



KAMK • University  
of Applied Sciences

**KARELIA**

CBC // Enemmän yhteistyöllä



# REMAC

## RENEWING SLUDGE MANAGEMENT CONCEPTS

### KA11000



The Project REMAC aims to develop ecologically and economically sound sludge management concepts in smaller regional towns.



# PRESENTATION CONTENT



- REMAC in a nutshell
- REMAC numbers and partners
- REMAC tech demos





# REMAC IN A NUTSHELL

## The aim

To develop ecologically and economically sound sludge management concepts in smaller regional towns.


## The need

To respond to the specific element for improving the people's physical living environment by providing new methods for sustainable concepts for wastewater utility sludge treatments for regional towns in relatively dispersed settlements.

In many cases, current sludge treatment practices are not carried out on ecologically or economically solid basis.







# REMAC NUMBERS AND PARTNERS



- project is funded by Karelia CBC
  - cross-border programme
  - total volume 2,8M €
  - 10/2020 – 08/2022

## Partners:

- KAMK University of Applied Sciences (Lead partner) (FI)
  - Puolanka municipality (FI)
    - Macon Oy (FI)
    - Gordovokanal (RU)
- Kostomuksha city administration (RU)
- Kondopoga City Administration (RU)
  - Voda I Ekologia (RU)



# REMAC IN KAINUU, FINLAND TECH DEMOS

The oxygenation of the WWTP aeration pool  
Sansox Ltd.

- In many cases, aeration in wastewater treatment processes are inadequate as compared to current needs.
- New effective and energy efficient solutions for dissolving oxygen into aeration process might provide a possibility to support weakly performing processes without bigger investments.
- Adding oxygen in the outlet water supports the ecological status of the receiving waterbody.



# REMAC IN KAINUU, FINLAND TECH DEMOS

The oxygenation of the  
WWTP aeration pool

OxTube



OxTube dissolves different gases into water and other liquids in a fast and efficient way.

This hermetic and seamless water treatment process consists of four main phases:

1. separation of soluble ingredients
2. activation of molecules
3. clarification
4. replacement dissolving

The chemical reactions after the dissolvement, **improve the quality of the water** in all stages of water circulation and this is our motto.



- ❖ for water flows between 1 – 550 m<sup>3</sup>/h
- ❖ efficient mass transfer, resulting in e.g. high dissolved oxygen concentration
- ❖ compact, can be installed directly in existing pipeline
- ❖ low CAPEX and OPEX: no direct power requirement
- ❖ manufactured from stainless steel, durable



# REMAC IN KAINUU, FINLAND TECH DEMOS

Remote monitoring of  
septic tanks

KAMK & Macon Oy



To date, the filling rate for septic tanks is erratic, and they are emptied according to fixed schedule.

→ logistic inefficiencies and added fossil fuel consumption

Process control for smaller wastewater treatment plants is demanding due to unpredictable changes in incoming septic tank sludge flow.

In one of the technology demonstrations for REMAC, a set of sensors will be installed in septic tanks, in order to empty the tanks only when they are full.



*The Jaete sensor is based on High Accuracy and service free Radar technology (Worldwide license).*





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THANK YOU FOR YOUR  
ATTENTION!

СПАСИБО!

ΚΙΙΤΟΣ!



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