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# WOW!

Wider business Opportunities for raw materials  
from Wastewater

## Decision Support Tool



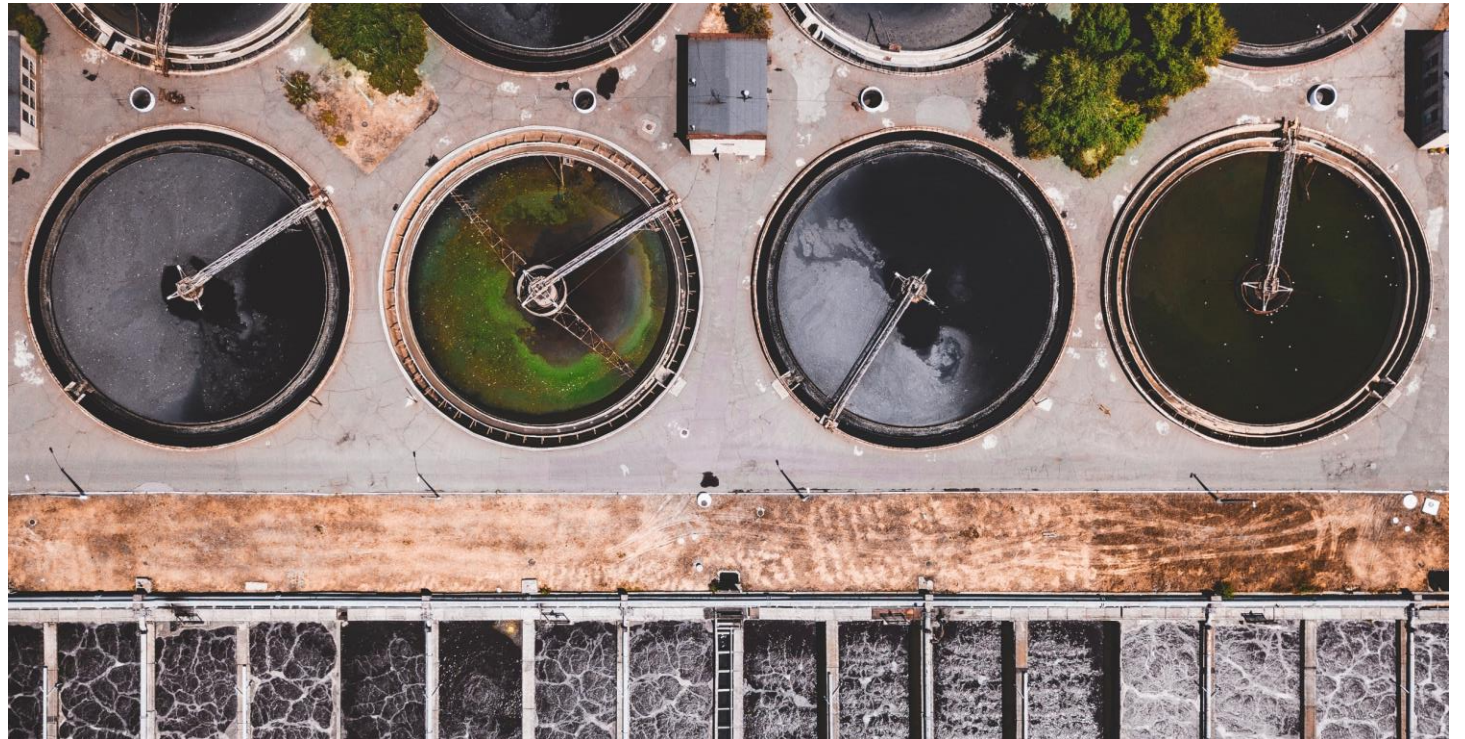
# Today

- Goal of the Decision Support Tool (DST)
- What is the DST
- Results of the DST
- What does the DST look like
- Time for questions



# Goal of the DST

- Support and stimulate water authorities to realize their sustainability goals.
- Show policy makers the opportunities for recovery and reuse of carbon-based elements from wastewater.



# What is the DST

- An Excel tool for water authorities that operate sewage treatment plants.
- The DST can be used to get a first impression if the influent of a sewage treatment plant is suitable for recovery and re-use of carbon-based elements.
- Looking at cellulose, PHA and lipids.
- Using a limited amount of (readily available) input parameters.

The outcome of the DST can be used to decide if the technology for cellulose, PHA and lipids is worth a closer look.

# Result of the DST - outcome

The (composition of an) input stream of a sewage treatment plant indicates that:

1. Implementation of technique for cellulose, PHA and/or lipids **is promising**
2. implementation of technique for cellulose, PHA and/or lipids probably **is NOT feasible**
3. **it is not yet clear** if implementation of technique for cellulose, PHA and/or lipids is feasible. A more detailed consideration is needed.

# Result of the DST - information

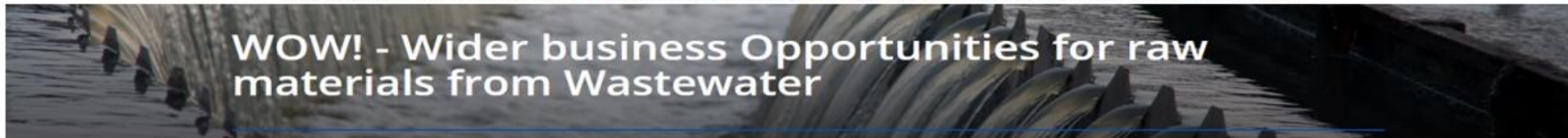
DST provides information on:

- Effects of Wow! technologies on other sewage treatment plant processes
- Technical aspects → *based on information from pilots*
- Economic aspects → *based on information from TEA*
- Environmental & sustainability aspects → *based on information from pilots*
- Social aspects

# Let's go to the concept DST



<https://www.nweurope.eu/projects/project-search/wow-wider-business-opportunities-for-raw-materials-from-wastewater/>



## DECISION SUPPORT TOOL

The Decision Support Tool (DST) is a tool that offers organizations that operate sewage treatment plants a comprehensive decision making framework on the re-use of (carbon elements in) sewage water into valuable products. This tool is meant for water authorities (policy makers, sewage treatment plant operators) and factory owners to see if their sewage is suitable for:

### **Production of the bioplastic PHA (polyhydroxyalkanoates):**

PHA is a fully degradable bioplastic that can be produced by bacteria that are present in a sewage treatment plant (STP). First secondary sludge is used to grow bacteria with a high PHA production capacity. Next, the water fraction of primary sludge which contains volatile fatty acids (VFAs) is fed to these bacteria. The bacteria will convert the VFAs into PHA and store this PHA inside their cells. In the last step, the PHA is chemically extracted from the bacteria.

### **Production of bio-diesel:**

The effluent from the primary treatment often contains fats and oils. These fats and oils can be converted into lipids by the bacteria species *Microthrix parvicella*. The lipids produced by *Microthrix* can be used for the production of bio-diesel. The conversion of fats and oils into lipids by *Microthrix* will be done in a *Microthrix parvicella* Selecting Reactor (MPSR). The effluent from the primary treatment will be fed to this MPSR.

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**Thank you!**