



Eleven Steps to Using a Urine Diversion Toilets

To ensure that the urine diversion (UD) toilets are being used properly by target populations, SOIL has devised a simple, participatory activity that aids communities and individuals in learning the correct way of using these toilets; it also really makes people laugh!

This activity involves the animator/emcee going slowly through the 11 steps, voicing each step to the rest of the audience, the rationale behind each action, while also acting out the step with the available visual aids (toilet seat, bagas, buckets, toilet paper). When the 11 steps have been completed and any questions have been answered, members from the audience are selected to come forward and try to complete the steps without help from others. It is important to note that participants should verbalize what they are doing while going through the 11 steps.

This participatory activity can be turned into a game, where the audience can be split by neighborhood, sex or some other variable and each individual can support the individual that is representing them. Winners are determined, of course, by completing all the steps without error or help from others. It will be up to the animator to gauge the situation and determine whether participants need encouragement or stricter refereeing. This activity is meant to be educational but also entertaining for all those involved.

For an example of how SOIL incorporates these steps into a participatory activity during toilet inaugurations, follow this link for a video of SOIL's Baudeler Maglore going through the steps with a community in Grand Riviere du Nord, Haiti: <http://www.youtube.com/watch?v=0JWEaqXAAsU>.

SOIL's 11 STEPS TO USING A URINE DIVERSION TOILET

STEP 1:
Open the toilet seat



STEP 2:
Remove your
Pants
*Desann
pantalon'w*



STEP 3:
Sit down
Chita



STEP 4:
Poop!
Kaka! Twalet!



STEP 5:
Stand up
Kanpe



STEP 6:
Take the toilet paper, wipe, and throw it in the garbage
Pran papye a, siye deye'w, e jete nan poubel la



SOIL's 11 STEPS TO USING A URINE DIVERSION TOILET



STEP 7:
Pull up your pants
Monte pantalon'w



STEP 8:
Take the bagas and empty it into the back hole
Pran bagas la, vide'l nan twou kote twalet la tonbe a



STEP 9:
Close the lid
Fème kouvèti a



STEP 10:
Wash your hands
Lave men'w

STEP 11:
And you're off!
Gaz kole!





Monitoring and Evaluation

Once the construction phase and the education/inauguration events are complete, the toilet is ready for use! By now, the implementing organization has worked with the community to put in place a management scheme that works for both parties. Despite the great deal of work completed to arrive at this stage, the work for these two groups is not complete; public toilets always require regular monitoring and evaluation, or 'supervision'.

Supervision comprises:

- Identification of hardware problems and scheduling repairs
- Encouraging and supporting toilet operators
- Receiving feedback from *operators*, especially concerning potential hardware and software improvements
- Receiving feedback from *users*, especially concerning potential hardware and software improvements

In the event of toilets being managed by long-term operators, routine monitoring is necessary to ensure that the operator is taking their responsibilities seriously and the toilet remains clean and functioning. In urban settings like in Port-au-Prince, SOIL found that visiting each site and speaking with the toilet operators a minimum of two times each week had a strong impact on the cleanliness and usability of the toilets. Supervisors are required to work through a checklist of previously identified requirements for each toilet site to function properly. An example of this checklist can be found in section T7, Toilet Monitoring Checklist.

Each week, supervisors submit a report for each toilet site. The report provides:

- A historical record of toilet use, toilet problems and toilet maintenance
- A discussion document to facilitate full-team (including engineers, animators, managers, supervisors, and community liaison officers) discussions
- A tool used for discussion during the interface with each site's representative during the weekly payroll and cleaning materials delivery

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While the community should be supervising toilet operators and checking up on repairs on their own, monitoring reports are a method of holding the community/committee accountable and showing the organization's commitment to a successful project.



Technical Specifications for Urine Diversion Toilets¹

Introductory Notes

1. This section does not address hand washing. A toilet without a designated hand washing point is unacceptable and a space should ALWAYS be reserved adjacent to the toilet, for hand washing.

Section Objectives

1. To provide the reader with a technical specification, to be used in conjunction with the drawings and photos in this guide, to construct a SOIL Urine Diversion (UD) toilet with drums as opposed to vaults.
2. To provide the reader with some background to the development of the SOIL UD toilet, by including as footnotes, information on previous designs and lessons learned.
3. To provide the reader with a part of the SOIL Guide to Ecosan, which, if thoroughly studied, provides a complete package of information and instructions on how to implement a successful EcoSan project.

Performance Objectives (POs)

The Performance Objectives (POs) guide the design, construction and operation of the SOIL UD toilet. If one of the POs does not achieve its PO criteria then the toilet will not perform properly. If more than one of the POs fails to meet its criteria by a large margin, then the toilet may fail completely and will need to be closed to users. The POs and their criteria are shown in the table below:

PO	PO	PO Criteria
1	Acceptability	Toilet acceptable to 90% of users ² .
2	Operation	Toilet designed and constructed so as to be accepted by 100% of operators

¹ This technical section of the document focuses solely in the urine diversion (UD) toilet design that SOIL has used in IDP camps in Port-au-Prince. These specifications can be used as general principles to adapt the design to local needs, including substituting materials. In future editions of this guide we plan to include complete technical guidelines for other SOIL toilet models. If you have specific questions about other models please contact us at info@oursoil.org.

² It is rare that any public toilet will be acceptable to 100% of users. A 90% target is a realistic and practical target.



3	Excreta capture	100% of excreta should be captured in the poop drum.
4	Urine drainage	100% of urine should be drained away from the SOIL UD toilet seat, without blockage of the drainpipe or spilling of urine.
5	Odour	0 odour in the cubicle and in the chamber
6	Vectors	0 vectors in the cubicle and in the chamber

Technical Specification

Ref	Specification	Reference Documents.
4.1	POSITION & ORIENTATION	
	A SOIL UD toilet has good ventilation, but will nevertheless get hot under a Caribbean sun. Positioning the toilet in shade to stay cool during the day is a good idea.	PHOTO T16a
	Sufficient space (at least 60cm but ideally 100cm) should be left at the front and sides of the toilet structure to allow for user access to the front, and operator access to the front and sides. If possible, the same space should be allowed at the back of the toilet for any eventual maintenance.	PHOTO T16b, T16c
	The toilet should be sited in such a location as to allow privacy for the user, but not so much so that the toilet is obscure to the point of insecurity, from its community of users.	PHOTO T16a
4.2	DESIGN LIFE	
	All materials specified for use with the SOIL UD toilet have a design life of more than 2 years.	
	The design life of the SOIL UD toilet (wooden structure) is, of course, entirely dependent upon the number of users, their respect for the good function of the toilet, and the performance of the toilet operators. At the time of publishing this edition, it is estimated that	



Ref	Specification	Reference Documents.
	the design life of the SOIL UD toilet is between 1 and 2 years ³ .	
	Periodic maintenance is necessary for the toilet to last until the end of its design life.	
4.3	TOILET SEAT	
	The SOIL UD toilet seat comprises: <ul style="list-style-type: none"> • A wooden box pedestal • A fiberglass SOIL UD toilet seat. 	PHOTO T13, T15 Dwg.T5
	The wooden pedestal has a double coat of paint on the inside and outside. The pedestal is made using 4 pieces of ¾” plywood, connected together with 2.5” wood nails and wood screws.	Dwg.T5
	The SOIL UD toilet seat was made in Port-au-Prince. Its components and characteristics are: <ul style="list-style-type: none"> • A cover that closes tightly. • A very comfortable sitting area. • A proven design which easily and comfortably separates urine and poop. • An easy material to clean. • A material that is easy to repair by a fiberglass specialist. 	PHOTO T15
	The weak point in the SOIL UD toilet seat is the metal hinge that connects the seat to the cover. There are 2 points of consideration for the metal hinge: <ul style="list-style-type: none"> • The metal hinge will oxidize and perish very quickly in the toilet environment. IT IS ESSENTIAL that the hinges on the toilet seat have protective painting. • The screws must be the correct head size and screw length in order to hold the hinge. 	
	The SOIL UD toilet seat is screwed into the pedestal using wood screws. The spaces left in the corners of	PHOTO T13

³ The first SOIL UD toilet in Port-au-Prince was commissioned in March 2010. It is still achieving all of its POs. None of the SOIL UD toilets were noticeably damaged after Tropical Storm Matthew of October 2010.

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Ref	Specification	Reference Documents.
	<p>ground and the wooden structure.</p> <ul style="list-style-type: none"> To provide a load-bearing raft upon which the wooden structural elements can sit. 	
	The soak away is located so that the urine drainpipe does not interfere with the positioning and removal of the poop drum.	PHOTO T3 Dwg T1
	The dimensions of the soak away have been proven adequate to provide a good area for the urine to soak away. However, an engineering assessment of underlying ground conditions and permeability should be made before siting the SOIL UD toilet.	PHOTO T4 Dwg T1
	The concrete slab is constructed using the following concrete materials: 1 - sack of cement. 1 - 55 gallon drum of sandy gravel. Water.	
4.6	STRUCTURE GENERAL	
	Plastic sheeting is used as cladding material. Different grades of plastic sheeting are available and a higher grade of plastic sheeting will provide a more durable and better-looking toilet.	PHOTO T7
	Plastic sheeting is attached to the wooden structure using 1" nails. If executed carefully, a very good tight finish to the cladding is possible.	
	If a good tight finish is achieved on the structure, the plastic sheeting will not detach, unless it is detached deliberately. E.g. by children.	PHOTO BAD T7
	Even the strongest plastic sheeting is not heat-resistant and will be damaged if exposed to heat. I.e. do not position the toilet next to a cooking site.	PHOTO BAD T9
	The SOIL UD toilet is often fitted with a rainwater collection gutter on the roof, which feeds a central hand washing point. The roof structure is strong and will support this.	
	Materials used for the wooden structure are shown in	PHOTO T10



Ref	Specification	Reference Documents.
	the Bill of Quantities. The central plywood wall that separates the cubicles MUST be well fit.	
4.7	CHAMBER	
	The chamber's main function is to provide just enough clearance to get the 15 gallon poop drum in to position under the poophole when the drum is empty, and out safely and easily when it is full. Accordingly, the chamber is not tall and the toilet structure is very solid.	PHOTO T1, T2
	The ergonomics of drum positioning and drum removal is an important factor in achieving POs 2,3 and 5. The drum guide and the plywood drum platform are ESSENTIAL elements in this and should be constructed and positioned carefully. Early toilet designs involved raising the poop drum on removable pieces of 2*4. This proved cumbersome and did not always allow for accurate alignment beneath the poophole.	PHOTO T1 Dwg_T5 PHOTO BAD T8
	The wooden elements in contact with the concrete floor are susceptible to moisture damage: from rain & damp and also from stray urine. These elements should be treated with a double coat of paint before being nailed to the concrete floor.	Dwg_T1
	Double-leaf chamber doors with internal door-stops and external locks provide chamber access.	PHOTO T11, T12
	Diagonal bracing struts (1" * 4") are provided on the main elements of the chamber frame.	Dwg T1
	Ventilation to the chamber is not needed if the toilet is used properly. There should be no odour and no flies.	
4.8	CUBICLE	
	The cubicle has dimensions large enough to be accessible to most disabled users, but there is no wheelchair access.	Dwg T2
	There are 2 shelving units in the cubicle, the shelf visible upon opening the door is for flowers. Flowers	PHOTO T17



Ref	Specification	Reference Documents.
	are a key part in achieving PO 1. The shelf visible only upon closing the door inside the cubicle is for toilet paper, which if located on the other shelf, would be visible, and could be stolen.	
	The wooden slats visible from the inside of the cubicle should be arranged so that the central slat is at a height suitable for the toilet seat cover to rest against it when the toilet seat is up.	PHOTO T9
	Education and software are the most important factors in achieving all POs. As such, an information poster 'On EcoSan' should be affixed in each cubicle, facing the toilet seat.	
	The poophole is cut in the plywood floor using the 15-gallon drum lid as a guide. The drum guide (see 4.7) if fixed AFTER the poophole is cut.	PHOTO T5, T6 Dwg T5
4.9	BALCONY, STAIRS AND ACCESS	
	The handrail on the stairs, constructed in accordance with the technical drawings, is essential for disabled access to the balcony and the toilet cubicles.	
	The central element to the stairs is essential in preventing deflection, and eventual failure of the stairs unit.	PHOTO T8 Dwg T2
	The balcony also provides access to fill up the cistern of an adjacent hand washing point if one is constructed next to the toilet.	
	The balcony and stairs are the only wooden element not protected by the roof. These elements require treating with a double coat of wood paint to protect them from dust and wind and rain.	
	A 60cm wide gravel pathway should be provided at the front and sides of the toilet structure to allow for operator access to the chamber doors.	Dwg T2



List of Drawings: SOIL Toilets

Drawing no.	Toilet Type	Drawing Title	Drawing Creation Date	Rev.
T.01	SOIL UD Toilet: Wood	Plan views on toilet chamber	October 2010	-
T.02	SOIL UD Toilet: Wood	Plan view on toilet cubicle	October 2010	-
T.03	SOIL UD Toilet: Wood	Front & Side Elevations	October 2010	-
T.04	SOIL UD Toilet: Wood	Front & Side Sections	October 2010	-
T.05	SOIL UD Toilet: Wood	Details	21 st Feb. 2011	-