

# How to use Information Tool to select best available wastewater treatment system?

In order to support households for wastewater treatment solution selection and facilitate decision making, VillageWaters Project has developed this web-based Information Tool. The Information Tool unite wastewater treatment (WWT) systems available in local markets of 6 countries – Finland, Sweden, Estonia, Latvia, Lithuania and Poland. It provide possibility at first to identify available WWT systems according to number of users and then to sort them according to your freely chosen criteria to find most cost-effective and environmentally friendly solution applicable for your particular need.

VillageWaters team hope that you will enjoy the process of wastewater treatment system selection and it will finish with the installation of best available solution in your household. Let's start!

## PREPERATIONAL STEPS

1

Go to [www.villagewaters.eu](http://www.villagewaters.eu) page and select Information Tool.




2

Select the language on the right part of the page.



3

Click on  button to select the country-specific wastewater treatment solution Data Base.

NOTE: Selection is available between following countries: Estonia, Finland, Latvia, Lithuania, Poland and Sweden.

4



Click on Capacity button to input number of persons in your house or agglomeration.

NOTE: The minimum capacity – 4 persons are based on the size of available WWT systems. The maximum capacity – 50 persons are defined by EU standard for small domestic WWT systems (EN 12566-3:2016). The amount of wastewater produced by person is also defined by this standard and is considered as 150 l/person/day. You may use more precise wastewater amount data and re-calculate the capacity accordingly.

5



Click Technology button to filter technologies, selected for capacity entered. Select checkbox near appropriate technology, if is known to you. If not, select all of them.

NOTE: Number of technologies are country-specific and correspond to local market.

## FILTERING OF WASTEWATER TREATMENT SYSTEMS

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The step 1 to 5 can be classified as preparation steps. Starting from the next step you will start the WWT system selection process. Various technologies work on different principles. Therefore they varies by efficiency, space requirements, costs and need for maintenance. Now you can start to sort on capacity bases selected WWT systems according to your freely chosen criteria and to find most cost-effective and environmentally friendly solution applicable for your particular need.

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WWT systems need various land area according to treatment technology used. If you have space limitation, use this criteria to revise the number of systems previously selected and then sort them according to dimensions.



Click Dimensions button to input dimensional restrictions for filtered equipment. Put maximum length and maximum width parameters in meters by using the slider. In order to range WWT systems in a size parameters order, you have to use option "List results by" and select "Dimensions, smaller first".

7



In order to evaluate WWT system costs, click **Costs** button to input upper and lower borders for annualized costs for WWTP operation, maintenance and annualized investments. In order to range WWT systems in a cost parameter order, you have to use option “*List results by*” and select “*Smaller investment costs*” or “*Cost-efficiency Index*”.

NOTE: To compare cost effectiveness of different equipment better, initial installation costs based on expected usage years and annual usage costs are summed and expressed as daily costs for BOD (Biological Oxygen Demand) removal.

### **DETAILED INTRODUCTION WITH FILTERED WASTEWATER TREATMENT SYSTEMS TO SELECT THE MOST APPROPRIATE ONE**

In general the requirements for wastewater treatment efficiency is set on a bases of amounts of sewerage produced. Usually for small wastewater treatment plants only removal of suspended solids and content of organic matter, which is measured as biochemical oxygen demand (BOD) and chemical oxygen demand (COD) is required. Nevertheless the more strict requirements also for small wastewater treatment plants may be set if treated sewage is discharged to sensitive surface water body or plant is located in the area having specific conditions (protected nature area, area intended for the abstraction of drinking water, area where protection of groundwater is poor or bad etc.).

To help you to come to conclusion for selection of the most appropriate WWT system for your needs, the Information Tool provides possibility to choose more general or specific set of characteristics to order already filtered WWT systems.

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To order the filtered WWT systems according to general characteristics you have to choose display mode “*Essential data*”, which is suitable for listing of filtered WWT systems according to 4 previously described criteria – efficiency, dimensions, investment costs and cost-efficiency index.

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To order the filtered WWT systems according to more specific characteristics you have to choose display mode “*Advanced scientific*”, which additionally to 4 previously described criteria is applicable also for use of following advanced criteria – less use of electric energy, nitrogen removal efficiency, phosphorus removal efficiency, less climate impact, less eutrophication impact.

## EQUIPMENT DATASHEET

After looking on general (*“Essential data”*) or specific (*“Advanced scientific”*) data displayed in the filtered list of equipment, you can click on any listed equipment model name to see datasheet of it. The following data will be displayed for each unit in the filtered list:

- Basic data, including manufacturer and country of origin, type of technology, lifetime in years, according to manufacturer data
- Removal efficiency for 5 parameters (BOD, COD, suspended solids, nitrogen, phosphorus);
- Daily capacity ranges for total amount of sewage and polluting substances;
- Concentrations of polluting substances in the outflow
- Dimensions of construction pit for equipment;
- Construction materials;
- Sludge formation characteristics, including frequency of sludge evacuations per year, maximum sludge capacity and capacity of sludge sludge per person/per year;
- Usage (need for electricity of chemicals during operation);
- Investment costs, including equipment, installation, consulting and total costs;
- Usage costs;
- Total costs, expressed as annual costs during operation of equipment;
- Cost-efficiency for BOD, nitrogen and phosphorus removal;
- Environmental impact.