



Water supply systems in Finland, companies and expertise



Jarmo Sallanko, Lab. Manager, Dr, Docent
Department of process and environmental engineering
Water resources and environmental engineering laboratory

UNIVERSITY of OULU
OULUN YLIOPISTO



CONTENT

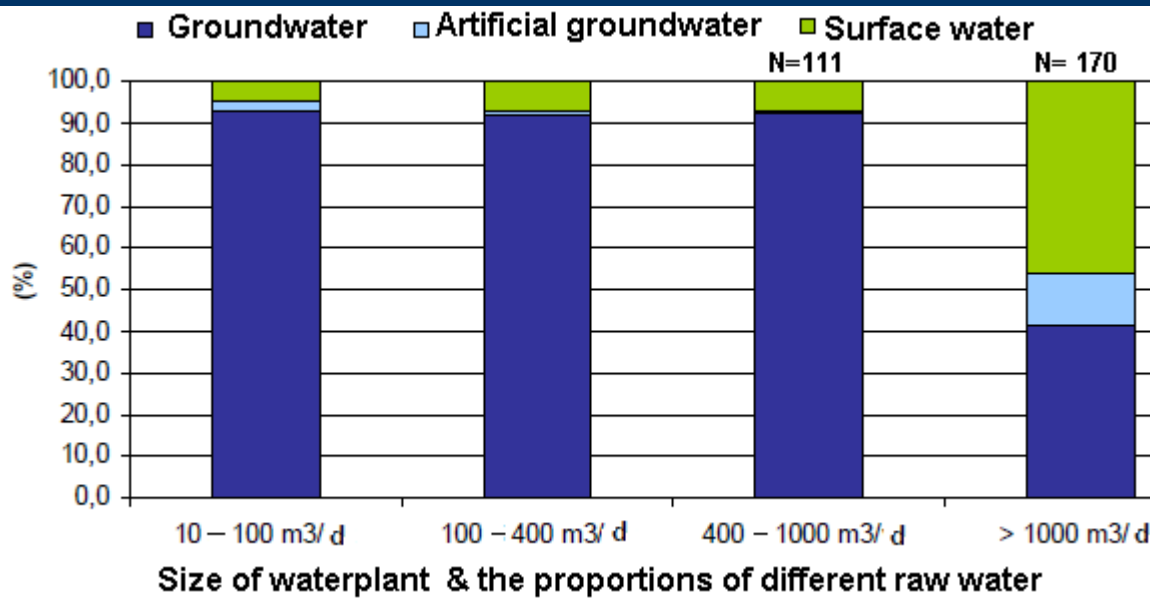
- Finnish water works
- education & reseach in Oulu university
 - process & environmental engineering department
 - CEWIC
- Finnish water industry



Finnish water works

- ca 1900 water works, over 50 user
- many small groundwater plants
- small amount of surface water plants

- surface water problems: humus, soft
- groundwater problems:
 - soft & acidic
 - over 50 % need alkalizing
 - Fe & Mn
 - radon, fluoride, arsenic in some places



Used raw water for tapwater production

- 51 % groundwater
- 39 % surface water
- 10 % artificial groundwater
(shall rise to 26 % after Turku & Tampere start to use)

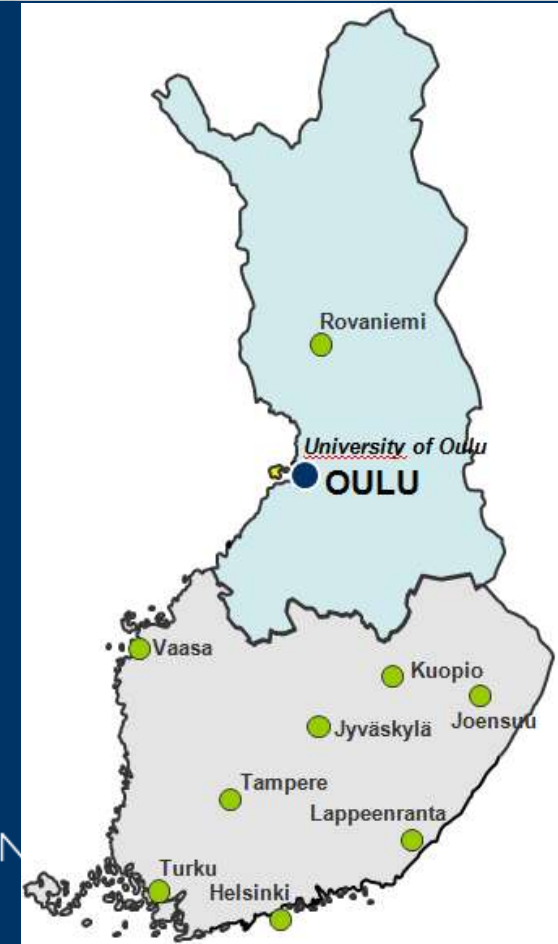




DEPARTMENT OF PROCESS AND ENVIRONMENTAL ENGINEERING

Research in laboratories

- Bioprocess engineering
- Chemical process engineering
- Fibre and particle process engineering
- Mass and heat transfer process engineering
- Process metallurgy
- Systems engineering
- Control engineering
- Industrial environmental engineering
- Water and environmental engineering



WATER RESOURCES AND ENVIRONMENTAL ENGINEERING LABORATORY

<http://www.oulu.fi/poves/>

Water resources engineering

Prof Björn Klöve, director of lab.

Sanitary engineering

Lab manager Jarmo Sallanko , Dr/Docent

Environmental geotechnic

Chief eng. Kauko Kujala, Dr/Docent

Personell ca. 20

- Lectors 1, Reseaches 6, lab technicians 4...



Jarmo Sallanko

UNIVERSITY of OULU
OULUN YLIOPISTO



Facilities

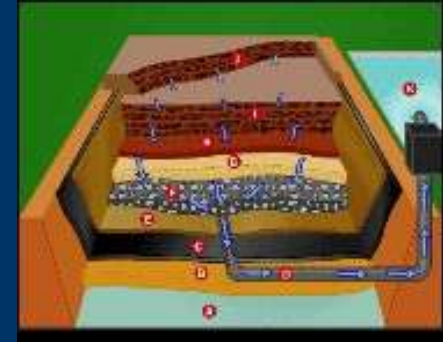
- hydraulic testing hall
- water analytic laboratory
- geotechnology laboratory



- testing place for wastewater treatment systems



Research areas



Water resources engineering

- natural water processes
- man made changes
- restoration of water systems
- groundwater
- water structures
- peatproduction



Environmental geotechnick

- use of waste material
- landfill structures
- maining wastes
- soil mechanics



Water and wastewater engineering



-water & wastewater
treatment processes
-water networks &
sewers

Jarmo Sallanko





- development of biological groundwater treatment
- development of flocculation chemicals
- use of membranes in water treatment
- optimisation of waterplant processes
- use of wetland / icocrystallisation for wastewater polishing



CEWIC

Centre of Expertice in Water Industry Cluster

www.cewic.fi

- water know-how concentration in Oulu
- target to help water professionals to develop research projects and product developing projects and finding funding sources for better results
- financing 3,6 milj eur for 3 years from: EU, City of Oulu, University of Oulu, Oulu polytechnick



CEWIC reseach areas / projects

- Oxidation/disinfection technologies
- Particle separation processes
 - Coagulation/flocculation processes
 - Membrane filtration processes
- Adsorbents and ion exchange resins
- Polymers, coagulants and flocculants
- Membranes
- Sludge treatment
- Pilot plant tests
- Marketing situation research
- Instrumentation and monitoring
- Modeling, control and automation
- Data communication



Biggest Water Sector Companies in Finland

Kemira
Outokumpu Pori Tube
Oras
Metso
KWH Pipe Suomi
Larox
Onninen
Uponor Suomi
L&T
Nordkalk
Grundfos Pumput
Pipelife Finland
Wavin Labko
Jita

- Ramboll Finland
- Lamor
- Lining
- Hyxo
- Vaisala
- Suunnittelukeskus
- Pöyry environment

In water sector

- 164 companies
- Annual turnover 2 500 milj €
- Number of employees 10 000



Wastewater treatment systems for sparsely populated areas

Ekolator Oy
Ekopinta Oy
GoodWell Oy
Green Rock Oy
Jita Oy
KWH Pipe Suomi
LakeCleansR
Nordkalk Oyj Abp
Preseco Oy
Propipe Oy (Pipelife Oy)
Raita Environment Oy
Rotomon Oy
Talokaivo Oy
T&A Mämmelä
Teoplast Oy
Tirati Oy
Uponor Suomi Oy
Veela Oy
Oy WatMan Ab
WavinLabko Oy



• Pipelines and pipeline systems, containers, wells and taps

- Ekopinta Oy
- Haapakosken Tehdas Oy
- Jita Oy
- KWH Pipe Suomi
- Onninen Oy
- Oras Oy
- Outokumpu Pori Tube Oy
- Palo- ja vesitekniikka PA-VE Oy
- Pipelife Finland Oy
- Plastweld Oy
- Propipe Oy
- Rotomon Oy
- Talokaivo Oy
- Uponor Suomi Oy
- Wavin Labko Oy



Water treatment equipment & chemicals

ABS Finland Oy

AWEL Technologies Oy

Econet Engineering Oy

Envistone Oy

Finnchain Oy

Galvatek Oy

Grundfos Pumput Oy Ab

Haapakosken Tehdas Oy

HyXo Oy

ITT Flygt-Pumput Oy

Kemira

Krüger Oy

Larox Oyj

Lining Oy

•Metso Automation Oy

•Nordkalk Oyj Abp

•Onninen Oy

•Preseco Oy

•Propipe Oy

•Septek Oy

•Slatek Ky

•T&A Mämmelä

•Uponor Suomi Oy

•Veco Oy

•Vesita Oy

•Vexve Oy Vesiverto

•VodaPro Oy

•Waterix Oy

•Wiser Oy



•Expert services, consult companies, R&D

- AIRIX
- AWEL Technologies Oy
- Creowave Oy
- Envitop Oy
- Gaia Consulting / Gaia Group Oy
- Kiuru & Rautiainen Oy
- Ositum Oy
- Pöyry Environment Oy
- Raita Environment Oy
- Ramboll Finland Oy
- Suomen Pohjavesitekniikka Oy
- Suunnittelukeskus Oy
- SWECO PIC Oy
- Teoteam Oy
- Tritonet Oy
- Veela Oy
- Verbio Oy
- WatMan Oy
- Watrec Oy
- YIT Environment Oy



Industrial services

Aquaflow Oy

Chemitec Consulting Oy

Galvatek Oy

HyXo Oy

Kemira

Kiuru & Rautiainen Oy

Krüger Oy

Lassila & Tikanoja Oyj

Lining Oy

Preseco Oy

Ramboll Finland Oy

Sednove Oy

Teoteam Oy



Services for Pulp and Paper industry

Aquaflow Oy

Econet Engineering Oy

Kemira

Metso Automation Oy

Wetend Technologies Oy



[• Back](#)



Measuring technology & products

Creowave Oy

EHP-Tekniikka Oy

Envitop Oy

HyXo Oy

ITT Flygt-Pumput Oy

Liquim Oy

Metso Automation Oy

M-Motion Ltd Oy

Ositum Oy

Sednove Oy

Teoteam Oy

Vaisala Oyj

Wavin Labko Oy

Verbio Oy



Process automation

Galvatek Oy

Grundfos Pumput Oy

Liqum Oy

Metso Automation Oy

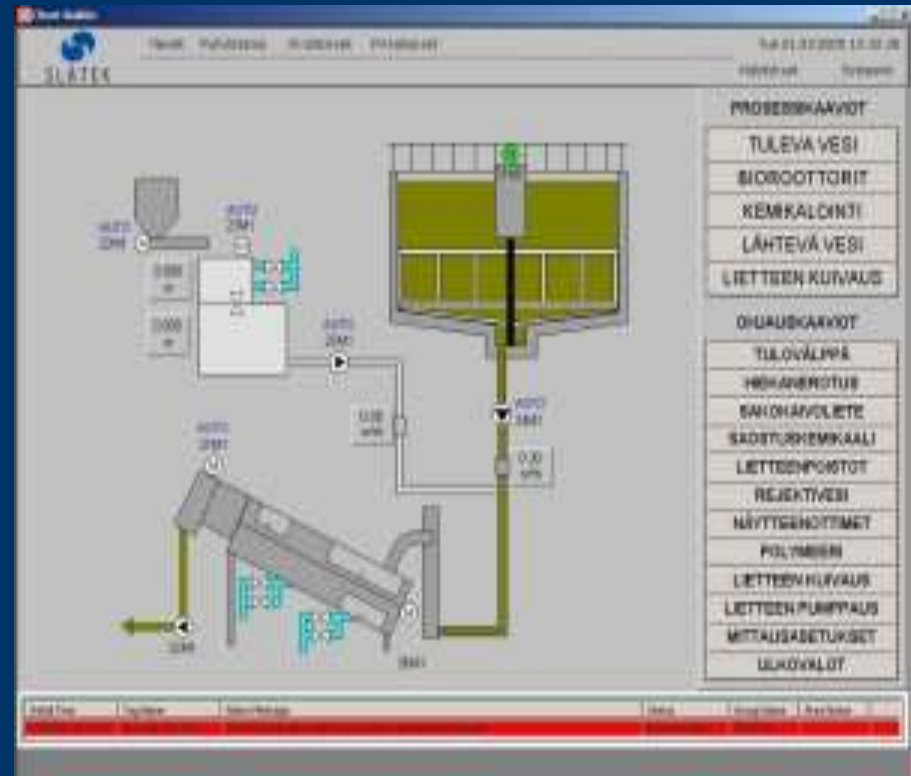
Mipro Oy

Sednove Oy

Slatek Ky

Teoteam Oy

Oy WatMan Ab



•Information, telecommunication and software technology

- ABS Finland Oy
- AIRIX
- Chemitec Consulting Oy
- Creowave Oy
- EHP-Tekniikka Oy
- Gaia Consulting / Gaia Group Oy
- HyXo Oy
- ITT Flygt-Pumput Oy
- Kiuru & Rautiainen Oy
- Liqum Oy
- Metso Automation Oy
- Mipro Oy
- M-Motion Ltd Oy
- Ositum Oy
- Pöyry Environment Oy
- Ramboll Finland Oy
- Sednove Oy
- Slatek Ky
- Teoteam Oy



Sludge treatment

Aquaflow Oy

DWT-Engineering Oy

Kemira

Krüger Oy

Preseco Oy



Thanks for your attention! Questions?

Contact information:

Jarmo Sallanko
Lab. Manager

Water resources and environmental engineering lab.

+358 40 556 9331

jarmo.sallanko@oulu.fi

<http://www.oulu.fi/poves/>

