
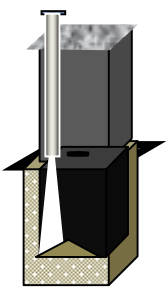
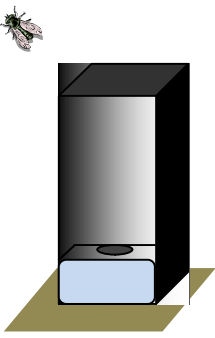
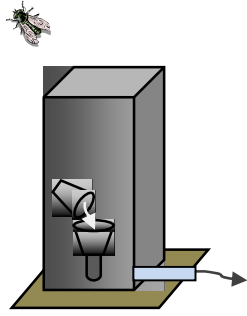
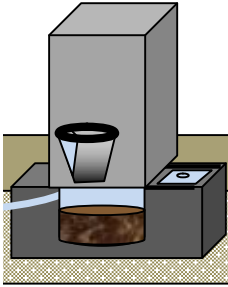
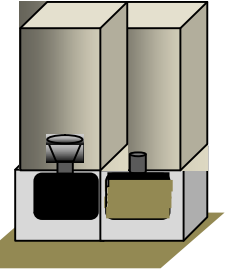
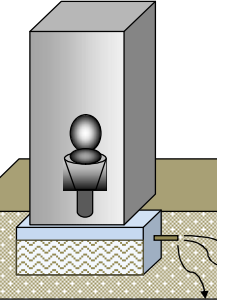
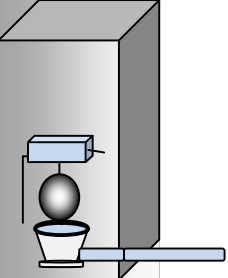


SESSION 20: SANITATION OPTIONS

1. Bucket or Potty System (Off-site disposal)																																
	<p>A simple 20 litre bucket is used as a potty and is in an outhouse that families construct themselves near the home. Every other day the buckets are collected and emptied by a service provider (SP). Although capital costs are very low the running costs are high as it relies on an effective daily collection service to empty the buckets. The system is due to be phased out.</p>	<table style="width: 100%; border: none;"> <tr><td style="border: none;">Ownership:</td><td style="border: none;">Good</td></tr> <tr><td style="border: none;">Maintenance:</td><td style="border: none;">Varies</td></tr> <tr><td style="border: none;">H/holds sharing:</td><td style="border: none;">One (or two)</td></tr> <tr><td style="border: none;">Hygiene/Odour:</td><td style="border: none;">Bad</td></tr> <tr><td style="border: none;">Convenience:</td><td style="border: none;">Good</td></tr> <tr><td style="border: none;">Cleanliness:</td><td style="border: none;">Variable</td></tr> <tr><td style="border: none;">Anal cleansing:</td><td style="border: none;">Problem</td></tr> <tr><td style="border: none;">Fly control:</td><td style="border: none;">None</td></tr> <tr><td style="border: none;">Municipal Input:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Filling time:</td><td style="border: none;">1-2 days</td></tr> <tr><td style="border: none;">Emptying time:</td><td style="border: none;">Daily</td></tr> <tr><td style="border: none;">Capital Outlay:</td><td style="border: none;">Low</td></tr> <tr><td style="border: none;">Running Costs:</td><td style="border: none;">Very High (SP)</td></tr> </table> <ul style="list-style-type: none"> Not a long term solution Politically unacceptable Unhygienic inside home If not covered flies attracted Relies on daily collection Newspaper can be used but fills bucket too fast No sharing enables better upkeep 	Ownership:	Good	Maintenance:	Varies	H/holds sharing:	One (or two)	Hygiene/Odour:	Bad	Convenience:	Good	Cleanliness:	Variable	Anal cleansing:	Problem	Fly control:	None	Municipal Input:	High	Filling time:	1-2 days	Emptying time:	Daily	Capital Outlay:	Low	Running Costs:	Very High (SP)				
Ownership:	Good																															
Maintenance:	Varies																															
H/holds sharing:	One (or two)																															
Hygiene/Odour:	Bad																															
Convenience:	Good																															
Cleanliness:	Variable																															
Anal cleansing:	Problem																															
Fly control:	None																															
Municipal Input:	High																															
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Capital Outlay:	Low																															
Running Costs:	Very High (SP)																															
2. Pit Latrine or Ventilated Improved Pit Latrine (On-site disposal)																																
	<p>The pit latrine has a 3- 5 metre deep pit, preferably lined with bricks to prevent collapse. It is sealed above with a cement slab with squat hole or pedestal seat. A VIP has a ventilation pipe with a fly screen at the top that traps those flies which go down the squat-hole and try to escape to the light up the vent-pipe; they then dehydrate & die. The pipe also reduces odour if correctly positioned. The VIP should last 10-14 years before filling up.</p>	<table style="width: 100%; border: none;"> <tr><td style="border: none;">Ownership:</td><td style="border: none;">Very good</td></tr> <tr><td style="border: none;">Maintenance:</td><td style="border: none;">Good</td></tr> <tr><td style="border: none;">H/holds sharing:</td><td style="border: none;">One (or two)</td></tr> <tr><td style="border: none;">Hygiene/Odour:</td><td style="border: none;">Fair</td></tr> <tr><td style="border: none;">Convenience:</td><td style="border: none;">Good</td></tr> <tr><td style="border: none;">Anal cleansing:</td><td style="border: none;">Newspaper OK</td></tr> <tr><td style="border: none;">Cleanliness:</td><td style="border: none;">Fair</td></tr> <tr><td style="border: none;">Fly control:</td><td style="border: none;">Good if VIP</td></tr> <tr><td style="border: none;">Household input:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Filling time:</td><td style="border: none;">10 – 14 years</td></tr> <tr><td style="border: none;">Capital Outlay:</td><td style="border: none;">Fairly high</td></tr> <tr><td style="border: none;">Running Costs:</td><td style="border: none;">Nil</td></tr> </table> <ul style="list-style-type: none"> When pit fills difficult to empty Seldom lined therefore not safe Pits collapse in sandy soils Fly screen seldom maintained Usually well maintained if private Potential to pollute ground water Can use newspaper for cleansing Can be covered to prevent flies Can be used as fly trap with vent Doesn't depend on municipality for servicing No regular emptying needed High maggot loading 	Ownership:	Very good	Maintenance:	Good	H/holds sharing:	One (or two)	Hygiene/Odour:	Fair	Convenience:	Good	Anal cleansing:	Newspaper OK	Cleanliness:	Fair	Fly control:	Good if VIP	Household input:	High	Filling time:	10 – 14 years	Capital Outlay:	Fairly high	Running Costs:	Nil						
Ownership:	Very good																															
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Running Costs:	Nil																															
3. Container Chemical Toilet (Off-site disposal)																																
	<p>The Container Toilet was introduced in 1997 as an emergency public health solution in informal settlements but has since become a standard option. The seat fits directly over a 100 litre plastic container supplied with some chemicals to help reduce odour. There are various superstructure options:- the cement prefab, the 'Brown Bullet' and the 'Black Rocket'. Municipality contracts service providers (SPs) to empty the containers once or twice a week by exchanging the full containers with cleaned ones. SPs are also meant to spray the toilet inside as a hygiene precaution.</p>	<table style="width: 100%; border: none;"> <tr><td style="border: none;">Ownership:</td><td style="border: none;">Very Low</td></tr> <tr><td style="border: none;">Maintenance:</td><td style="border: none;">Bad</td></tr> <tr><td style="border: none;">H/holds sharing:</td><td style="border: none;">Usually 5</td></tr> <tr><td style="border: none;">Hygiene/Odour:</td><td style="border: none;">Poor - Fair</td></tr> <tr><td style="border: none;">Convenience:</td><td style="border: none;">Low</td></tr> <tr><td style="border: none;">Availability:</td><td style="border: none;">Immediate</td></tr> <tr><td style="border: none;">Anal cleansing:</td><td style="border: none;">Problem</td></tr> <tr><td style="border: none;">Cleanliness:</td><td style="border: none;">Poor</td></tr> <tr><td style="border: none;">Fly control:</td><td style="border: none;">Poor</td></tr> <tr><td style="border: none;">Household input:</td><td style="border: none;">Zero</td></tr> <tr><td style="border: none;">Municipal Input:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Filling time:</td><td style="border: none;">One week</td></tr> <tr><td style="border: none;">Emptying time:</td><td style="border: none;">Weekly</td></tr> <tr><td style="border: none;">Capital Outlay:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Running Cost:</td><td style="border: none;">High (by SPs)</td></tr> </table> <ul style="list-style-type: none"> Source of neighbourly animosity Often filthy; discourages usage Over-demand at peak times Sometimes locked when needed If not covered flies are attracted Maggots breed fast in summer Newspaper fills container too fast SP economises on chemicals Chemicals often misused Heavy container to empty Totally dependent on municipality Needs emptying once a week Cleaning service may be poor Expensive long term option Tend to be vandalised 	Ownership:	Very Low	Maintenance:	Bad	H/holds sharing:	Usually 5	Hygiene/Odour:	Poor - Fair	Convenience:	Low	Availability:	Immediate	Anal cleansing:	Problem	Cleanliness:	Poor	Fly control:	Poor	Household input:	Zero	Municipal Input:	High	Filling time:	One week	Emptying time:	Weekly	Capital Outlay:	High	Running Cost:	High (by SPs)
Ownership:	Very Low																															
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Convenience:	Low																															
Availability:	Immediate																															
Anal cleansing:	Problem																															
Cleanliness:	Poor																															
Fly control:	Poor																															
Household input:	Zero																															
Municipal Input:	High																															
Filling time:	One week																															
Emptying time:	Weekly																															
Capital Outlay:	High																															
Running Cost:	High (by SPs)																															
4. Pour Flush Toilet (Off-site disposal)																																
	<p>Pour flush toilets are usually provided as a community. There must be a functioning water facility nearby. The system usually works well if there is a janitor to ensure standards. Each toilet is shared between 5 families (25 people). It is flushed manually by pouring a bucket of water down the pan. The system relies on community using it correctly and not blocking the pan with newspaper or other bulk.</p>	<table style="width: 100%; border: none;"> <tr><td style="border: none;">Ownership:</td><td style="border: none;">Low</td></tr> <tr><td style="border: none;">H/holds sharing:</td><td style="border: none;">5 or more</td></tr> <tr><td style="border: none;">Hygiene/Odour:</td><td style="border: none;">Poor</td></tr> <tr><td style="border: none;">Convenience:</td><td style="border: none;">Poor</td></tr> <tr><td style="border: none;">Availability:</td><td style="border: none;">Limited</td></tr> <tr><td style="border: none;">Anal cleansing:</td><td style="border: none;">Problem</td></tr> <tr><td style="border: none;">Cleanliness:</td><td style="border: none;">Poor</td></tr> <tr><td style="border: none;">Fly control:</td><td style="border: none;">Poor - Fair</td></tr> <tr><td style="border: none;">Household input:</td><td style="border: none;">None</td></tr> <tr><td style="border: none;">Municipal Input:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Emptying time:</td><td style="border: none;">Weekly</td></tr> <tr><td style="border: none;">Capital Cost:</td><td style="border: none;">High</td></tr> <tr><td style="border: none;">Running Cost:</td><td style="border: none;">High (by SPs)</td></tr> </table> <ul style="list-style-type: none"> Water seal is more hygienic if flushed by bucket as designed Buckets are stolen if left in toilet Animosity between neighbours Toilets not used when soiled Over-demand at peak times Sometimes locked when needed Not covered /flies attracted Newspaper quickly blocks pan Relies on municipality to unblock Needs emptying once a week Needs a full time janitor Vandalism common 	Ownership:	Low	H/holds sharing:	5 or more	Hygiene/Odour:	Poor	Convenience:	Poor	Availability:	Limited	Anal cleansing:	Problem	Cleanliness:	Poor	Fly control:	Poor - Fair	Household input:	None	Municipal Input:	High	Emptying time:	Weekly	Capital Cost:	High	Running Cost:	High (by SPs)				
Ownership:	Low																															
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Emptying time:	Weekly																															
Capital Cost:	High																															
Running Cost:	High (by SPs)																															

What anal cleansing material is used in the area? To avoid blockage, which design is best?

5. Dry Sanitation – Bucket Type (On-site disposal)			
	<p><i>Dry Sanitation or Ecosan is the separation of urine from faeces (i.e. Urine Diversion). The toilet pedestal is divided into two sections so that urine can be channelled away to a soak-pit & 'dry' faeces drops into a bucket (or bag) which is collected when full for disposal into a small pit or made into compost by adding ash and soil and other vegetable matter that can be safely reused after a year. It is the mixing of faeces with urine which causes odour & therefore dry sanitation is almost odourless. If ash is used to cover faeces after defecation, fly breeding is prevented. This is a sophisticated method and needs careful management.</i></p>	<p>Ownership: Reasonable H/holds sharing: 1 or 2 Hygiene/Odour: Good Anal cleansing: Some problem Convenience: Good Availability: Limited Cleanliness: Not bad Fly control: Good Household input: High Municipal Input: High Emptying time: Monthly Capital Cost: High Running Cost: Low (by HH)</p>	<ul style="list-style-type: none"> • Users must be well trained • Needs careful management • Not easy for children • Misused by visitors • Reasonably hygienic • Little smell or flies if ash used • On-site disposal by HHs • No dependency on municipality • More sustainable in long term • Benefits from composting if used productively • Newspaper can be used but will fill up bucket too fast • Problems encountered with regular bucket emptying • Success varies dependant on user acceptance
6. Dry Sanitation – Alternating Compartment (On-site disposal)			
	<p><i>This UD option has two separate storage compartments for dry faeces that are used for alternate years. The compartments are emptied only after a year of storage by which time the faeces will have safely converted into an odourless dry humus, free of pathogens. It is then either buried or used as compost. This option is much more robust and 'user friendly' as compared to the above Bucket Type. Although initial capital outlay is higher there is theoretically no limit to the life of such systems.</i></p>	<p>Ownership: Very good H/holds sharing: 1 or 2 Anal cleansing: Newspaper OK Hygiene/Odour: Very good Convenience: High Cleanliness: Very good Fly control: Very good Household input: High Emptying time: Annual Capital Cost: High Running Cost: Minimal (by HH)</p>	<ul style="list-style-type: none"> • More expensive to construct • Users must be well trained • Needs careful management • Misused by visitors • Can be used indefinitely • Hygienic if used well • No smell if ash used • Does not attract flies • Minimal emptying needed • Local on-site disposal by burial • Households can take charge • No dependency on municipality • More sustainable in long term • Enhances agricultural activity • Newspaper can be used
7. Anaerobic Toilet (On-site disposal)			
	<p><i>An Anaerobic Toilet is built over a 1,000 litre plastic container sunk in the ground that operates like a septic tank, allowing bio-digestion & sludge to settle whilst liquid matter is filtered before being piped to a soak-pit. Can be used in areas of high water table. When the seat is lifted a cover drops over the pan which seals the contents below from flies. The sludge container is accessed behind the toilet for occasional emptying.</i></p>	<p>Ownership: Reasonable H/holds sharing: 1 or 2 Anal cleansing: Big problem Convenience: Reasonable Availability: Limited Fly control: Reasonable Household input: Low Emptying time: 1-2 years Capital Cost: Very high Running Costs: Low (by SP)</p>	<ul style="list-style-type: none"> • Community training given • 6 days labour paid for installation • Complicated plastic lid will break • Blockages with newspaper and litter are common • No good if sullage water is added • Suitable for committed h/holds only • Toilet paper MUST be used • Minimal supervision by authority • Low emptying costs • Minimises fly breeding when properly used
8. Flush Latrine (Off-site disposal)			
	<p><i>The flush latrine is at the top end of the market as it requires to not only be in an area that has adequate sewer connections but also needs water piped into each toilet as each has its own water cistern that is flushed with a handle. It is an expensive option and simply not available in many informal settlements where there are seldom such water and sewer facilities for semi-permanent dwellings.</i></p>	<p>Ownership: Reasonable H/holds sharing: 1 or 2 Hygiene /Odour: Good Anal cleansing: Big problem Convenience: High Availability: Limited Cleanliness: Variable Fly control: Good Household input: Low Municipal Input: High Emptying time: None Capital Cost: High Running cost: High</p>	<ul style="list-style-type: none"> • The most expensive option • Long term solution with sewers • Individually owned /maintained • Handles/cisterns frequently break • Blockages with newspaper & litter common • Suitable for committed h/holds • Toilet paper MUST be used • Minimal supervision by authority • Sewerage treatment costs • Minimises fly breeding • Frequent blockages when not used properly

What options are offered in your area? The more ownership the more likely toilets will be cleaned well.