



KUOPIO WATER CLUSTER



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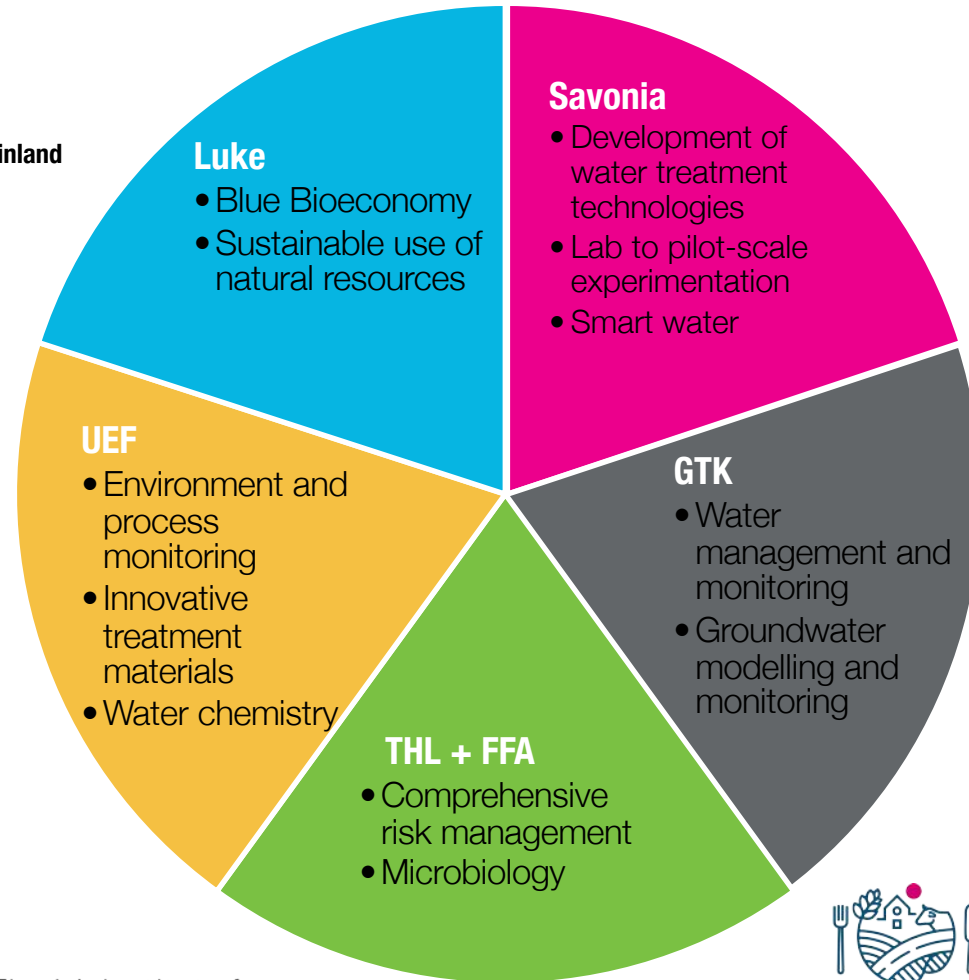
Introducing Kuopio Water Cluster - solutions for water sector

Patryk Wójtowicz

KUOPIO WATER CLUSTER - key Savilahti partnership



Luke - Natural Resources Institute Finland



Savonia - Savonia University of Applied Sciences



UNIVERSITY OF EASTERN FINLAND

UEF - University of Eastern Finland



GTK - Geological Survey of Finland



Finnish institute for health and welfare

THL - Finnish Institute for Health and Welfare



FINNISH FOOD AUTHORITY
Ruokavirasto • Livsmedelsverket

FFA - Finnish Food Authority

Funded by:

Regional Council of Pohjois-Savo
supports
a successful region



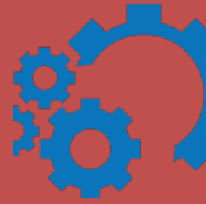
Euroopan unioni
Euroopan aluekehitysrahasto
Euroopan sosiaalirahasto

KUOPIO **WATER** CLUSTER

MAIN OBJECTIVES

- **Establish a one-stop shop for water sector in Pohjois-Savo region**
- **Create a water-based ecosystem**
- **Contribute to the creation of new business in water sector (startups, new products and services, etc.)**
- **Attract new businesses to the region (locomotive companies, SMEs...)**
- **Strengthen the position and capability of existing companies in the area of potential growth**
- **Promote access to the international markets**

KWC – focus on product development



Processes: Development of water treatment technologies and closed water cycles



Environment: Prevention of pollution of water and groundwater, management of agricultural water and industrial water



Smart Solutions: Digitalisation in water sector

DiGiCENTERNS

THE DIGITAL INNOVATION HUB OF NORTHERN SAVO REGION

- Digitalization competence centre
- R&D in digitalisation
- Solve business problems together with customers by using means of digitalization

BUSINESS CENTER POHJOIS-SAVO

- Business services
- Startup accelerator
- Business development
- Commercialisation

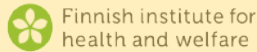
KUOPIO WATER CLUSTER

- Testing and product development
- Piloting and product demonstration
- Proof of Concept
- Development space and hardware resources
- Coordination of business cooperation

Knowledge and business
research needs



UNIVERSITY OF
EASTERN FINLAND



Finnish institute for
health and welfare



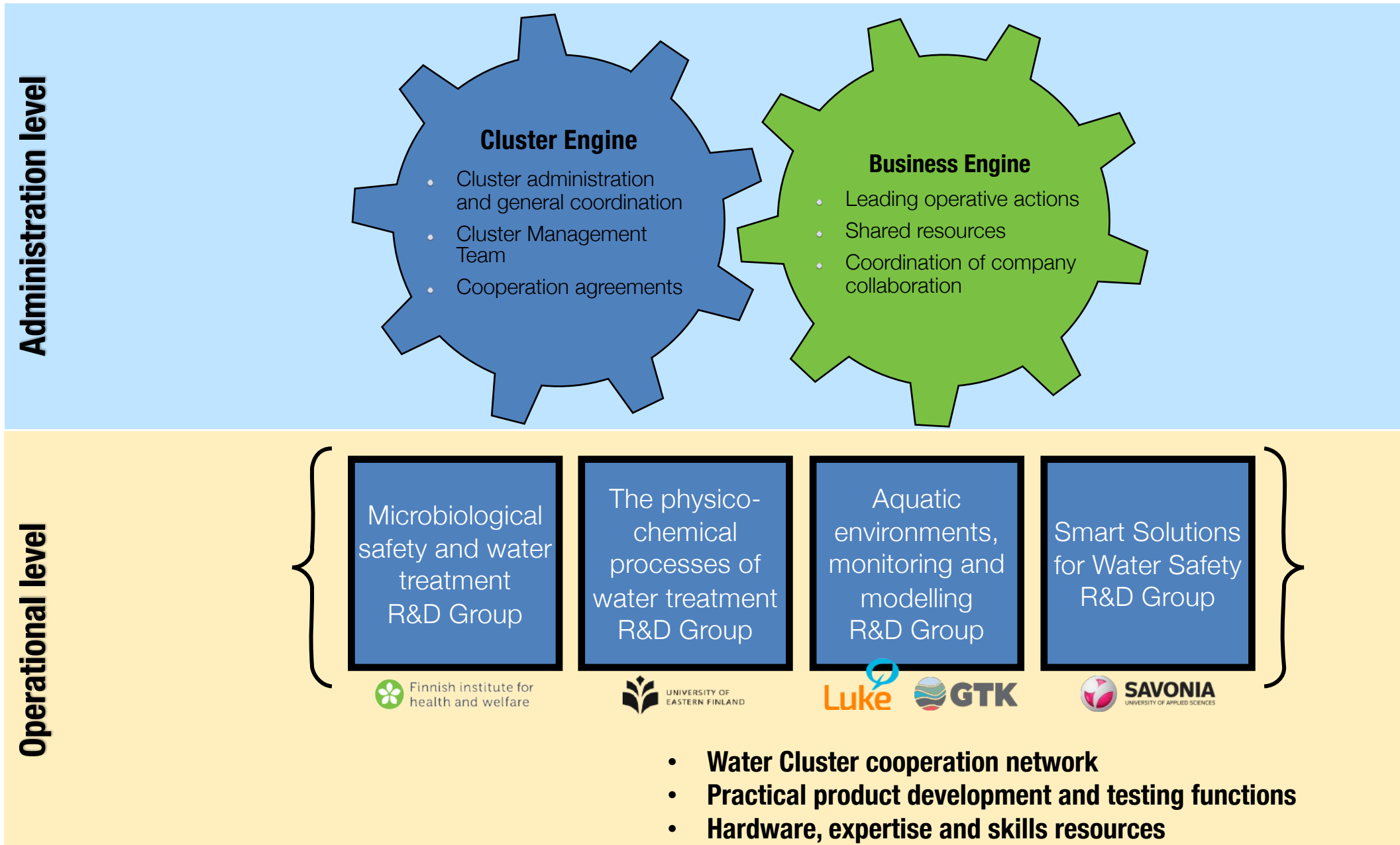
FINNISH FOOD
AUTHORITY
Raukavarasto • Liusmedelverket

- Fundamental research
- Applied research
- Innovation
- Training

Research
TRL 1 - 4

Development
TRL 5 - 8

Commercialisation
TRL 9 - 10



KUOPIO WATER CLUSTER CUSTOMER GROUPS

Solutions Providers

- **Start-ups aiming at the water sector:**
BioSO4 Oy, Preventos Informatics Oy, Aquamatrix Oy, Sulfator Oy...
- **SMEs operating in the water sector:**
Sansox Oy, LedFuture Oy, Econet Oy...
- **Large technology suppliers (locomotive companies):**
Outotec Oy, Valmet Oy...

End Customers

- **Water-intensive industries:**
Agnico Eagle Finland Oy, Stora Enso Oy, Finnish Minerals Group Oy, Keliber Oy, Yara Finland Oy...
- **Water supply sector:**
Municipal water utilities, water cooperatives, technology suppliers...
- **Agriculture and primary production:**
more than 3400 Pohjois-Savo region agricultural entrepreneurs, Valio Oy...

Shared laboratories

Kuopio Water Clusters offers applied research with close co-operation with Kuopio Water Cluster partners and private companies

- Offers **product development and testing services** for companies operating in water technology sector
- Offers **training services** for professionals in water safety

In the core of the activities is **a unique water laboratory** for development of water technologies

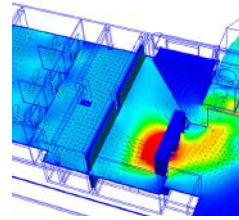
- **Focused research and product development laboratory** with flexible pilot-scale test setups
- **Mobile pilot-facilities** to make on-site testing of processes



Laboratory of Environmental Engineering

A typical **R&D project** in our laboratory consists of **four phases**:

- 1. Preliminary studies** and planning of the laboratory scale tests
- 2. Laboratory scale tests** and scale-up studies for piloting
- 3. Pilot tests** either in the **laboratory** or **on-site** (up to semi-commercial scale)
- 4. Conclusions** and recommendations for **full scale applications**



Digitalisation in water processes

- IoT
- Wireless Data Solutions
- Data Analytics and Mining
- Artificial Intelligence
- Modelling
- Cyber Security



Wastewater Treatment Plant as a Resource Factory

- Wastewater purification technologies
- Wastewater reclamation
- Sludge valorization & energy recovery
- Smart Water Solutions

KUOPIO WATER CLUSTER

Water Safety Experts

- Industrial water treatment
- Water safety (microbiological applications, water chemistry and analytics)
- Mining and agricultural emissions control and water management
- Mobile pilot test-rigs
- Smart water solutions (applied ICT)



Kuopio Water Cluster joined Water Smart Territories (S3 Industrial Modernization Platform)

Contacts



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www.kuopiowatercluster.com

KUOPIO WATER CLUSTER

Expertise in international business

Kuopio Water Cluster contributes to the development of new technologies, products and services to meet current challenges in the water sector. These include, e.g. water treatment in the mining and pulp&paper industries, as well as agricultural effluents and ground-water management. Solutions are being developed in close collaboration with companies.

Product development services

Processes: Water treatment technologies and development of closed water cycles

Environment: Prevention of pollution of bodies of water and groundwater, agriculture and industrial water management

Smart Solutions: Intelligent water management solutions

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