Provide water for handwashing
- Light lamps for ease of access at night

Photos: Kalma Camp, Darfur: Alun McDonald, Oxfam.

Hygiene Promotion: Action & dialogue

HP Enables people to take **action** to prevent or mitigate water, sanitation, and hygiene related diseases.

- Consult with affected men, women, and children on design of facilities, hygiene kits, and outreach system
- Establish a voluntary system of cleaning and maintenance, or train latrine attendants
- Identify, organise, and train water and sanitation committees
- Monitor acceptability of facilities and health impact

Hygiene Promotion: Practical exercise

In small groups consider what you can do in this context to ensure:

1. that women, men, and children participate in the WASH emergency response

2. that WASH initiatives are accountable to the affected community

Hygiene Promotion Activities

- Train outreach system of hygiene promoters to conduct home visits
- Organise community dramas and group activities with adults and children
- Use available mass media e.g. radio to provide information on hygiene

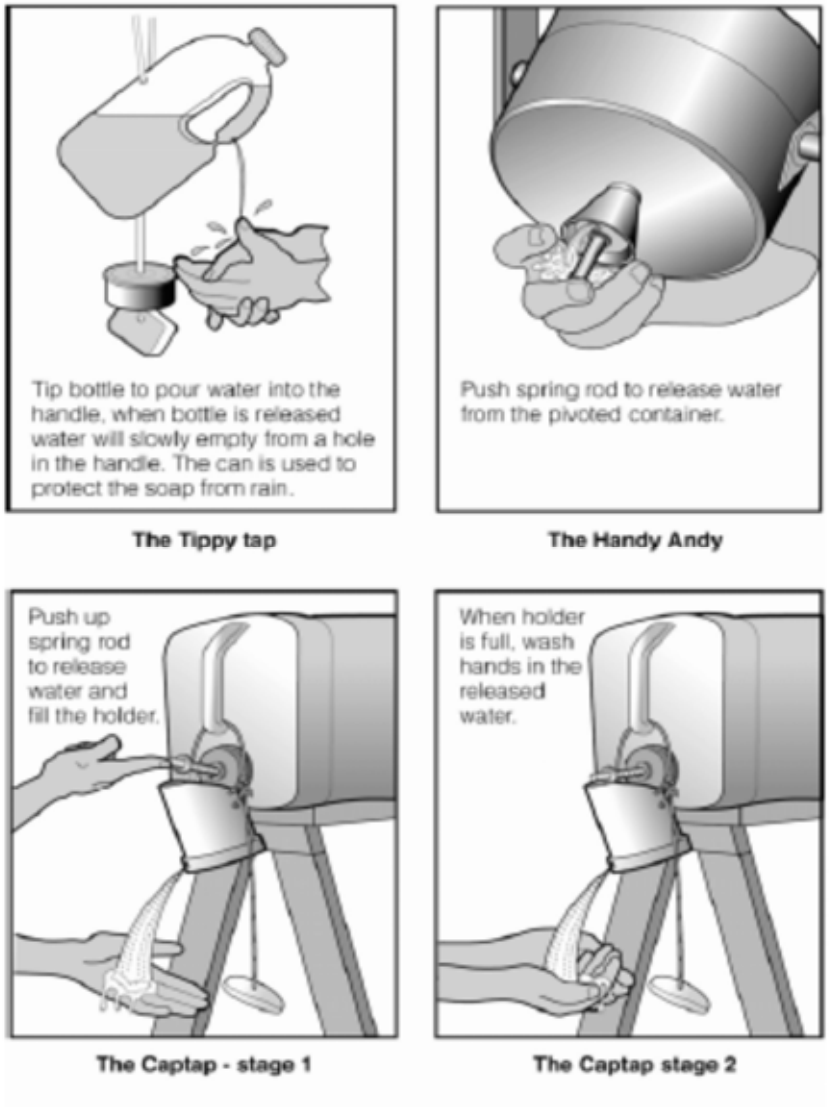
Handwashing Facilities

- To facilitate handwashing with soap, water and soap must be provided
- A water supply should be planned nearby sanitation facilities
- Handwashing facilities should be built in to all communal latrine designs

Handwashing where there is no tap

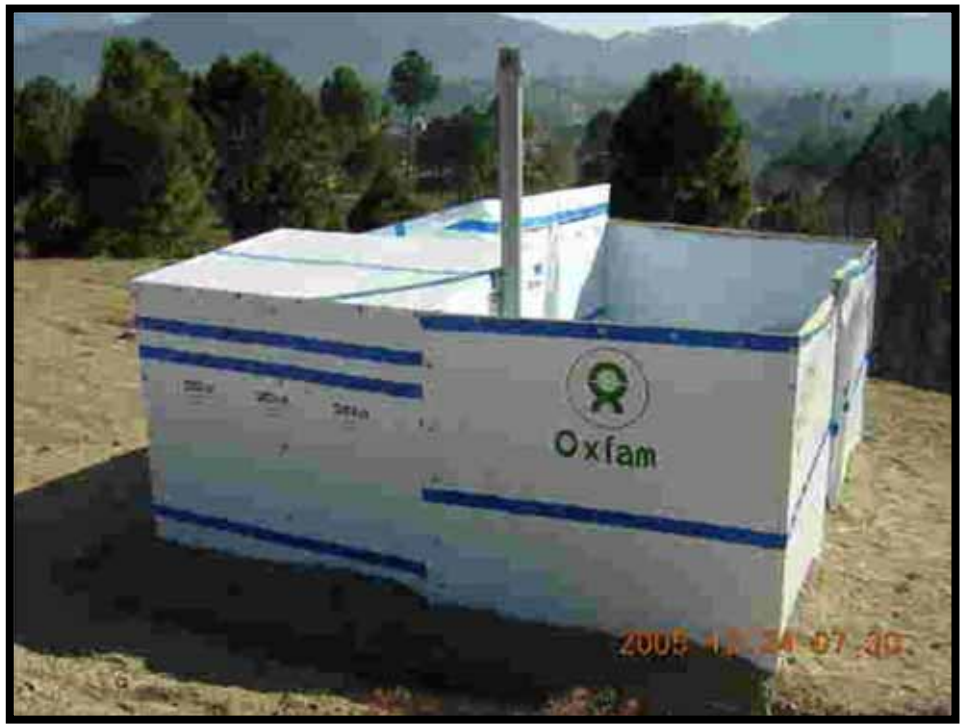
Any water container that dispenses a small amount at a time may be used. Some designs:

- The tippy-tap
- The handy-andy
- The cap-tap
- Tap bucket on stand



From Harvey, P., Ed., (2006), EDIE manual. WEDC.

Menstrual Hygiene



Screened toilet and bathing unit, Pakistan, 2005.

From Oxfam, 2005.

Women need space to wash privately and cleanse/dry menstrual cloths

- Washing area
- Soap provision
- Water drainage
- Drying lines

Other O&M Issues: Fly control

Flies and other insect vectors spread pathogens from faeces

- Physical barriers needed between flies and faeces – keep the lid on!
- Faeces to be covered with soil, ash or other barrier (or spray with diesel)
- Paint latrine walls (lime & salt) to discourage larvae growth
- Keep the latrine dark inside
- Use fly traps and screens

Other O&M Issues: Sludge Disposal

A full pit latrine can be:

- covered with soil, and re-dug elsewhere
- Emptied manually (to be avoided if possible)

e.g. Katale refugee camp, Goma.

- Desludged with a vacuum tanker

e.g. Mozambique floods, 2000.

Session 10: Institutional sanitation and sewerage systems

Issues to consider when developing institutional sanitation:

- Time constraints
- Design life
- Mandate of agency
- Budget
- Human resources
- O & M

Recommended Minimum Objectives:

Ratios of toilets to people for Communal Latrine Use

Setting	Immediate	Short-term	Long-term
General Population Distance to walk (one way)	1:100 70m	1:50 50m	1:20 25m
Medical Centres	1:50 beds 1:100 outpatients	1:20 beds 1:50 outpatients	1:10 beds 1:20 outpatients
Schools	1:50 girls 1:100 boys	1:30 girls 1:60 boys	1:15 girls 1:30 boys
Market areas	1:100 stalls	1:50 stalls	1:20 stalls
Feeding Centres	1:100 adults 1:50 children	1:50 adults 1:20 children	1:20 adults 1:10 children

Sanitation for Schools

Toilets should be:

- As close as possible to the school, whilst still being environmentally safe (and down-wind)
- Separate for girls & boys
- Child friendly – light, small holes, supports
- Kept clean – could arrange within the school
- Provide water / handwashing facilities

Sanitation for Schools

Blocks of 4-6 communal latrines

- Separate for girls and boys
- A higher ratio needed for under 5s
- Girls over 11 need greater privacy and a private washing area
- Fewer toilets needed for boys if also provide urinals (1 space per 40 users)

A children's pit latrine built by MSF in a refugee camp in Burundi, 1993.

Photo courtesy K. Gibbs, RedR.

Sanitation for hospitals and clinics

The highest possible hygiene standards are needed, as:

- More infections are around
- Higher number of pathogens in excreta
- Greater infirmity, weakness and vulnerability to disease of the users

Hospital Commode Chair

Photo: Harvey, EDIE Manual.

Sanitation for hospitals and clinics

Communal blocks

- Needs high ratio of toilets to users
- Full-time attendants to maintain cleanliness
- Strict handwashing regime with soap
- Extra large space inside cubicle for helper if needed
- Ramps for easy access
- Supports/handles/commode seats for infirm

Sewerage systems in emergencies

If an urban sewerage system is undamaged, or needs only minor repairs, and

If there are sufficient volumes of grey water still being generated to flush the sewers, and

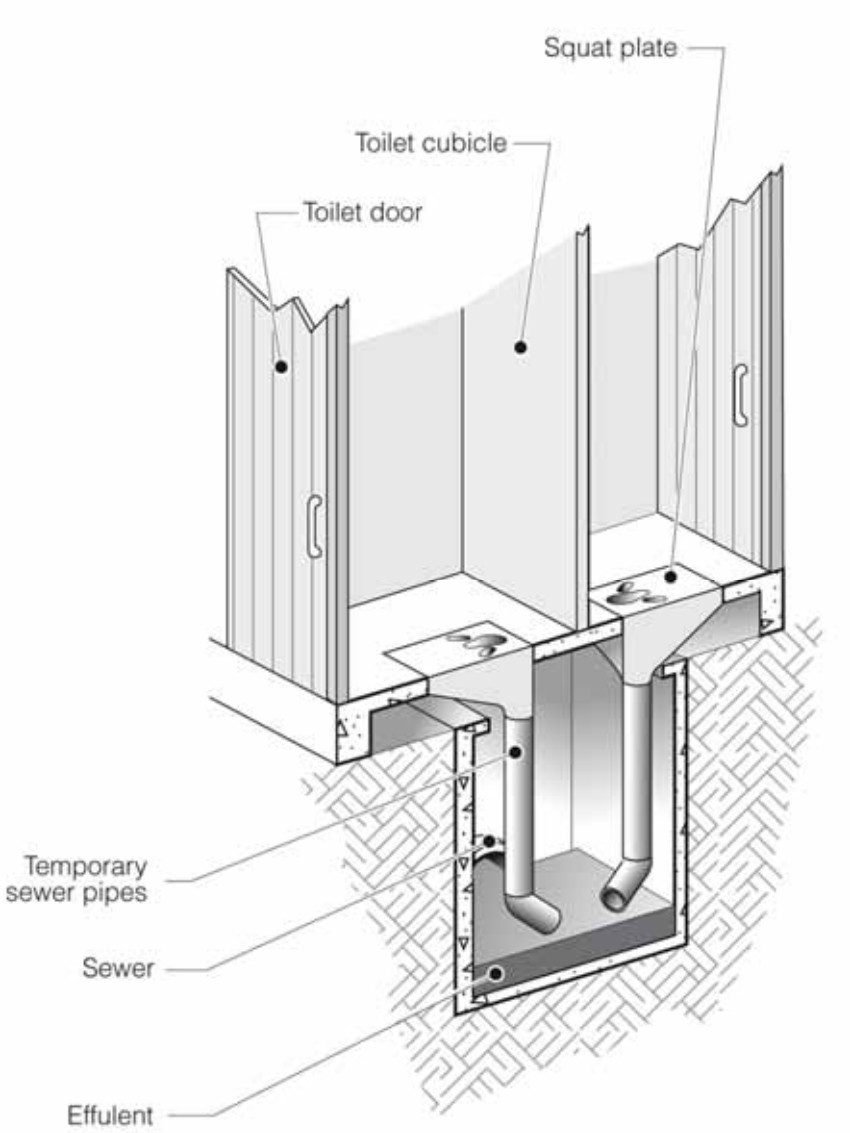
If the technical personnel and resources are available to maintain the sewage treatment works,

Then the sewerage system may still be used.

Immediate Sewer use

Temporary toilets may be built over existing sewers

Needs 20-40 lpd water for flushing to prevent blockages



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Rehabilitation of Sewerage systems

- Assess the damage – plant, equipment, staff
- Assess the risk for prioritisation of interventions
- Immediate alternatives to sewers eg
  - Chemical toilets
  - Temporary toilets over sewers
  - Alternative drainage routes such as to septic tanks/cess pits

Case Study: rehabilitation of sewerage systems

Basrah, Iraq – a city of 2 million

- Pumping stations had stopped working after the Gulf War, 1995
- ICRC installed 18 pumping stations and

  6 back-up generators to ensure continuous pumping
- A complex system requiring qualified technicians

Session 11: Case Study 2

- What: A major IDP camp
- Where: African plains, few farming villages, far from capital.
- How: Shall we coordinate the emergency response, prioritise, supply WASH

Session 12: Workshop summary & conclusions

- Wrap-up session
- Outstanding Issues
- Sources of further information