

## **Vermicomposting of sieved blackwater using the Rottebehälter system**

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### **Rottebehälter pilot plant description**

The plant consists of three major parts;

- 1) Intermediate tank
- 2) Three tanks connected to the intermediate tank in parallel, within each tank a filter bag of dimensions (50 cm\*50 cm\*80cm).
- 3) A mobile crane for weighting the filter sacks.

The intermediate tank is used for receiving the substrate directly from three normal flushing toilets within the building, through a valve which can be used for either directing the flow to plant or to the normal sewer system.

The three tanks are used for receiving the substrate from the intermediate tank through three valves, where the solid materials remain in the bag to be composted or vermicomposted while the liquid phase is allowed to leach from the bag to the container and then pumped to the normal sewer system. Each tank is supplied with one valve for controlling the leachate flow. The tanks are supplied with a passive aeration system (ouput-input air valve). Each of the tanks is supplied with an opening in its top for inspecting and sampling of the solid material in addition to a tap at its bottom for inspecting and sampling the liquid material.

Each of the tanks as well as the intermediate tanks are supplied with an extra pipe in case of excess flow, and in this case the flow goes to the normal sewer system.

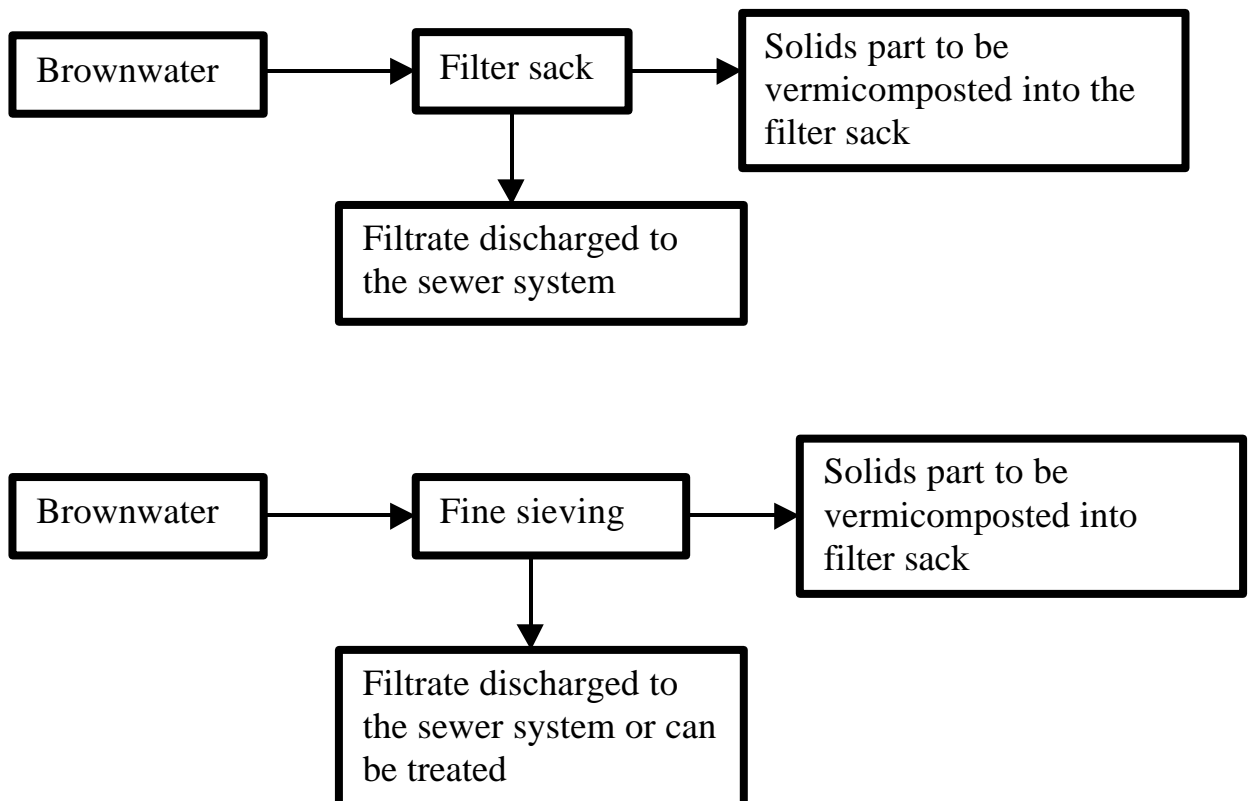
Photos of the pilot plant are shown below







**Schematic diagram of the concept applied:**





The results of the preliminary experiment of vermicomposting of blackwater were extremely successful, that the material (blackwater) after two months only looked exactly like earth.

In depth and detailed experiments will be carried during the next 2 years for optimization of the process, testing different kinds of worms and investigating the best conditions for their growth and reproduction.

Below are pictures of the vermicomposted material.



