

## Wastewater treatment & opportunities for decentralised NBS for wastewater treatment in SEEurope

NATIONAL RESEARCH AND DEVELOPMENT INSTITUTE FOR INDUSTRIAL ECOLOGY

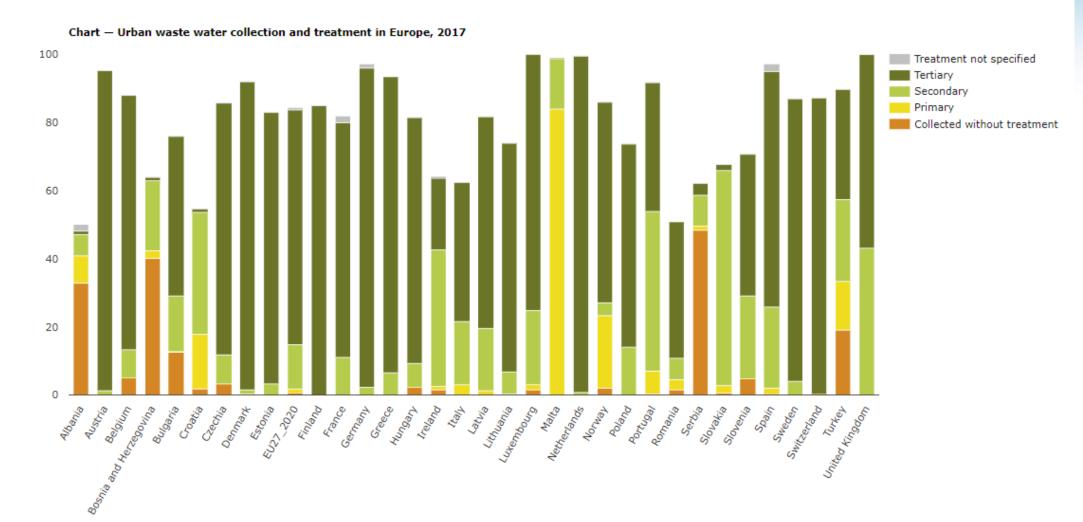


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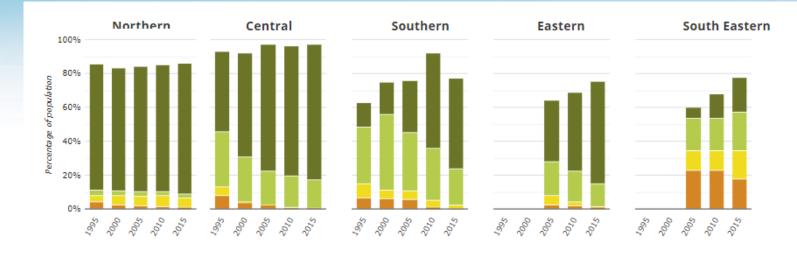
#### **Urban waste water collection and treatment in Europe**



% of population



#### **Changes in urban waste water treatment in Europe**



Collected without treatment Primary Secondary Tertiary

#### Note:

Northern Europe: Norway, Sweden, Finland and Iceland. Central Europe: Austria, Belgium, Denmark, Netherlands, Germany, Switzerland, Luxembourg and United Kingdom.

Southern Europe: Greece, Italy, Malta and Spain.

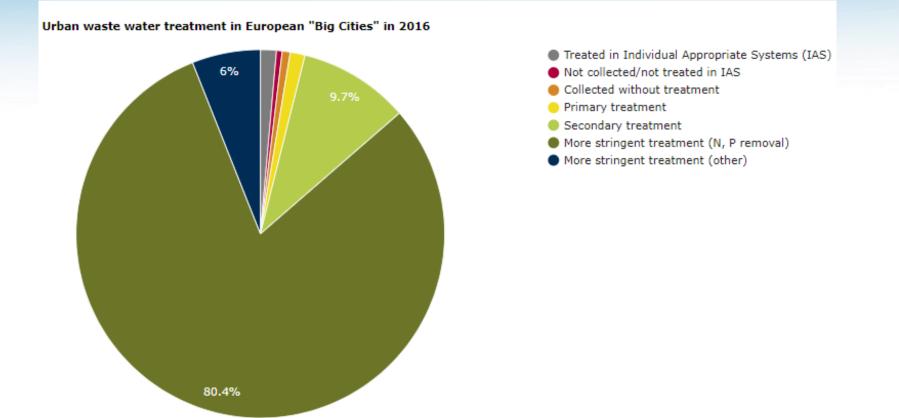
Eastern Europe: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovenia.

South-eastern Europe: Bulgaria, Romania and Turkey.

Initially, for the treatment of waste water, sewage collection systems must be installed (orange bars). Waste water can then be subject to primary treatment (yellow bars), such as settling, followed by secondary treatment (green bars) to reduce the amount of dissolved and suspended organic material. Secondary treatments include those using biological methods. More stringent 'tertiary' treatment (dark green bars) can then be applied to remove mainly nutrients.



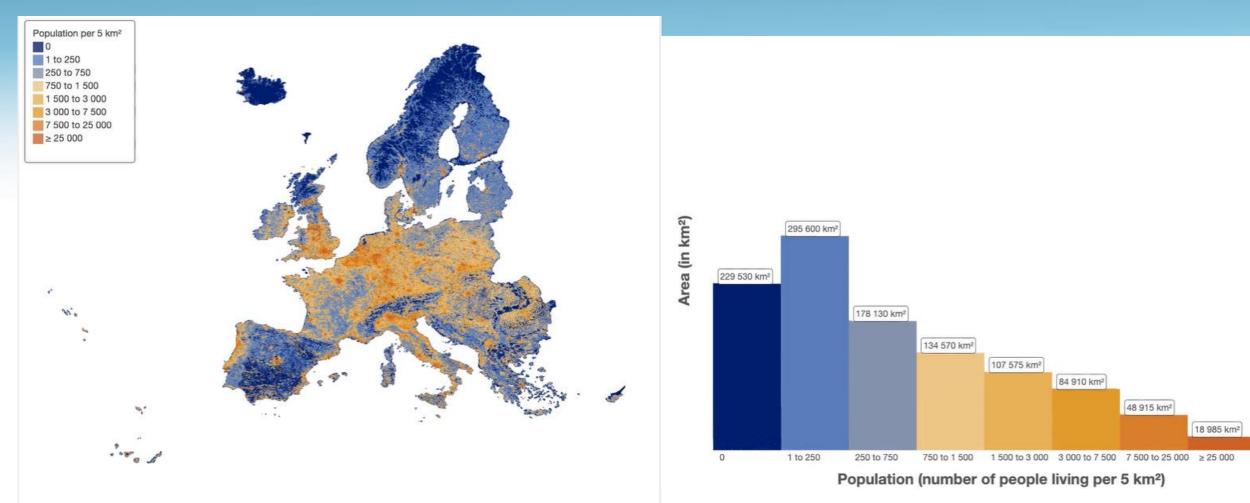






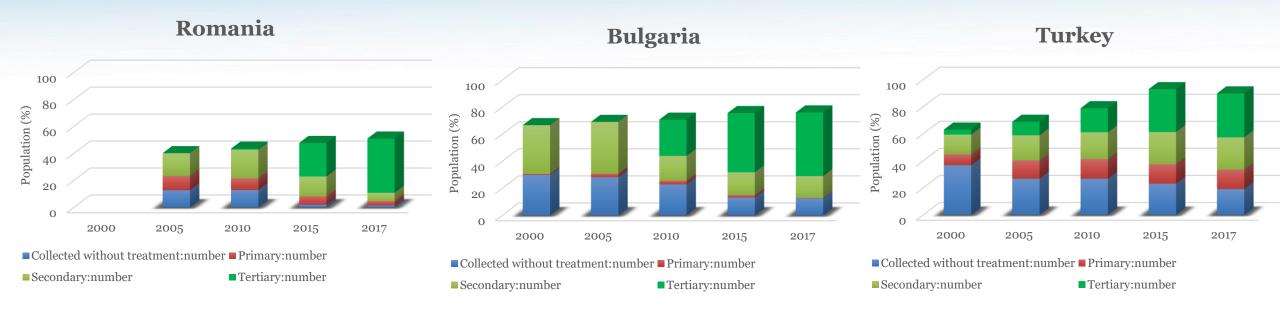
### **Population density**







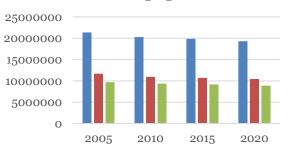
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#### Romania Turkey Bulgaria Population (%) Population (%) ■ Collected without treatment:number ■ Primary:number ■ Collected without treatment:number ■ Primary:number ■ Collected without treatment:number ■ Primary:number Secondary:number ■ Tertiary:number Secondary:number ■Tertiary:number Secondary:number Tertiary:number



Romanian population

■Total ■Urban ■Rural

Population (%)

# Number of agglomerations in EU28 and the generated organic pollution load that they discharge



	Total number of agglomerations (>2,000p.e.)	Total number of agglomerations 2000- 10000 p.e.	Total number of agglomerations >10000 p.e.	Total number of agglomerations >150000 p.e.
EU15	17,910	10,940	6,970	546
EU13	5,659	4,071	1,588	116
EU28	23,569	15,011	8,558	662

	Total Load discharged from agglomerations (million p.e.)	Total load discharged from agglomerations 2000-10000 p.e. (million p.e.)	Total load discharged from agglomerations >10000 p.e. (million p.e.)	Total load discharged from big cities discharging >150 000 pe (million p.e.)
EU15	509	51	457	230
EU13	79	17	62	47
EU28	588	68	519	277

Facts and Figures about Urban Waste Water Treatment,

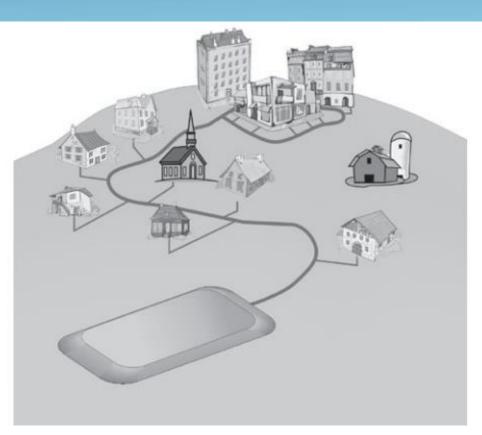


### Wastewater treatment two strategies





Autonomous sanitation



#### Collective sanitation



## The lumbrifilter



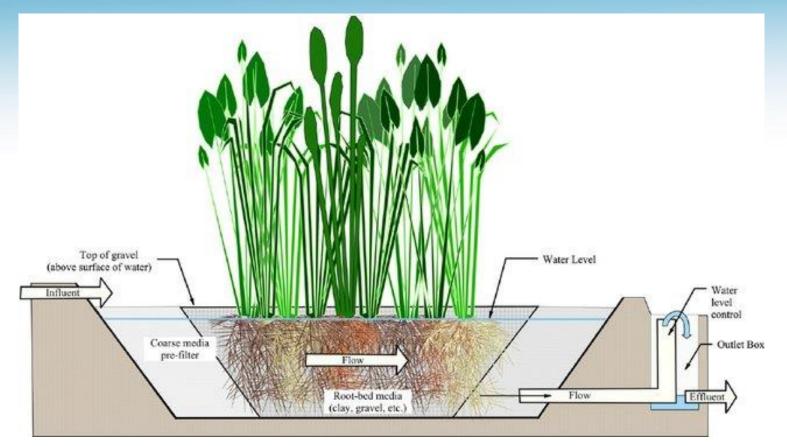












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# **Thankyou for taking part!**

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