

# Workshop on Sludge management in the Danube Region for a greener EU

10 June 2021

Legislation and experience in Sweden –  
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EU GREEN WEEK 2021 PARTNER EVENT

**ZERO** #EUGreenWeek  
**POLLUTION**  
for healthier people and planet



# Carbon and Nutrients - ETIN (Everything That Is Needed)

B, C, Ca, Cl, Co, Cr, Cu, F, Fe, H, I, K, Mg, Mn, Mo, N, Ni, Na, O, P, S, Si, Se and Zn

## From toilet to agriculture field via:

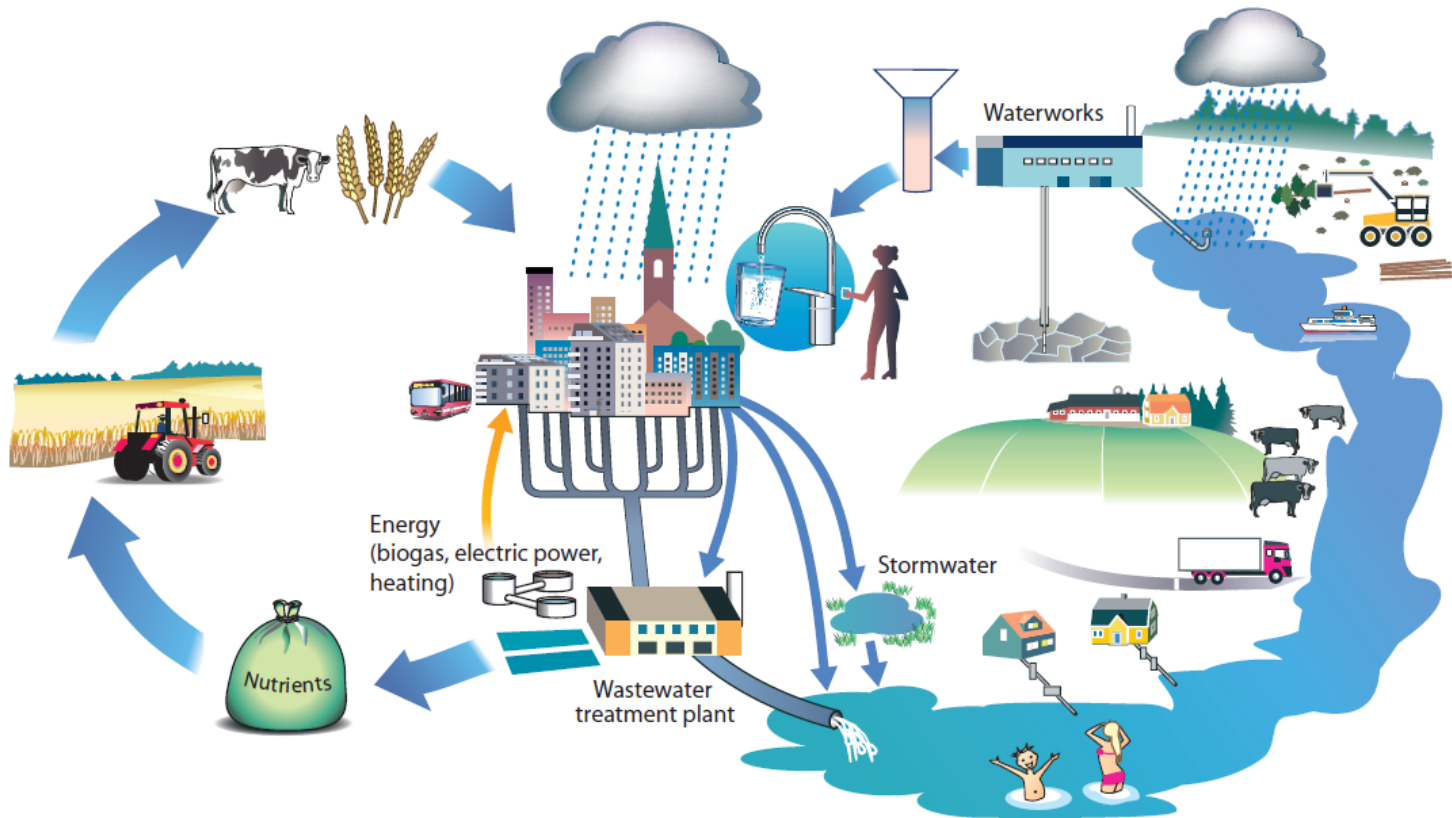


Photo: Sunita Hallgren

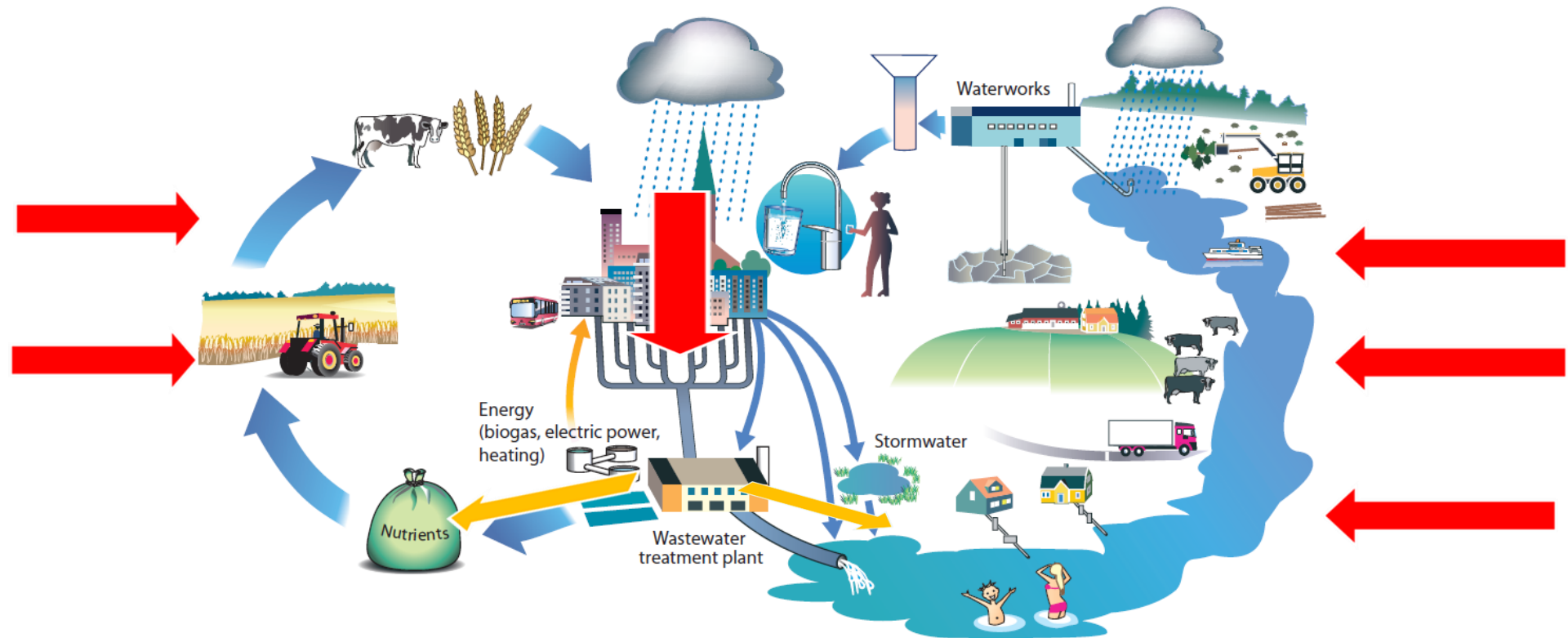
- Conventional waste water system and sludge use
- Conventional waste water system and recycling of P, N (and C and S?) via concentrated side streams, incineration or biochar processes.
- Sorting systems with separated toilet water and grey water including processing the toilet fraction



# Circular economy - water and waste water services



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# The European Green Deal



# Use of resources in wastewater – EU, the waste hierarchy

Prevention: Control at source is the basis for circular economy

Prio 1 -Recycling of organic matter and nutrients on farmland through Revaq or sorting systems.

When that is not possible, no suitable farmland at reasonable distances or that the sludge does not meet Revaq's requirements:

Prio 2 - At least phosphorus is recycled

Prio 3 –The sludge is used for landscaping

Prio 4 – Incineration only – energy recovered

Disposal (not allowed in Sweden)





# Revaq Certification system - Aims

- **be a driving force to further improvement of the incoming wastewater** – the control at source or “upstream work”.
- **an open and transparent information** about how sludge is being produced and it’s composition.
- **to secure that the sludge production is done in a responsible way** and the quality of sludge fulfil the requirements.



# Revaq

- Svenskt Vatten (Swedish Water & Wastewater Association)
  - The Federation of Swedish Farmers (LRF)
  - The Swedish Food Federation
- and in close cooperation with the Swedish EPA.
- **5 million persons (50% of Swedes)** connected to a Revaq WWTP
  - **39% of the Swedish sludge** is used in agriculture (3/4 from Revaq) and 60% land reclamation, 1% incineration (2018)

**REVAQ**<sup>®</sup>  
Renare vatten – bättre kretslopp

Cleaner Water -  
Better recycling



# Focus in Revaq

## Long term goal:

- Incoming waste water should have a level of metal and organic compounds which does not exceed that from water closets.

## Upstream work - local control at source

- Reduction of cadmium – same level of new Cd/P as best mineral fertiliser on Swedish market
- 60 metals and elements mapping, monitoring => prio elements to be reduced to not double the soil concentration in less than 500 years (Ag, Hg )
- Organic substances (PRIO-guide + SIN-list phase-out substances, = total 2600->7400 substances), mapping, reduction via control at source co-operation with connected industries and local environ. authorities.

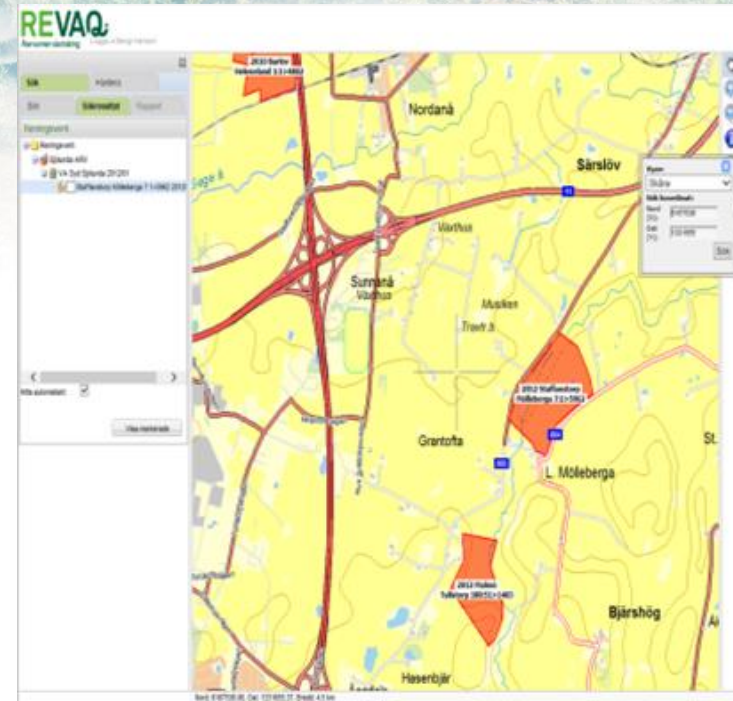
Foto: Agneta Thor Leander

# Focus in Revaq cont

- Traceability in GIS-maps
- Salmonella-free
- Third party audit

Read more about the Revaq certification system:

- <https://www.ieabioenergy.com/publications/revaq-certified-wastewater-treatment-plants-in-sweden-for-improved-quality-of-recycled-digestate-nutrients/>
- <https://www.svensktvatten.se/vattentjanster/avlopp-och-miljo/kretslopp-och-uppstromsarbete/revaq-certifiering/> (in Swedish)



## Science based reports from Revaq and Svenskt Vatten: Which hazardous substances should be phased out from consumer products?





# Thank you for your attention

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