

# The Sanitation Decision Support tool

Results of the Sanitation Decision Support Tool. The tool was created by WASTE (www.waste.nl) and the Akvo Foundation (www.akvo.org), in order to assist people in choosing sanitation technologies. We hope this tool proves useful, any comments can be send to m.t.westra@akvo.org.

Session information

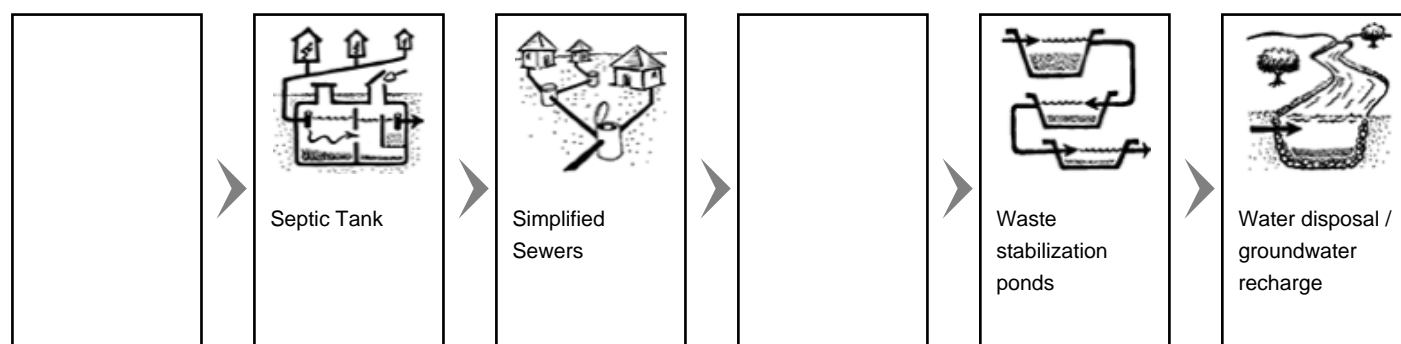
Date: Sun May 16, 2021

Time: 22:35:09

## Options chosen

<b>Water supply (one possible)</b> <ul style="list-style-type: none"><li>• none</li><li>• fetched / hand-pump / standpipe / tanker</li><li>• <u>connection</u></li></ul>	<b>Groundwater table (one possible)</b> <ul style="list-style-type: none"><li>• shallow</li><li>• medium</li><li>• <u>deep</u></li></ul>	<b>Soil type (one possible)</b> <ul style="list-style-type: none"><li>• clayey</li><li>• silty</li><li>• <u>sandy / gravelly</u></li><li>• rocky</li></ul>
<b>Space availability (one possible)</b> <ul style="list-style-type: none"><li>• <u>large</u></li><li>• medium/large</li><li>• medium</li><li>• small/medium</li><li>• small</li></ul>	<b>Terrain / Topography / Slope (one possible)</b> <ul style="list-style-type: none"><li>• <u>flat</u></li><li>• slope</li></ul>	<b>Anal cleansing method (more possible)</b> <ul style="list-style-type: none"><li>• water</li><li>• <u>soft paper</u></li><li>• hard or bulky</li></ul>
<b>Flood prone (one possible)</b> <ul style="list-style-type: none"><li>• <u>not affected</u></li><li>• frequent (low-lying area)</li></ul>	<b>Vehicular accessibility (one possible)</b> <ul style="list-style-type: none"><li>• no access</li><li>• limited / narrow access</li><li>• <u>full access</u></li></ul>	

## Selected technologies



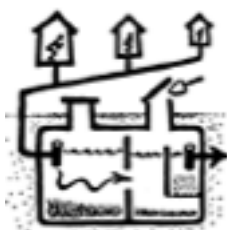
## Links to Akvopedia articles

- Septic Tank:  
[http://www.akvo.org/wiki/index.php/Septic\\_Tank](http://www.akvo.org/wiki/index.php/Septic_Tank)
- Simplified Sewers:  
[http://www.akvo.org/wiki/index.php/Simplified\\_Sewers](http://www.akvo.org/wiki/index.php/Simplified_Sewers)
- Waste stabilization ponds:  
[http://www.akvo.org/wiki/index.php/Waste\\_Stabilization\\_Pond](http://www.akvo.org/wiki/index.php/Waste_Stabilization_Pond)
- Water disposal / groundwater recharge:  
[http://www.akvo.org/wiki/index.php/Water\\_Disposal\\_-\\_Groundwater\\_Recharge](http://www.akvo.org/wiki/index.php/Water_Disposal_-_Groundwater_Recharge)

## Short descriptions

### Septic Tank

A Septic Tank is a watertight chamber made of concrete, fibreglass, PVC or plastic, for the storage and treatment of blackwater and greywater. Settling and anaerobic processes reduce solids and organics, but the treatment is only moderate. A Septic Tank should typically have at least two chambers. The first chamber should be at least 50% of the total length and when there are only two chambers, it should be 2/3 of the total length. Most of the solids settle out in the first chamber. The baffle, or the separation between the chambers, is to prevent scum and solids from escaping with the effluent. A T-shaped outlet pipe will further reduce the scum and solids that are discharged. Liquid flows into the tank and heavy particles sink to the bottom, while scum (oil and fat) floats to the top. With time, the solids that settle to the bottom are degraded anaerobically. However, the rate of accumulation is faster than the rate of decomposition, and the accumulated sludge must be removed at some point. Generally, Septic Tanks should be emptied every 2 to 5 years, although they should be checked yearly to ensure proper functioning. The design of a Septic Tank depends on the number of users, the amount of water used per capita, the average annual temperature, the pumping frequency and the characteristics of the wastewater. The retention time should be designed for 48 hours to achieve moderate treatment.



#### Relevant options

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### Simplified Sewers

Simplified Sewers describe a sewerage network that is constructed using smaller diameter pipes laid at a shallower depth and at a flatter gradient than conventional sewers. The Simplified Sewer allows for a more flexible design associated with lower costs and a higher number of connected households. Expensive manholes are replaced with simple inspection chambers. Each discharge point is connected to an interceptor tank to prevent settleable solids and trash from entering the sewer. As well, each



household should have a grease trap before the sewer connection.

#### Relevant options

At option **Terrain / Topography / Slope (one possible)** you have selected **flat**. This means that in your situation, Simplified Sewers might be a suitable technology. This depends on: **Requires a minimum slope of 0.5 %**. **If long distances are required, a pumping station might be needed.**

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## Waste stabilization ponds

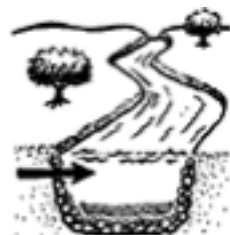


Waste Stabilization Ponds (WSPs) are large, manmade water bodies. The ponds are filled with wastewater that is then treated by naturally occurring processes. The ponds can be used individually, or linked in a series for improved treatment. There are three types of ponds, (1) anaerobic, (2) facultative and (3) aerobic (maturation), each with different treatment and design characteristics. For the most effective treatment, WSPs should be linked in a series of three or more with effluent being transferred from the anaerobic pond to the facultative pond and finally the aerobic pond.

#### Relevant options

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## Water disposal / groundwater recharge



Treated effluent and/or storm water can be discharged directly into receiving water bodies (such as rivers, lakes, etc.) or into the ground to recharge aquifers. It is necessary to ensure that the assimilation capacity of the receiving water body is not exceeded, i.e. that the receiving body can accept the quantity of nutrients without being over-loaded.

Parameters such as turbidity, temperature, suspended solids, BOD, nitrogen and phosphorus (among others) should be carefully controlled and monitored before releasing any water into a natural body. The use of the water body, whether it is used for industry, recreation, spawning habitat, etc., will influence the quality and quantity of treated waste water that can be introduced without deleterious effects.

#### Relevant options

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