

# Leveling the playing field

June 1, 2021- 14:00h - Online

#EUGreenWeek  
2021 PARTNER EVENT



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## Welcome!



- Introduction of the chair for this debate



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## Programme



14:00h	Welcome by Mark Fletcher, Global Water leader at ARUP
14:05h	Pitch of the WOW! project by Jappe de Best, Avans - Centre of Expertise Biobased Economy
14:10h	Raw materials from sewage; examples from daily practice from producer's and technology supplier perspective by Coos Wessels, CirTec
14:25h	A call for action by Katrien Bijl, Waterboard Vallei Veluwe
14:30h	Panel debate - how to reach a uniform legal framework for the circular use of raw materials from sewage? guided by Mark Fletcher
15:20h	Conclusions and follow up
15:30h	End of the meeting



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## The WOW! project



### *Legal framework*

*Jappe de Best PhD MSc  
Professor Biobased Resources & Energy*

*Avans University of Applied Science  
Centre of Expertise Biobased Econom*

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## Wow! goals

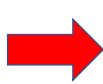
- We aim to start a transition towards a circular approach in sewage treatment
- For this purpose we want to:



SHOW THAT IT IS TECHNICALLY POSSIBLE TO RECOVER RAW MATERIALS FROM SEWAGE.



LET MARKET PARTIES BECOME ACQUAINTED WITH THE POTENTIAL OF RAW MATERIALS FROM SEWAGE (PHA, BIODIESEL, BIO-OIL, BIOCHAR, ACETIC ACID).



CREATE A EUROPEAN FRAMEWORK FOR THE STEPS THAT NEED TO BE FOLLOWED FROM WASTE TO RAW MATERIAL.



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## Towards a European framework ...

- Current policy landscape
- EU best practices resource recovery
- National calls for action
- EU roadmap

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## Current policy landscape

- Inventory of applicable legislation
- For complete value chain: from sewage to product
- Belgium, France, Germany, Luxemburg, Netherlands, United Kingdom

### Main conclusions

- Despite excessive EU legislation there is still significant amount of flexibility for member states / regions
- Interpretation of key definitions is left to member states and are often based on case-by-case analysis (e.g. end-of-waste status)



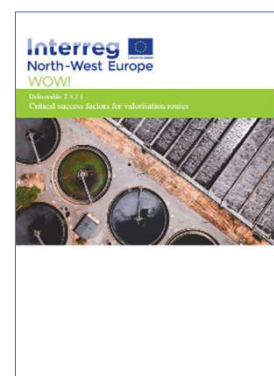
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## EU best practices resource recovery

- Overview of critical success factors for the recovery of raw materials from sewage and bringing these resources to the market
- Based on lessons learnt in EU subsidy projects

### Main conclusions

- Two important **drivers** can be distinguished:
  1. Acceptance of raw materials from sewage
  2. Policies related to use of products from sewage
- It is difficult to distinguish generic **critical success factors** but projects tend to be more successful if:
  - i. there is regular consultation with regional and national authorities
  - ii. a project is not afraid to take a next step in (legal) acceptance of a product if not all signs are green yet



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## National calls for action

- Sketch of legal context of resource recovery from sewage
- Main legal challenges of making valuable products from sewage
- Short and medium term actions to overcome these challenges

### Common denominators

- Create a clear substantive assessment framework for raw materials from sewage.
- Expand the options for agreeing to an end-of waste-status of the same type of raw materials for different locations and different customers
- Free trading of raw materials between countries: an EoW status applies for all EU countries

**CIRCULARITY**  
The exploitation of resources from sewage contributes to the national policy "The Netherlands circular in 2050".  
The ambition is limited by waste regulation and policies that lag behind and remain based on the linear principle that waste is the end of the chain.

**LEGAL FRAMEWORK**  
Raw materials from sewage are classified as waste materials. A substance only ceases to be waste if the following conditions from the framework directive (Annex II, update 2018/08/19) are met:

- The material is earmarked for specific purposes;
- There is a market or demand for the material;
- The material meets technical regulations for the specific purposes and meets the existing regulations and standards for products;
- The use of the material generally has no unfavourable effects on the environment or human health.

The Guideline Waste or Product (Ministry of RW, July 2018) is the framework for these conditions. Authorities are especially asked to follow this Guideline for the sake of the transition to a circular economy.

One of the main challenges of making valuable products from sewage is uncertainty about the legal implications.

**TOP 5 OPPORTUNITIES AND CHALLENGES**

1. Depending on the question, an End of Waste (EoW) file is reviewed nationally (by the Ministry) or regionally (by the Chagingsprovincies). StruWite was reviewed on a national level and Klumera on a regional level.
2. The Guideline Waste or Product is open to interpretation and that makes the approval of an EoW file dependent on persons and region. In practice, the regional office often consults another authority (KWS, WAOB).
3. There is no set form for the procedure, which makes it impossible for initiators to plan. The review of the StruWite file has taken seven years and for Klumera and cellulose the procedures are ongoing.
4. To prevent demand for the material an agreement with a market party has to be signed. Market parties only enter into an agreement if there is certainty that EoW status has been achieved and is available.
5. There is no generic European or Dutch end of waste regulation for resources from wastewater. A specific EoW status needs to be requested for each application, each client and each production site. This is expensive, time-consuming and also hinders market uptake.

**SEWAGE IS A GOLD BLUE MINE!**  
A biocompostable made from recycled toilet paper? Yes you can! Raw materials in sewage can be used for all kinds of applications. A few examples:

- Application of phosphate as a fertilizer
- Use of slits for biogas production
- Sewage sludge to produce biogas or as a raw material for the cement industry
- Activated carbon made from screenings for the removal of micro pollutants from sewage
- Making degradable plastics (PHA) from fermentation
- Sewage sludge as a raw material for the cement industry

**5 ACTIONS**

**Short term (1 year)**

1. Have a maximum term of 30 days for the assessment of end of waste file;
2. Also allow a letter of intent on burden of proof that there is a market or demand;
3. Create a clear substantive assessment framework for raw materials from sewage. On the basis of this framework, determine in advance with the competent authority which requirements the EoW file must meet (see case).

**Medium term (3 years)**

1. Authorise one nationally operating organization to assess end of waste files;
2. Develop the options for agreeing to an end of waste status of the same type of raw materials for different locations and different customers;
3. Lobby for free trading of raw materials between countries; an EoW status applies for all EU countries.

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## Questions?

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## Raw materials from sewage Daily practice from producer's and technology supplier perspective



Coos Wessels  
Director of CirTec BV



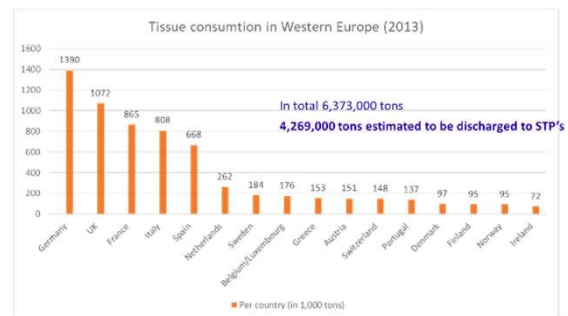
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## Our focus: Recovery and valorisation of cellulose from sewage Sustainable paperwork!



Have you ever thought about it?

- Where does all that toilet paper go?
- Is it worth recycling?
- If so; What can you do with it?



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## What is the added value?

- Reduction of energy requirement (15 to 20%);
- Less sludge (20%) = less sludge dewatering;
- Reduction of chemical use (approx. 20%);
- Lower maintenance costs;
- a marketable recovered raw material;
- Reduction of the CO<sub>2</sub> footprint



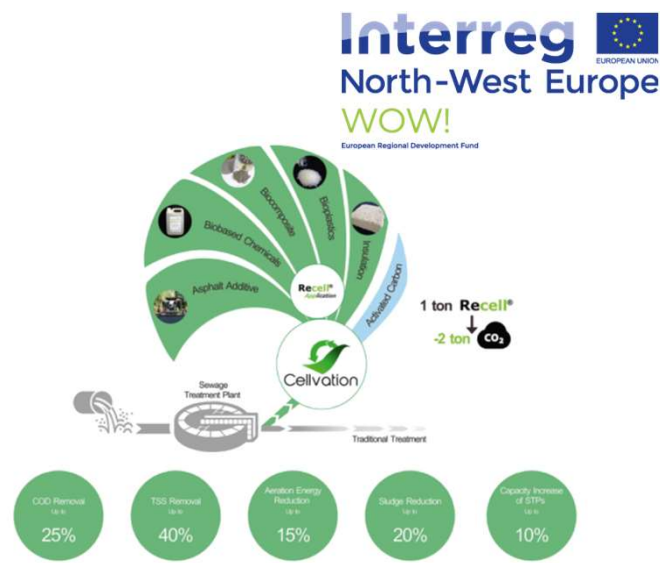
Additive asphalt



Blown-in Insulation flocs



Bio-composite granulate



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## The chicken and the egg

### Water authority or customer?

- The primary objective of a water authority is to purify sewage and that of the customer to produce a high-quality product (at acceptable cost);
- Both have a sustainability objective ;
- The water authority can only recover raw materials in a responsible way if there is a market and a customer can only use recovered raw materials if there is secured supply (of a certain quality);
- New technology may not have any negative effects on the sewage treatment process

### End-of-waste

- Can only be applied if there is demonstrably a market;
- In order to open a market, a recovered resource must have a demonstrable quality;
- In principle, in order to be able to use a recovered product, it must have an end-of-waste status.



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## What did the route look like for us!



Various water boards were willing to contribute to pilot research (based on possible potential and/or social and environmental objectives)



With subsidy and support from a water authority, we realized a small-scale cellulose production plant;



Interested users invested in possibilities applications

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Now we have a marketable resource and a market, but .... still a long way to go!



- A recovered material from sewage is considered a waste material;
- a user of the recovered material must therefore have a permit to process waste;
- Transport of the raw material is subject to the rules for waste transport;
- An end-of-waste status is therefore a necessity;
- In different countries to be able to work cross border and to create sufficient market volume.



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## The end-of-waste procedure

- Cellulose has many different applications, many of which offer an interesting sales channel;
- For each individual product, an end-of-waste status must be applied for - Which also means that for each individual product it must be demonstrated that there is a market for it;
- Long-term processes and high costs for different procedures;
- There is no clear guideline for demonstrating the end of waste status
- 4 years to complete the application. Current application (applied in 2018) gives an indicative decision, but no certainty.
- Results from one country are not direct accepted in other EU-countries;



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## My remarks!

- I. The change to a more circular society is not just about the environment, but offers new possibilities;
- II. The struggle in which policymakers, technology developers, users and others can only be resolved with mutual understanding and positive thinking;
- III. But we must act fast.
  - ✓ The environment does not allow us to wait (too) long;
  - ✓ Technological advantage has enormous economic value.
- I. No new, but clear regulations;
  - ✓ For example: set a maximum response time within which an application must be assessed with reasons;
- II. Make resource recovery attractive and encourage utilisation of recovered resources (use incentives);
- III. Enable cross-border use of recovered materials (one approved end-of-waste application must be sufficient for free trade in the EU).



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Thank you!



*"We cannot solve our problems with the same thinking we used when we created them"*

*- Albert Einstein -*



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Call for action!



Katrien Bijl  
Projectmanager WOW!

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## Panel debate



Luxembourg:  
Robert SCHMIT



UK:  
Dr Heather Smith



The Netherlands:  
Dieter Staat



Flanders: Ir. Dirk Halet



Germany:  
Dr. Ewa Harlacz



**Moderator:**  
**Mark Fletcher**

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## Question 1



*The big dream: what opportunities are offered when there is one clear legal framework?*

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## Question 2



*What inhibits us to reach this goal?*

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## Question 3



*What could be the role of national policy makers towards a uniform clear legal framework?*

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## Question 4



*Please fill in which year: "I believe that Europe will be circular in....."*

*Why?*

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## Question 5



*What is the first step to be taken tomorrow?*

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## Question 6



*What is the burning question I should have asked?*

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## Back to WOW!



*Has your call for action been heard?*

*What is the WOW! project team going to do with the outcome of this debate?*

*What will the WOW! team do when the big dream is reality?*

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