



## WWF'S WEDNESDAY WATER FILE

# WHAT TO DO WHEN YOU CAN'T FLUSH THE LOO

7 February 2018

***Many people in drought-affected areas are getting really worried about what will happen when we don't have enough water to flush the toilets. There are alternative dry sanitation solutions that you can start looking at now, both in preparation for Day Zero and to reduce your water use to delay Day Zero for as long as possible.***

### **1. After Day Zero will I still be able to flush my toilet with rain water/greywater?**

You should be able to flush your toilets with rain water, greywater or groundwater as long as the sewage systems are still functional. It would be wise to use as little of your precious daily allocation of drinking water for flushing – so it is worth considering alternative dry options both to save water and to be ready for Day Zero.

### **2. Why can't I just flush with sea water?**

Flushing with sea water in the metropolitan area is NOT an option. Sea water flushing will increase salt in the waste water treatment plants, and if the salinity levels get too high the microbes which treat the sewerage can't survive and the treatment plants will stop working. Then we would end up with an even bigger problem as our waste water plants would become inoperable. The same principle applies to septic tank systems which rely on microbes to decompose the sewerage. Suburbs on the Atlantic seaboard (Green Point, Sea Point, Camps Bay to Hout Bay) discharge sewerage out to sea via a pipeline; under emergency conditions you can flush with sea water in these areas.

### **3. Will the sewage systems still work after Day Zero?**

The City of Cape Town has indicated that the sewage systems will continue to work after Day Zero. They intend to flush the system at appropriate points to keep the sewerage moving. The city engineers are working at ensuring that the system continues to function in order to protect the health of the public as well as the infrastructure. Our sewage system has not worked under these conditions before and we should expect the unexpected – treatment plants or sewerage pipes could fail under these extreme conditions and we should all be ready to make contingency plans.

### **4. What is more dangerous - urine or faeces?**

Urine (pee) is essentially sterile which means it is free of bacteria. If you can urinate (pee) in your (private) garden onto soil it will be absorbed and not present health problems providing the volumes aren't too high. Spread it around so that it doesn't get concentrated and smell. In contrast, faeces (po) present a health hazard as it contains disease-carrying bacteria and microbes. It is critical that faeces are dealt with safely and do not come into contact with people or animals such as dogs. Open defecation (pooing in the veld or on farms) is a real hazard and globally there are many initiatives trying to eradicate this practice to ensure both dignity and health. Our waterborne sanitation system has been designed to safely remove poo and pee and ensure we don't come into contact with it. Good sanitation, combined with hand-washing, dramatically reduces the risk of disease. In the 'New Normal' – a drier future for Cape Town – we need to relook at the best methods to safely provide sanitation while using less water. This challenge is recognised around the world.

### **5. So what is the simplest solution for Day Zero?**

Many people are looking into the option of dry sanitation. A dry toilet, as the name suggests, operates without any water to flush away poo or pee. The easiest option is a dry compost toilet. This is a bucket housed in a box to support your weight with a toilet seat of your choice and organic material to cover the poo. The cover material can be sawdust or decomposed compost (lots of good bugs). If you use a dry compost system it's really important to keep your face well clear when handling the buckets and use a good pair of kitchen gloves that you can clean and re-use specially for the task. After the Christchurch earthquake in New Zealand in 2011 an organisation called Relieve coordinated an effort to provide information and support for people who were doing without their usual sewage systems.

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## 6. How does a dry toilet work?

The ideal is to separate the pee and the poo (urine diversion) as much as possible, because if the mixture is too wet it will hamper decomposition. The aim here is to keep the poo bucket, which is the highest risk, from filling up too quickly. Estimates are that one person produces about 1 to 1½ litres of urine a day which can be disposed of in a green space or in your compost heap. For people in high-rises, the urine can still go in the conventional toilet but dispose of the paper separately. There are products that mask the smell. The poo has to be properly managed to avoid diseases and can be converted into "humanure" (compost) through a proper composting process. Ideally, this should be managed in a centralised system. Talk to your councillor as it is not clear at this stage if there are contingency plans for centralised composting. There are composting toilets that have urine diversion mechanisms incorporated into their design and there are many websites with more information on how to construct your own compost loo and how to safely process the waste.

## 7. Can a dry toilet be used in a flat without a garden?

Yes. Using a bucket system with cover material should prevent it from smelling. Separating out urine is even more important in this case. High-rises and high density areas could collaborate to get bulk cover material and could even compost safely or arrange bulk collection of the material to get composted elsewhere. Ideally you should be talking to your body corporate now about making alternative sanitation systems available for Day Zero. This could range from sourcing an alternate supply of greywater to flush the toilets, installing a commercial dry toilet system or chemical toilets in the grounds of your building and also advising people on how to minimise blockages by putting toilet paper into a separate bin.

## 8. What are the features of a good compost toilet system at home?

The system should not be too wet because then it rots. If it's too dry it doesn't compost. One way to manage this is to pee in the bucket for morning ablutions and to try to keep the rest separate. It shouldn't be soggy but rather have the consistency of good moist soil. You should preferably use a 25 litre bucket with a lid as this is the easiest to carry, and won't get too heavy. Smell management is done with dry organic material such as sawdust (anything that is reasonably dry and high in carbon can be used so you could also make use of garden clippings, compost or partially composted leaves and garden waste).

## 9. How do I know if a dry toilet is working properly?

A dry (bucket) toilet works properly if your material doesn't leak out of the container/bucket, if you can pick up the container comfortably, and if the container can be closed. A composting toilet (which is bigger than a bucket) works well if it doesn't smell. If it smells of ammonia, add more organic material. If it rots, there is too much liquid.

## 10. What other alternatives are there?

**Pit latrines:** Many people will probably be thinking of the old "long drop" or pit latrine system often found in rural areas. Pit latrines are deep pits in the ground used to collect poo – but they can be smelly and difficult to maintain depending on the geology of the soil. Pit latrines are also problematic in urban areas as they run the risk of contaminating the ground water supply and other health risks such as worms. It's always advisable to take deworming tablets every six months.

**Commercial composting toilets:** Another option is to invest in a commercial composting toilet system that uses the natural process of decomposition to break down human waste, yet it is self-contained. There are a number of commercial self-contained dry toilets available in South Africa but these are not always suitable for small dwellings. You would need to research the suitability of each of these options for your needs and reach out to the local authority to see if they might install these in communal spaces. Some of these toilets are already in use in public areas (such as on the top of Signal Hill in Cape Town) and in CapeNature rest camps.

**Chemical toilets:** Chemical toilets are often used by caravaners or at music festivals. These, however, will also need to be serviced so be sure to establish whether that is feasible.

**Be sure to do thorough research on whichever option you may be considering.**

## DAY ZERO PREP - THIS WEEK'S BUCKET LIST:

- **Work out what is going to be the best option for you depending on your circumstances – do you have a garden/do you have alternate water sources to flush with/ how many people/ what can you afford?**
- **Do some research now on your preferred method – there is a lot of information on the internet, and we link you to some reliable sources below.**
- **Think about doing a 'dry run' and test your method (if it's something simple like a bucket) so you know what you need.**

# TOILET TALK: ALTERNATIVE SANITATION OPTIONS

TYPES OF SANITATION	HOW MUCH WATER?	NEEDS A GARDEN OR OPEN SPACE	CONSIDERATIONS	COSTS
<b>MINIMAL FLUSHING OF NORMAL TOILET</b>	5L flushes with grey/rain or groundwater	No	Need to dispose of toilet paper separately	Initial capital costs of alternate source
<b>COMMERCIAL COMPOST TOILET</b>	None	Yes	Location, space, substrate	+/- R10 000
<b>CHEMICAL TOILETS</b> (including camping toilets)	None	Yes (for large chemical toilets) No (for camping units)	Generally a rental agreement with service fees included. Managed by company. Also number of people using the toilet.	Costs can only be calculated once the company has the following: the number of people using the toilet, distance from the service provider and type of unit required
<b>BUCKET COMPOST TOILET</b>	None	No	Need to dispose of solid waste	Minimal – R200 for bucket and sawdust but there are people building units with toilet seats
<b>PIT LATRINE</b>	This should not be considered within the metropolitan area but useful in drought-affected rural areas		Substrate, location to water source, ground water, river, lake, etc.	Labour to construct and basic building materials (R2 000 to R10 000)

## Useful Links:

- [www.facebook.com/groups/drysanitation/](https://www.facebook.com/groups/drysanitation/)
- [www.facebook.com/CompostLoo](https://www.facebook.com/CompostLoo)
- [www.diyhousebuilding.com/bucket-toilets.html](http://www.diyhousebuilding.com/bucket-toilets.html)
- [www.composttoilets.co.nz](http://www.composttoilets.co.nz)

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