

Linnaeus University



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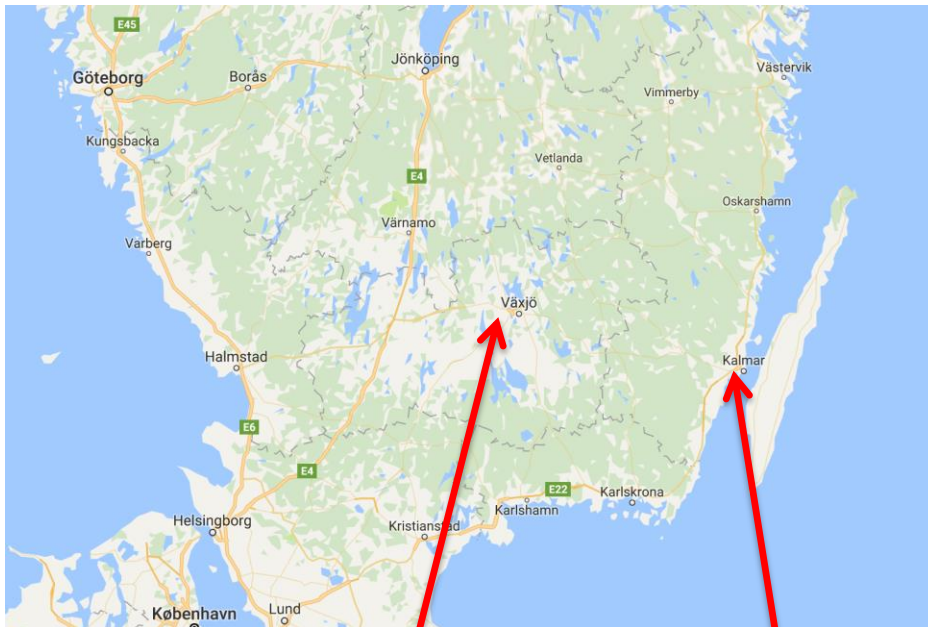
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Växjö

Kalmar





- Approximately 31,000 students in 150 degree programmes and 2,000 single-subject courses
- It covers **the humanities, social sciences, natural sciences and engineering**.
- It represents a number of well-established research domains (e.g. labour market policy, welfare issues and entrepreneurship, but also **life sciences, aquatic ecology**, and timber and **energy technology**)

ESEG – *Environmental Science and Engineering Group*

- Our research has been focused on:
 - *water/wastewater/stormwater management,*
 - *solid waste management,*
 - *contaminated soil remediation with focus on phyto-techniques,*
 - *environmental economics,*
 - *the circular economy such as landfill mining and harbour mining.*
 - *Triple-helix concepts*



Current Main Projects (Besides IWAMA)

- H2020 Urban Waste Project – Waste Prevention and management strategies in cities with high levels of tourism
-  EU – LIFE Programme – SURE –Sediment Uptake and Remediation on Ecological Basis (Triple helix concept)
- Glass Mining – Remediation and recovery of valuables from glass waste (Triple helix concept)

Participation in *IWAMA*

WP2- Involving new stakeholders of the water sector to act for a better state of the sea (LNU & Kalmar Vatten)

WP3- Capacity development for wastewater sector experts (LNU & Kalmar Vatten)

WP4 – Development of Smart Energy management (LNU & Kalmar Vatten)

WP5 - Development of Smart Sludge management (LNU & Kalmar Vatten)

WP2 & WP3

- 2016 – Linnaeus ECO-TECH'16
 - <https://lnu.se/en/research/conferences/eco-tech-2016/>
 - Dissemination and information about project objectives, expected outcomes/achievements and methods
 - IWAMA session

IWAMA session

SMART ENERGY AND SLUDGE MANAGEMENT IN WWTPs

Keynote speaker: Matthias Barjenbruch (GER)

Potentials of energy optimization at wastewater treatment plants in the Baltic Sea Region

Keynote speaker: Taavo Tenno (EST)

IWAMA perspectives for sludge management

Peter Hartwig (GER)

Combined treatment of sewage sludge and solid waste organic fraction-the Duplex-technology

Olena Zinchuk (FIN)

Interactive Water Management: introduction to the IWAMA project and the concept behind it

Regine Ullman (SWE)

Kalmar Vatten

- **Organization of national dissemination workshop** - Possibilities of being in conjunction with Linnaeus Eco-Tech'18.
- **On-site Workshop 2018 – Constructional and Operational challenges**
 - **Kalmar vatten** involved to **share their expertise** and providing **site for technical visits** and trainings,
 - **Showcase** project **achievements** and **completed** partners' **commitments** – Nutrient reduction practices and energy management
 - **Strengthen network** among different types of “**water actors**” within the BSR (Svenskt Vatten will be communicated and an invitation sent to members/associations)
 - **Motivate** new organizations to take **concrete actions for better state** of the Baltic Sea

Associated partner -Kalmar Vatten

- Participation by Inviting new partners from their network.
- Share their good practices in relation to sludge and energy management and effects in nutrients and hazardous treatment (Now already in ECO-TECH'16)
- They are on the way to build a totally new and modern plant with the use of membranes

WP4 –Development of Smart Energy development

- Participation in **Key figure data collection**
- **Energy management** in different Swedish WWTPs – Try to collect as much data/info as possible
- Recruitment of students for the **auditing process** of selected plants
- **Evaluation of the collected data**: Data collection, organization, interpretation and presentation – **Scientific dissemination?**
- Support in **identifying and presenting measures** to improve nutrient reduction with lower energy consumption – **to be presented in scientific dissemination?**

- Support performance monitoring of the invested WWTPs together with WP leader – TUB
- Support audited WWTPs – Optimization of their nutrient removal process in relation to energy consumption
 - This can be done via online discussions between LNU and TUB and TU.

- **Learning experiences transfer** from audit concepts to operators in Sweden - **national dissemination event** – Crucial participation of Kalmar Vatten and its network
- LNU → Kalmar Vatten → Water/wastewater network
- **Energy audits** – Recruitment, coordination and supervision LNU recruited students – Data **collection**, data **organization**, data **presentation**, **interpretation** – **Scientific dissemination**

- **Testing of audit concept** for smart energy management
- **Potential** for implementing it **in Kalmar**
- Full plant process analysis
 - modeling and analyses of energy consumption;
 - onsite energy measurements of the consumers;
 - analyses of personnel involvement

- **Data evaluation** from monitoring campaign at Grevesmuhlen WWTP – **Scientific dissemination of the information in a peer-reviewed journal** – Discussion with TUB and TU.
- **Data evaluation** of Gdansk WWTP – **Scientific way**

WP5 – Development of Smart Sludge Management

- **Key Figure data collection** of a wider selection of TPs
- **Sludge management audit** in close cooperation/discussions with TUB and TU.
- Data collection, organization, presentation and interpretation – **Key figure data collection and Audits – How to disseminate?**

- **Recommendation** based on sludge audits
- Raise awareness in relation to Nutrient reduction combined with energy and sludge management – **Best Practices**.
- Bridge between Kalmar Water and IWAMA
- Data collection in Sludge humification bed investigation Turi, Reject Water treatment system- **Joint co-supervision**. Open for discussions

Thank you for you attention!