Water sector governance
Case: Helsinki Region Environmental Services Authority HSY

Aalto YO 9.2.2021
Jyrki Kaija, HSY

Topics… from first bigger picture to utility's point of view

Introduction and some preliminary discussion…

1. Water Services in Europe
2. Water Services in Finland
3. Helsinki Region Environmental Services Authority (HSY)
4. HSY Water Services
5. From strategy into actions: development plans
6. Some more discussion…

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Jyrki Kaija, B.Sc. and M.Sc. (Tech.)

- Maa ja Vesi Oy / Soil and Water Ltd
  - Assistant designer → deputy CEO; 20 years
- LV Lahti Vesi Oy
  - CEO; 2 years
- Pöyry Environment Oy
  - CEO; 4 years
- Tuusula municipality
  - Technical Director; 4 years
- HSY, Water Services
  - Head of Economy and Management Unit; 4 years
  - Director, Investments; 2 years and counting…

- Countries professionally visited: Australia, Austria, Czech Republic, Cyprus, Denmark, England, **Estonia, France**, **Germany,** Greece, Japan, **Kameron**, Latvia, **Libya**, **Lithuania**, Malta, Netherlands, Norway, **Russia**, Spain, Sweden, Switzerland, Thailand, USA, **Vietnam**
- FIWA, chairman of the board and chairman of the board's working committee 2018 –
- EurEau, member of the committee 3 (economics and management) 2016 – 2019
- EBC, AC member 2019 –

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Governance by The Oxford Dictionary

- Governance: ”The action or manner of governing a state, organization, etc”
- Govern: “Conduct the policy, actions, and affairs of (a state, organization, or people) with authority.”
- Conduct: “The manner in which an organization or activity is managed or directed.”

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SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

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Kontakt DANVAs medarbejdere | Kivimiesparkki – Google Maps | Managing Sustainable Water Util

epa.gov/sustainable-water-infrastructure/managing-sustainable-water-utilities

An official website of the United States government.

EPA United States Environmental Protection Agency

Environmental Topics | Laws & Regulations | About EPA | Search EPA.gov

CONTACT US SHARE

Sustainable Water Infrastructure

- Sustainable Water Infrastructure Home
- Water Infrastructure Challenge
  - Policy
  - Infrastructure Needs
  - Local Officials
- Building Sustainable Water Infrastructure
  - Water and Energy Efficiency
  - Asset Management
  - Alternative Technologies
  - **Managing Sustainable Water Utilities**
  - Effective Utility Management

Managing Sustainable Water Utilities

- Effective Utility Management Practices
- Planning for Sustainable Water Infrastructure
- Tools for Effective Utility Management
- Pricing and Affordability of Water Services
- Financing Water Infrastructure

Contact us to ask a question, provide feedback, or report a problem.

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Sustainability

- Centralized vs distributed technologies or infrastructure in water sector; some comments…
  - Storm water management is in many ways distributed: drainage basin based infra
  - Australia: distributed technologies are more expensive (new area inside existing city infra)…if so, then
    - Who will pay? Are the clients willing to pay? Can they afford to pay?
    - A small new housing area in Denmark: clients were willing to pay…
  - Netherlands: reuse of potable and rain water causes lower average flow but higher peak flow = ?
    - May cause new kind of problems to operations, quality and safety
- Sustainability in developing vs developed countries?
  - **Sustainable financing!**

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IWA newsletter / Australia

"For the first time, this report has been able to quantify the costs of water's contribution to health beyond our core public health role. All the case studies considered delivered significant ongoing benefits to people's health. The work found that up to $94 per person per year (pppy) of total livability-related benefits are attributable to integrated water management:

- Up to $28 pppy in benefits from increased activity
- Up to $48 pppy value of increased mental health wellbeing from exposure to green space
- Up to $14 pppy in benefits from reduced urban temperatures
- Up to $4 pppy in benefits from increased air quality."

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Water utilities

- Health of population
- Environmental protection
- Heavily regulated
- Close co-operation with municipalities
- 24 / 7 / 365 service (HSY's service interruption time less than 10 minutes / customer / a)
- High investment needs and long payback time of investments
- Long lifetime of investments (50…100 years)
- Natural areal monopoly
- HSY, Water services
  - Biggest in Finland (20…25% of the whole Finnish water supply and sanitation except networks)
  - Small number of staff (EBC)
  - Low tariffs (FIWA)
  - High quality of operations (EBC)

Van de Meene et al.: Towards understanding governance for sustainable urban water management / Abstract → 5 minutes discussion…

"Shifting from traditional, large, centralised infrastructure to alternative, distributed technologies is widely accepted as essential for enabling sustainable water management. Despite technical advances in sustainable urban water management over recent decades, the shift from traditional to more sustainable approaches remains slow. Current research on socio-institutional barriers suggests this poor implementation relates to a limited understanding of the different forms of governance needed to support alternative approaches, rather than the potential ineffectiveness of the technologies and practice." (...)

- **Do you agree?**
- **Can you name an example to support the conclusion of Meene et al. from the utility's point of view?**

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Topics

Introduction and some background

1. **Water Services in Europe**
   i. **EurEau or European Federation of National Associations of Water Services**
   ii. **Eurostat**
2. Water Services in Finland
3. Helsinki Region Environmental Services Authority (HSY)
4. HSY Water Services
5. From strategy into actions: development plans
6. Something to discuss…

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Europe's water in figures

An overview of the European drinking water and waste water sectors

2017 edition

Population connected

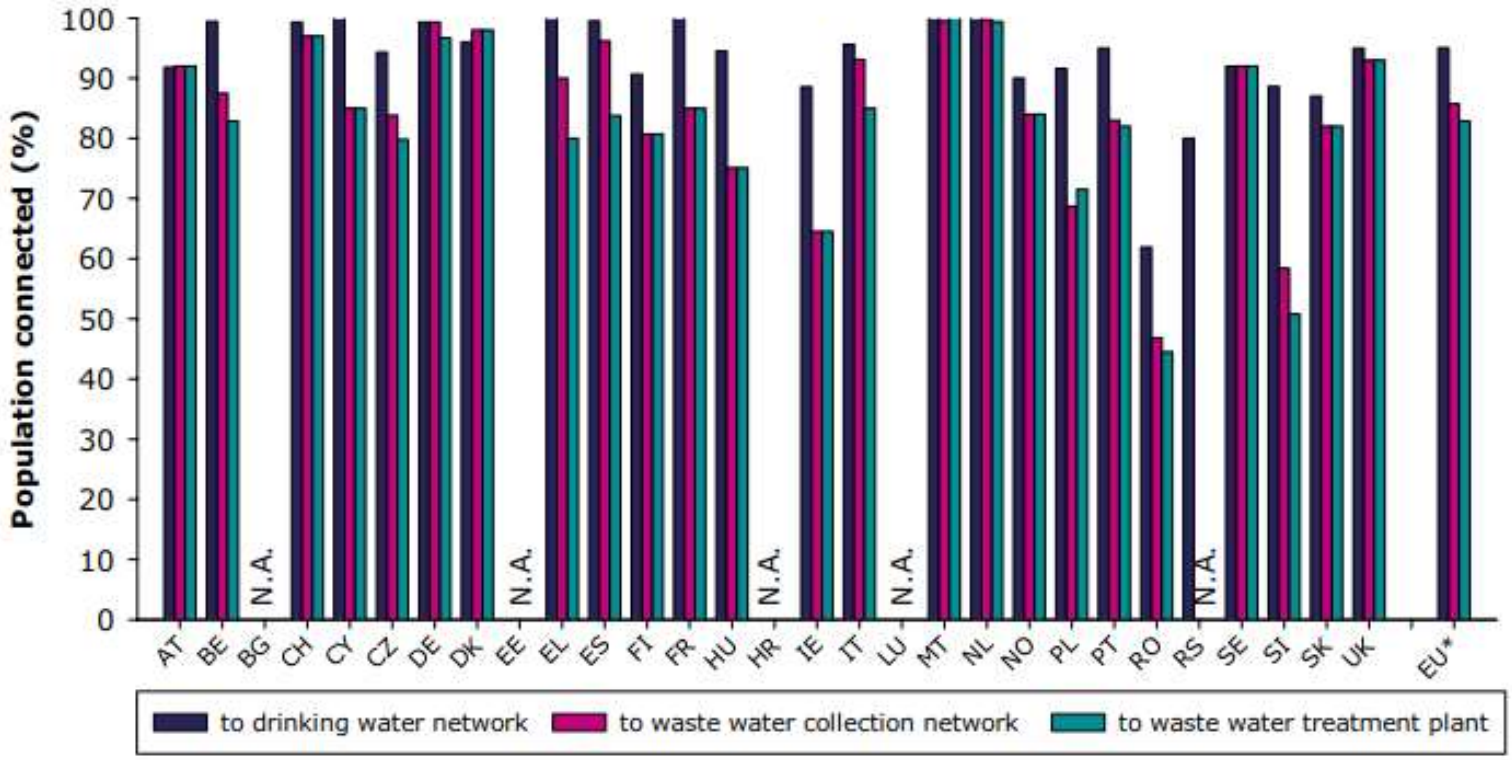

Figure 1: Population connected to a network

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Wastewater treatment

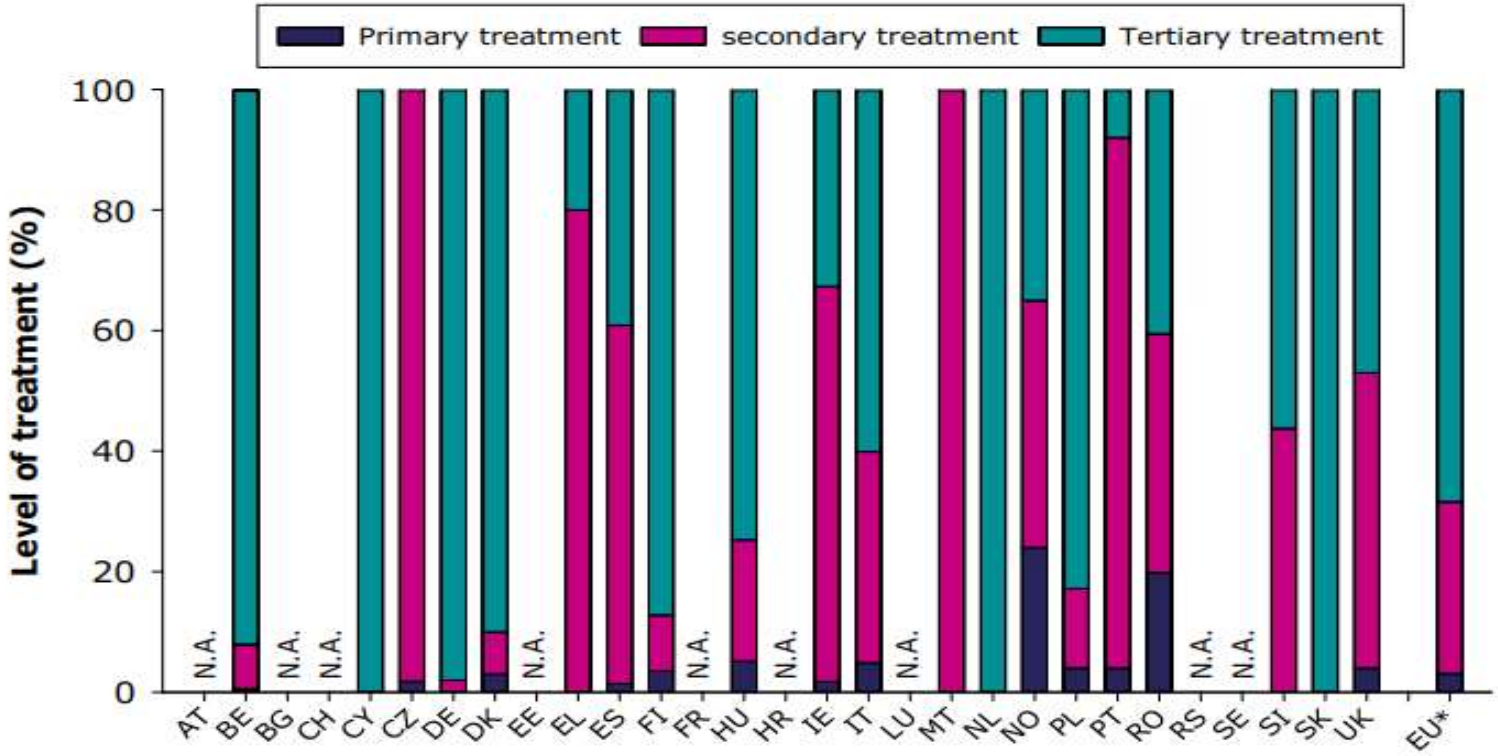

Figure 24: Level of treatment in percentage of load entering waste water treatment plants

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Investment rate

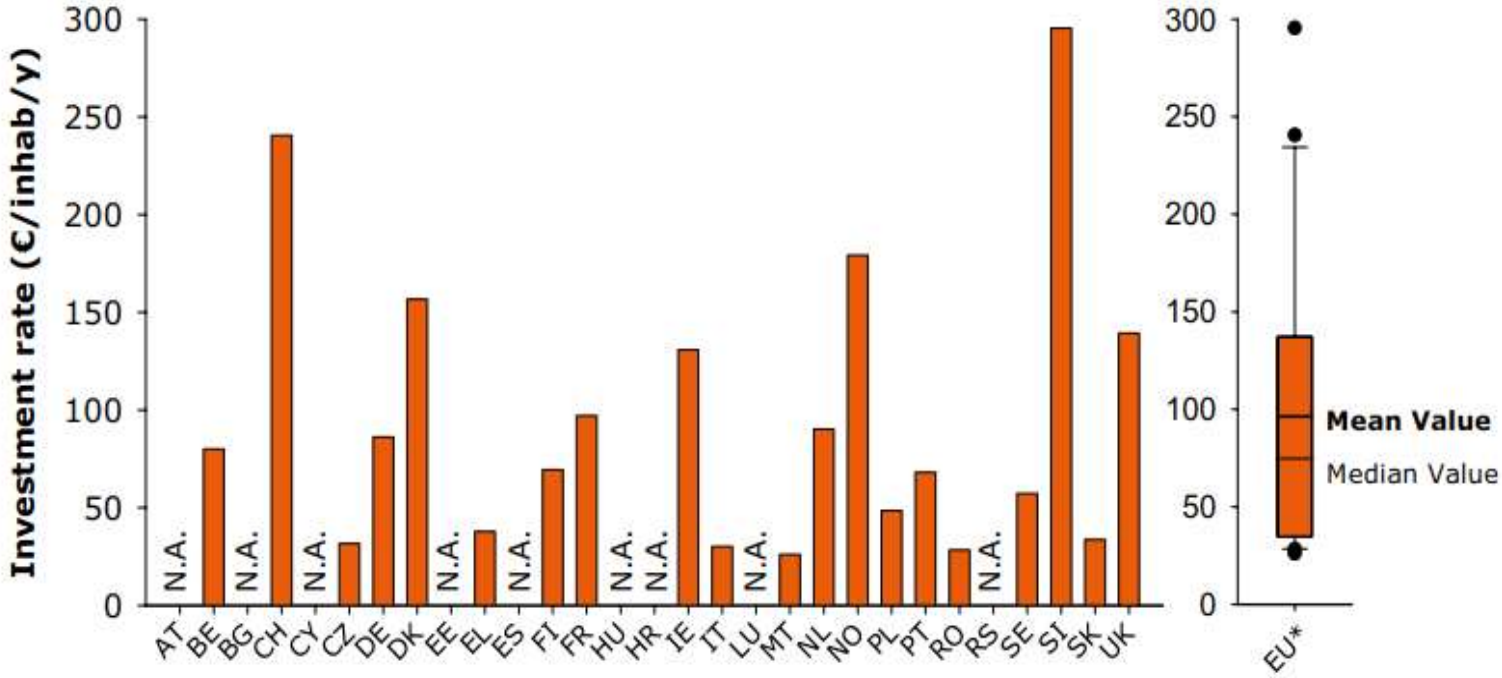

Figure 4: Annual investment rate by water service providers in both drinking water and waste water infrastructure

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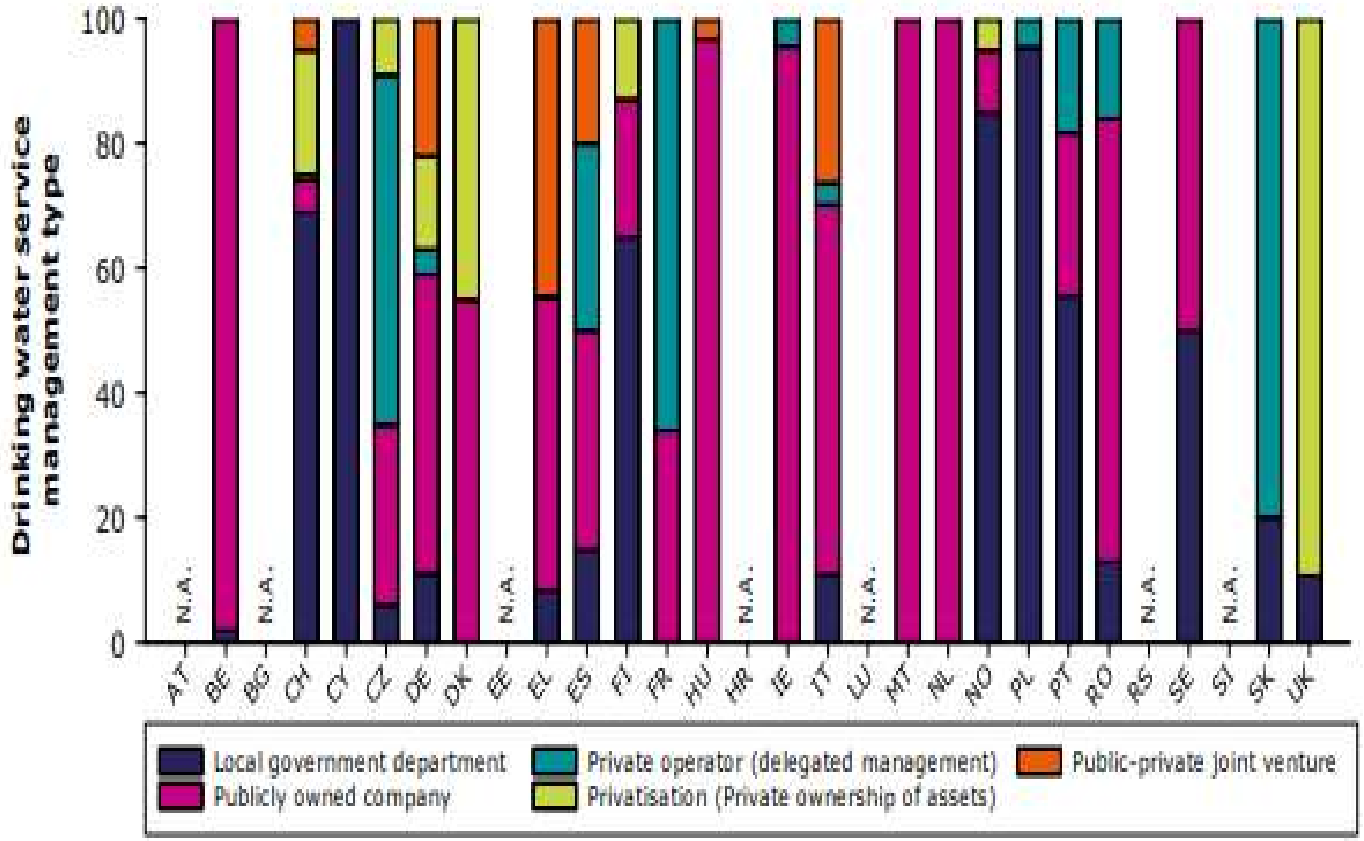

Figure 6: Percentage of the population served by drinking water services for different management types

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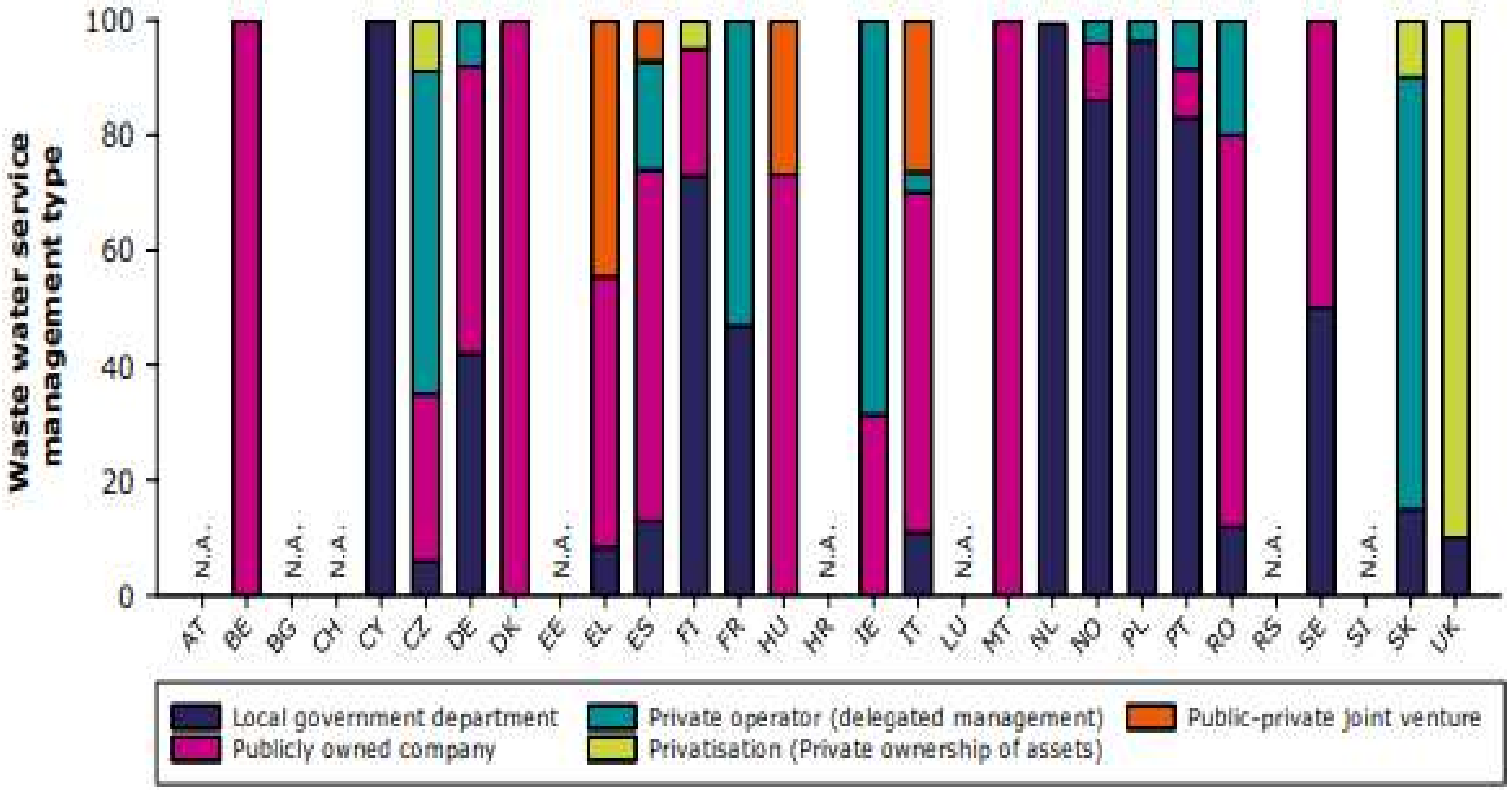

Figure 7: Percentage of the population served by waste water services for different management types

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Asset renewal rate, wastewater and drinking water – sustainable asset management?

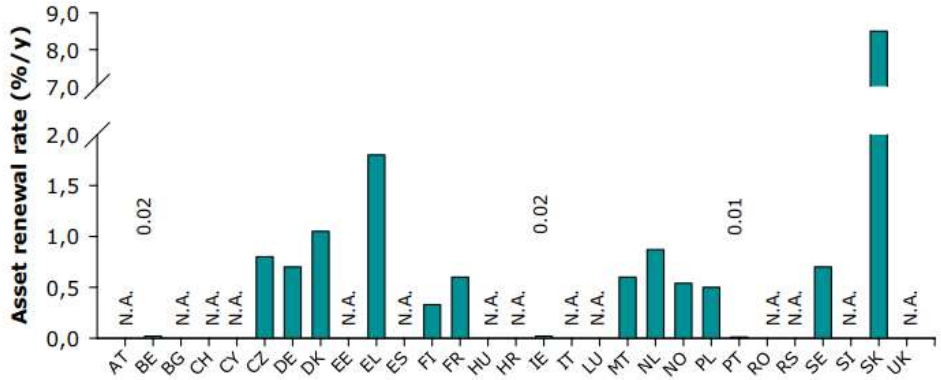

Figure 27: Asset renewal rate for waste water infrastructure (data from 2012 to 2015 depending on the country)

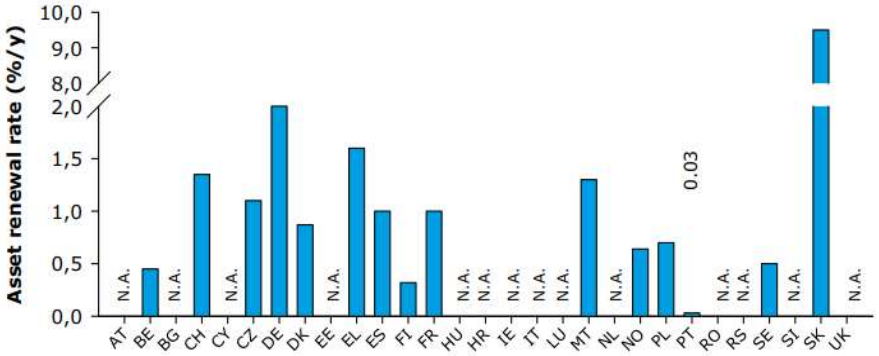

Figure 21: Asset renewal rate for drinking water infrastructure (data from 2012 to 2015 depending on the country)

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Water statistics
Eurostat 2018

Water statistics, Eurostat 2018
Highlights

- Among the EU countries, Croatia recorded the highest freshwater resources (with a long-term average of 28 800 m³ per inhabitant) followed by **Finland** (20 000 m³) and Sweden (19 300 m³).
- Freshwater abstraction by public water supply ranged across the EU in 2018 from a high of 157 m³ of water per inhabitant in Greece down to a low of 30 m³ per inhabitant in Malta.
- Total water use by the manufacturing industry in the EU varied from 193 m³ per inhabitant in the Netherlands (2018 data) to 4 m³ per inhabitant in Cyprus (2017 data).
- The main sewage sludge treatment method varies within the EU: use as fertiliser for agriculture (Spain, 80 % of total dry mass, 2016 data), composting (Estonia, 84 %, 2016 data), incineration (Netherlands, 87 %, 2018 data) or landfill (Malta, 100 %, 2018 data).

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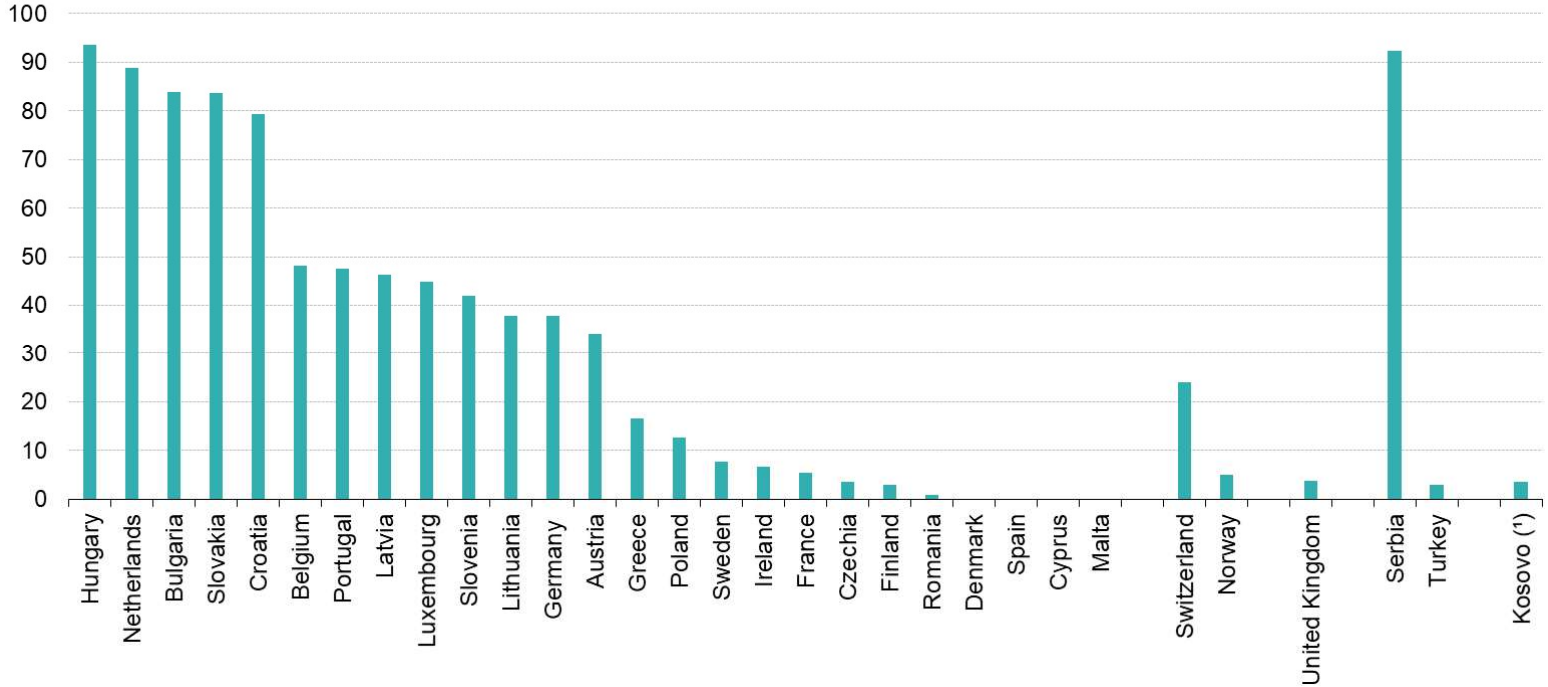
Share of external inflow from neighbouring territories in renewable freshwater resources - long-term average

(%)

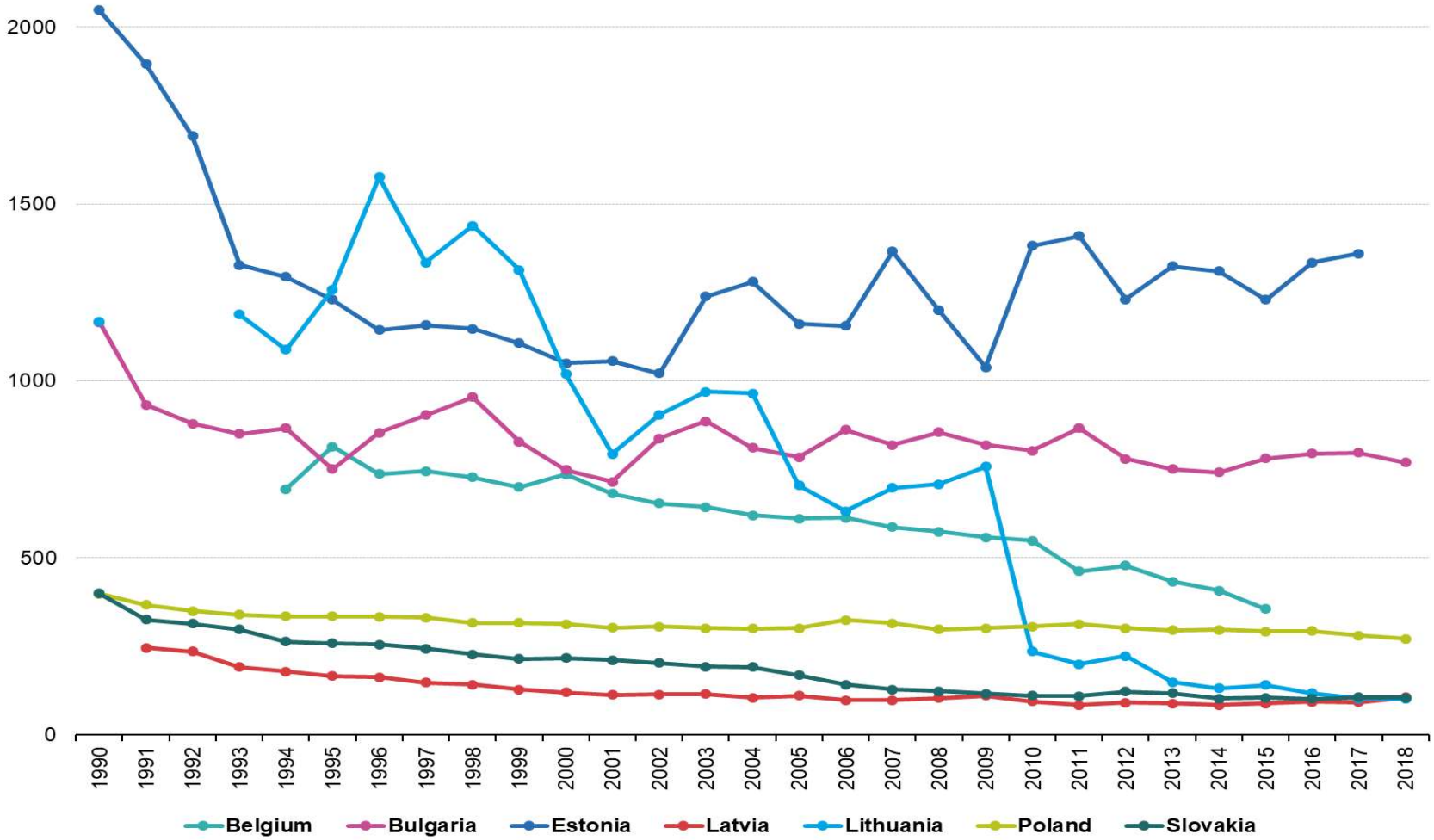


The minimum period taken into account for the calculation of long term averages is 20 years

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

eurostat

Total abstraction of fresh water per inhabitant, 1990-2018
(m³ per year)



Source: Eurostat (online data code: env_wat_abs)

eurostat

Disposal of sewage sludge from urban wastewater treatment by method of disposal, 2018

% of total

Note: Denmark, Italy, Finland, Iceland, United Kingdom: no data or no recent data available

(1): Data for 2016 instead of 2018

(2): Data for 2017 instead of 2018

(3): Data estimated

(4): Data provisional

Source: Eurostat (online data code: env_ww_spd)

eurostat

”European water sector” is not homogenous

- Asset management is an issue everywhere
- Organizations are diferent: example Finland vs Netherlands
  - Water / Wastewater
- Private vs public
  - Private companies in Finland provide services: consulting engineers, construction companies, suppliers, maintenance companies,…
  - UK: private companies own assets and operate the utility
  - France: public ownership but in many cases private operators
  - Scottish Water: whole Scotland
- Financing from different sources: Tariff – Tax – Transfer (TTT)
  - Ability to invest
- Willingness to pay and ability to pay – political aspect

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Topics

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2. **Water Services in Finland**
   i. **FIWA or Finnish Water Works Association (member of EurEau)**
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Water Services in Finland

(Information provided by Finnish Water Works Association (FIWA) expect where indicated, *red comments by Jyrki*)

Water resources in Finland

- Renewable water resources over 20 000 m^3/person/a of which 2 % is used
  - *Some areas lacking raw water (Helsinki, Turku, Kotka,…)*
- No *(or very limited)* need for irrigation
- Quality of waters is good
  - *Thanks to environmental protection and effective wastewater treatment*
- Area under cultivation 10 %
- Population density ~ 15 inhabitants/km^2

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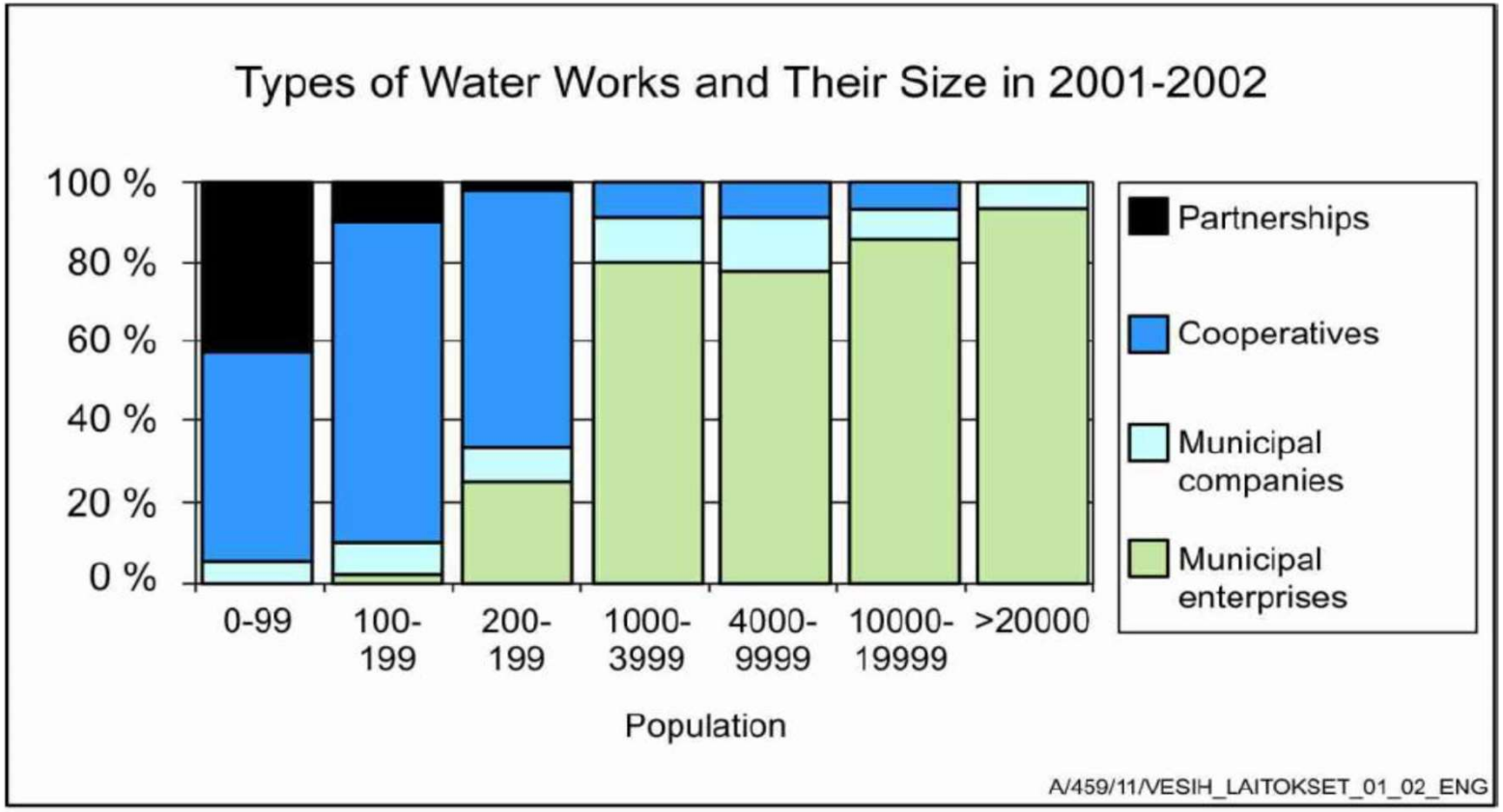
Features of WSS sector in Finland



© Muukkonen 2003

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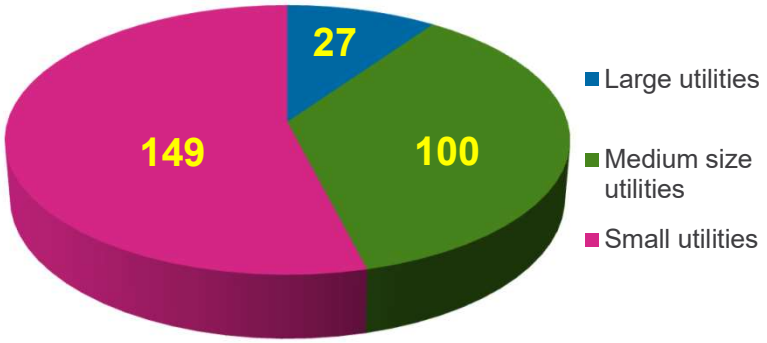
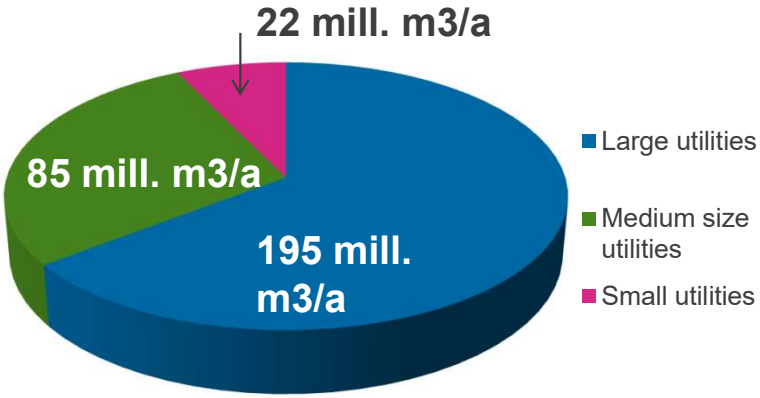
Diversity of WSS sector in Finland

Size distribution of FIWA's member WSS utilities



Number of WSS utilities



Amount of water sold (m3/year)

Large utilities: over 2 million m3 / year

Medium size utilities: 350 000 – 2 million m3 / year

Small utilities: less than 350 000 m3 / year

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Management of water services

- **Municipalities are responsible that water services are available if needed**
- Amount of water utilities about 1.100 (utilities with specified operating area – toiminta-alue) + 500? very very small ones
- Most utilities very small – only 7 serving over 100 000 inhabitants
- ***Most utilities in Finland (by number) are private***
- Inter municipal water companies owned by municipalities are increasing (*slowly*)
  - *Municipal energy company and water utility joined in some 20 cases*
- Water and wastewater usually in the same organization
  - *In many countries in Central Europe this is not the case*

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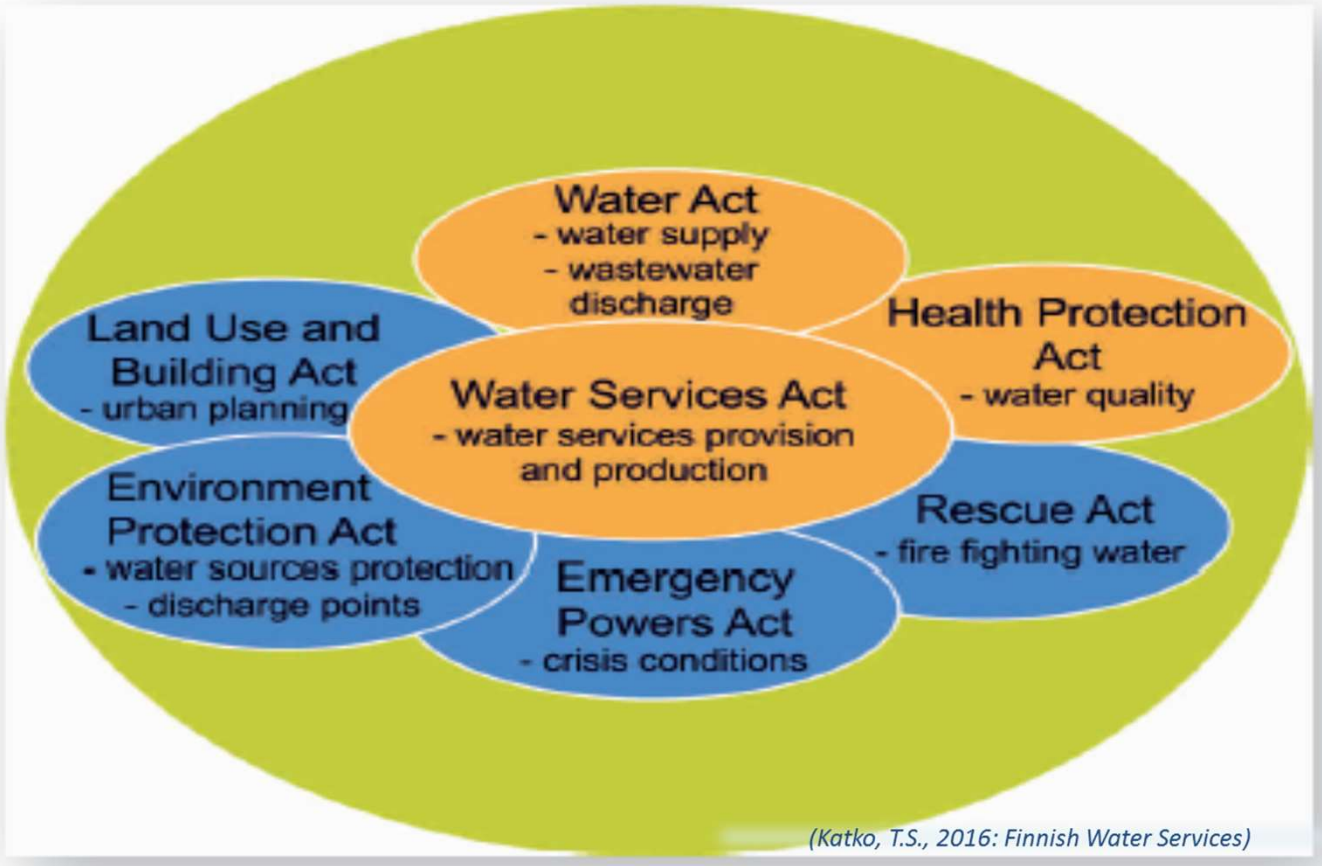
Major legislation related to water services in Finland



(Katko, T.S., 2016: Finnish Water Services)

Fig. 1.2.5 Major legislation related to Water Services in Finland.[30]

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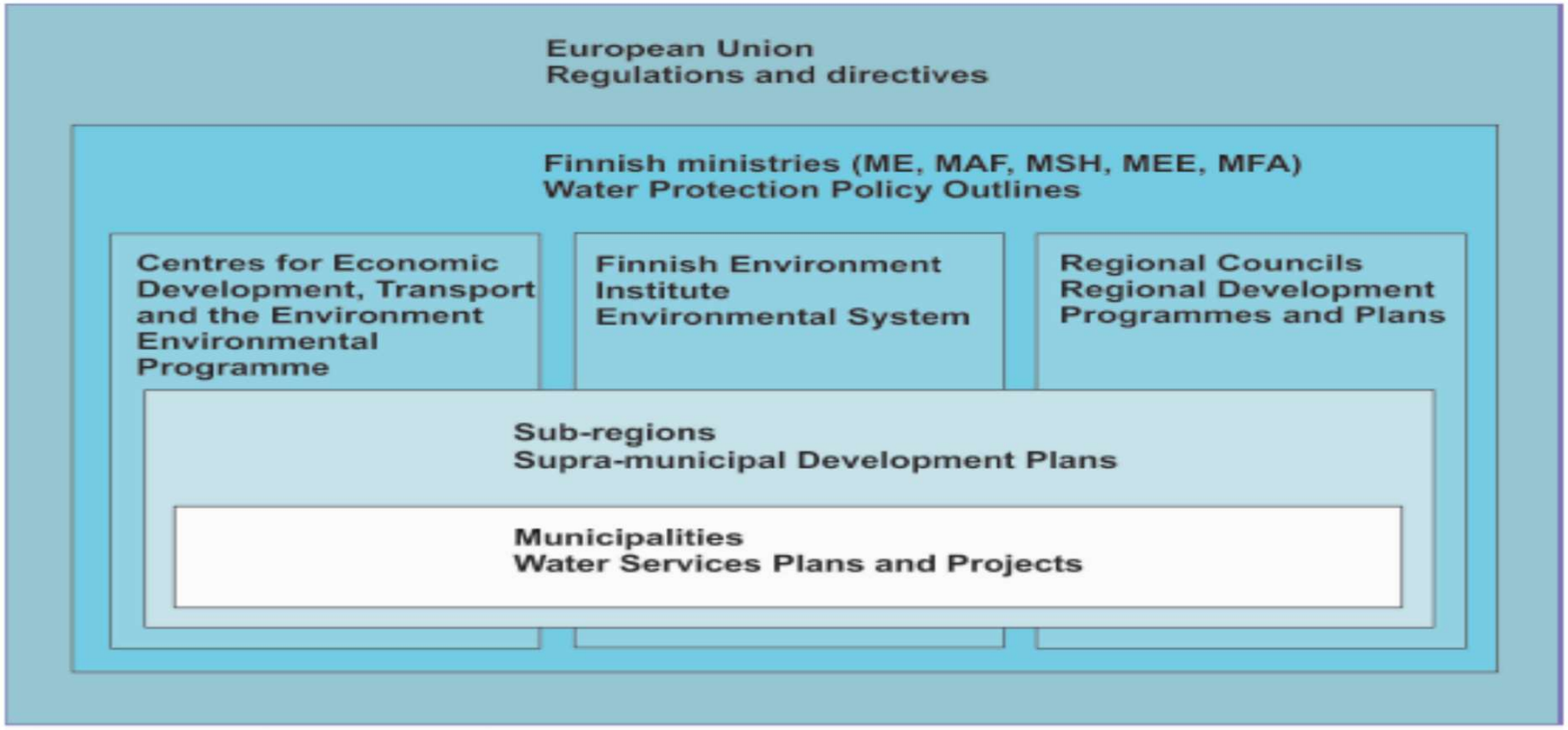
Overall institutional framework of water services in Finland



ME=Ministry of the Environment, MAF=Ministry of Agriculture and Forestry, MSH=Ministry of Social Affairs and Health, MEE=Ministry of Employment and the Economy, MFA=Ministry of Foreign Affairs

Fig. 12.3 Overall institutional framework of water services in Finland in 2014.[2]

(Katko, T.S., 2016: Finnish Water Services)

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Review of Water Services Act

- **Original Act 2001, renewed 2014 (enacted 1.9.2014)**
- Main legislation regulating e.g. the business environment of utilities and interactions between the utilities and their customers
- Other key sector legislation include: drinking water quality legislation and environmental protection legislation
- Water Services Act 2001 separated the utilities' roles of service provider, authority and service producer

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Review of Water Services Act

Some key features of renewed Water Services Act

- Improved regulations on risk management in water services
- Improved financial transparency of water utilities
- Changes in the responsibility of properties to connect to water utility's network outside urban areas
  - *From the utility's point of view: should be improved*
- Changes in storm water management responsibilities
  - *…not quite clear, should be improved*

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Regulation

- No special regulator for the services (utility / customer) – in some cases the consumer authorities and in some cases the competition authorities
  - *Meaning that e.g. prices and tariffs are decided locally*
  - *Discussion, if we need a regulator… (Denmark, UK,…)*
- Transparency and media with local democracy are very efficient control system
- Voluntary (*and today also obligatory*) benchmarking to add openness
  - *FIWA and Min. of Agriculture and Forestry*
  - *…and to improve management and enhance development… (EBC)*

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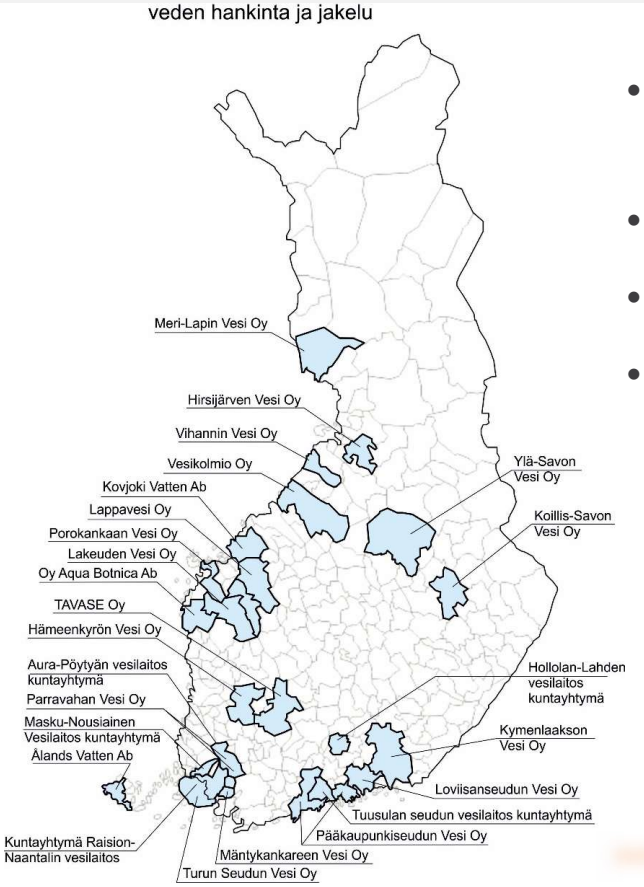
Regional / supra-municipal utilities (1)



- Regional / supra-municipal **”water-only utilities” – bulk supply**
- Total number about 25 pcs
- About 5 federations of municipalities
- About 20 joint-stock companies (owned by municipalities)

(Katko, T.S., 2013: Hanaa! Book in Finnish)

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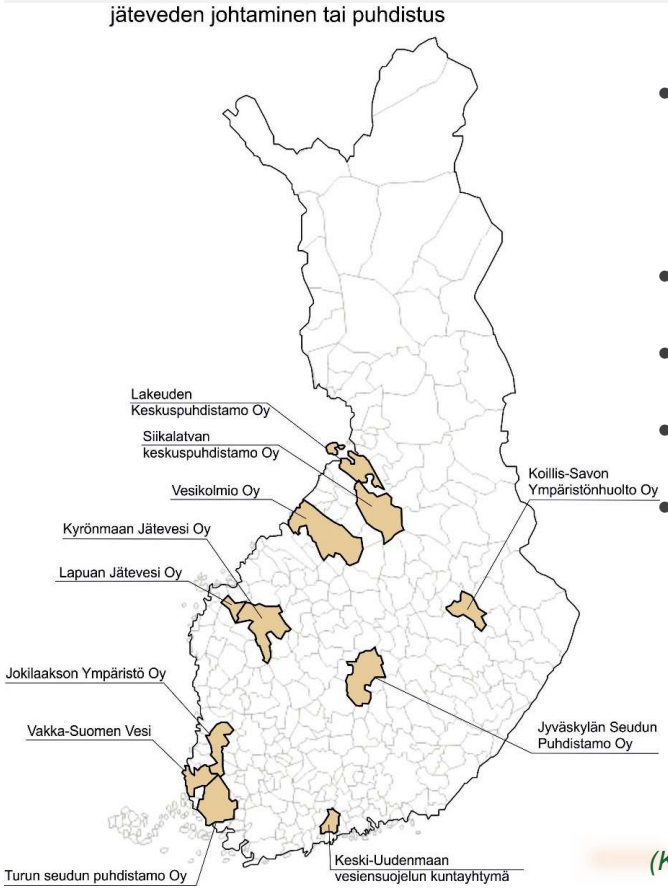
Regional / supra-municipal utilities (2)



- Regional / supra-municipal **”wastewater-only utilities” – bulk operators**
- Total number about 11 pcs
- One federation of municipalities
- One municipal enterprise
- About 9 joint-stock companies (owned by municipalities)

(Katko, T.S., 2013: Hanaa! Book in Finnish)

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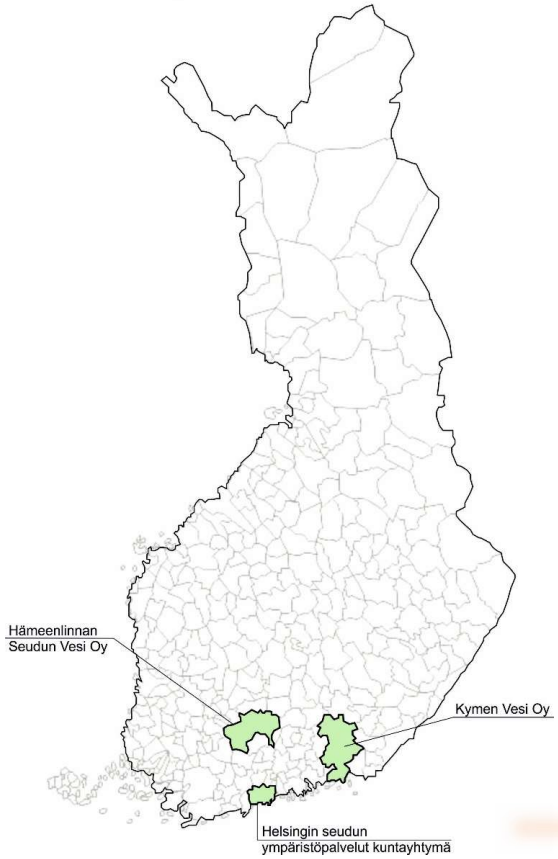
Regional / supra-municipal utilities (3)

(sekä vesi että jätevesi)



- Regional / supra-municipal **”water & wastewater utilities” – full service**
- Total number 3 pcs
- One federation of municipalities
- 2 joint-stock companies (owned by municipalities)

(Katko, T.S., 2013: Hanaa! Book in Finnish)

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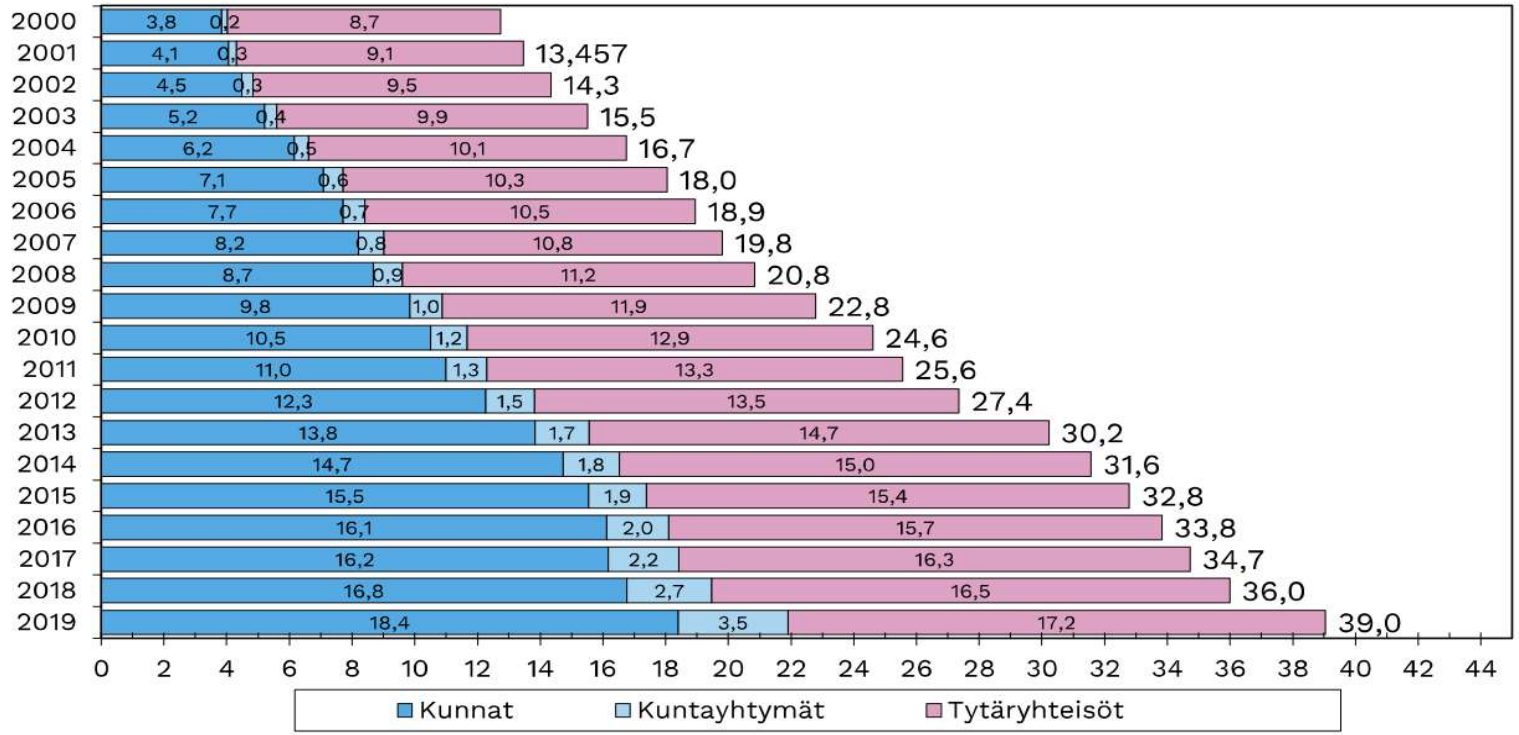
Kuntakonsernien lainakanta vuosina 2000-2019, mrd.€



Lähde: Tilastokeskus

Water services in Finland in the future / Jyrki

- What will future bring to utility owners, i.e. to municipalities?
  - Amount of loans increasing
  - Social&health sector challenges and possible changes
  - Number of sustainable municipalities in the future?
- What will future bring to water utilities?
  - Water + Energy (around 20 this kind of utilities are members of FIWA)
  - Water + Waste (HSY, Stockholm)
  - Regional water utilities (only few today – why?)
  - Big utilities operate smaller utilities (only few today – why?)
- **Min. of Agriculture and Forestry: Kansallinen vesihuoltouudistus (The national water services renovation program)**
  - A 3 year program, draft of targets and actions is out for comments (due 8.2.)
  - Water services act will be revised
  - Innovative solutions for the future
  - Challenges of small utilities

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Finland → something to think and maybe comment during our 5 minutes break…

- Privatization discussion in Finland → what do You think?
- How to restructure Finnish water sector? Why didn't we do it already? What is the barrier here?

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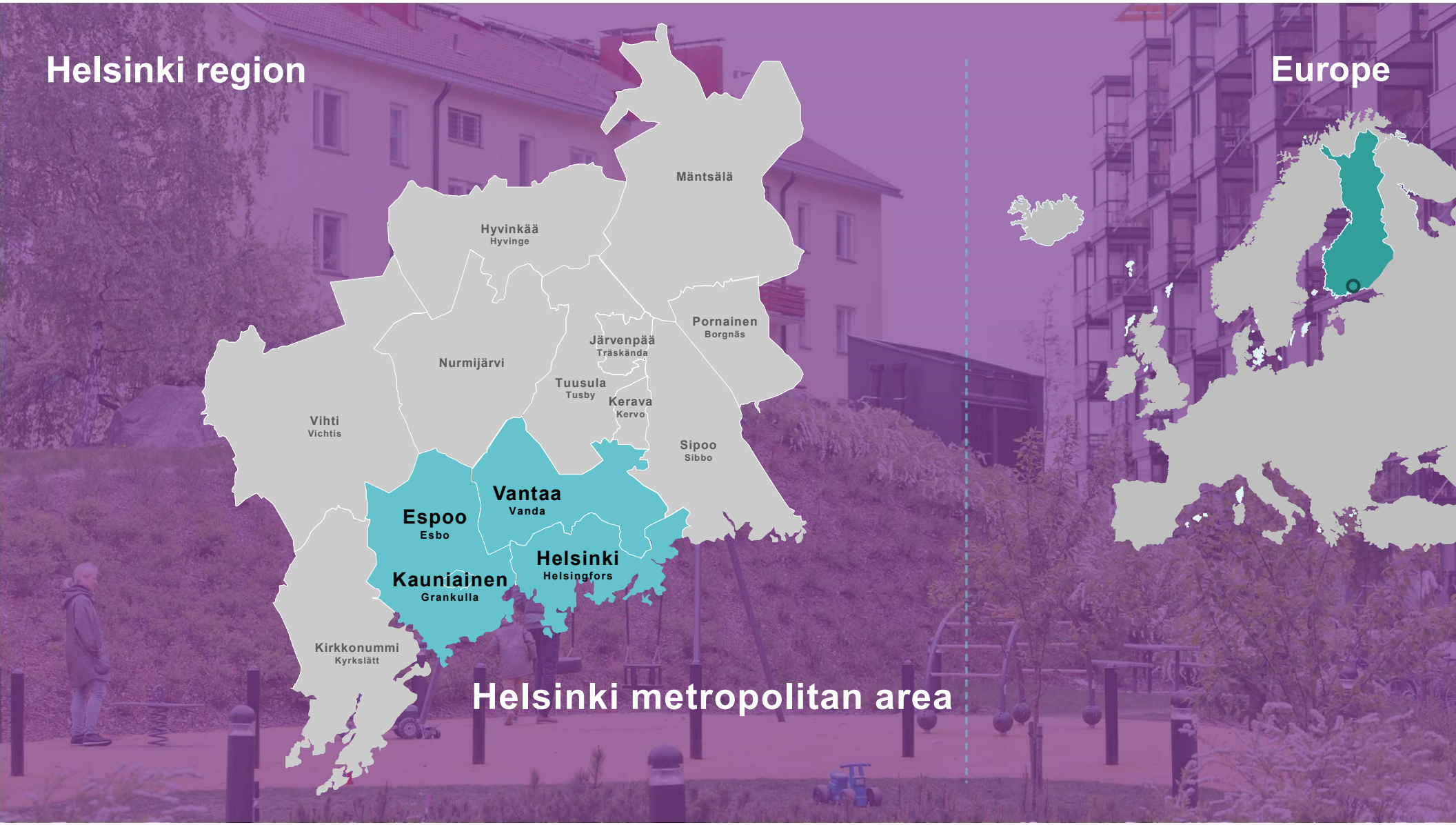
Helsinki Region Environmental Services Authority, HSY


Helsinki region
Europe
Mäntsälä
Hyvinkää
Hyvinge
Pornainen
Borgnäs
Järvenpää
Träskända
Nurmijärvi
Tuusula
Tusby
Kerava
Kervo
Vihti
Vichtis
Sipoo
Sibbo
Vantaa
Vanda
Espoo
Esbo
Helsinki
Helsingfors
Kauniainen
Grankulla
Kirkkonummi
Kyrkslätt
Helsinki metropolitan area

2018

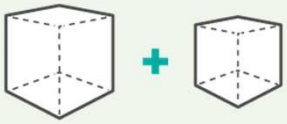
1,1 waste of 1.1 million residents
5 Sortti Stations with 0.5 million visits in total
9 million waste containers emptied

60 %

of municipal waste will be recycled by 2025

Together we will create the world's most sustainable urban region.

8400 km of water service network
12 water towers
2 surface water treatment plants
1 ground water intake plant
2 wastewater treatment plants

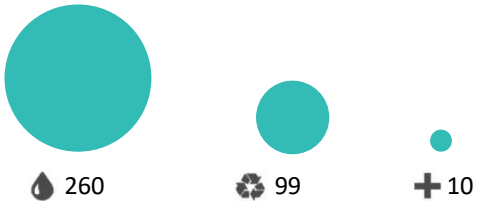


We treat annually
127 million m^3 of waste water
95 million m^3 of water

Ca. 70 different materials on the open data pages

We measure regional CO_2 emissions. We promote climate work and the circular economy.

Operational revenues of **EUR 369 million**



Member municipalities: Helsinki, Espoo, Vantaa, Kauniainen

Our mission is to enable clean and sustainable urban life

HSY

€ HSY investments altogether 2019–2028 **1,4 BILLION**

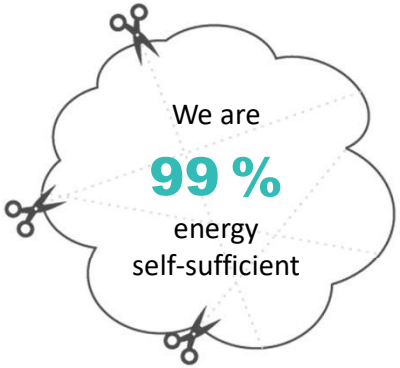
99 % of our external stakeholders regard HSY as an environmentally reliable operator.

764 Employees

Million residents **1,1**

11 air quality monitoring stations

Additionally, smaller sensors and samplers.



Our CO_2 emissions were altogether 138 000 tCO_2-e. Emissions have decreased by 43 % from 2009. The goal is to become carbon neutral by 2030.

Strategy 2025

MISSION

TO BE AN ENABLER OF A CLEAN AND SUSTAINABLE URBAN ENVIRONMENT

VISION

Together we will create the world's most sustainable urban region

Developing good working life

Actively taking advantage of new technologies

Influencing through information

Building upon collaboration

Forerunner in environmental responsibility and resource efficiency

Highly reliable

Smooth services

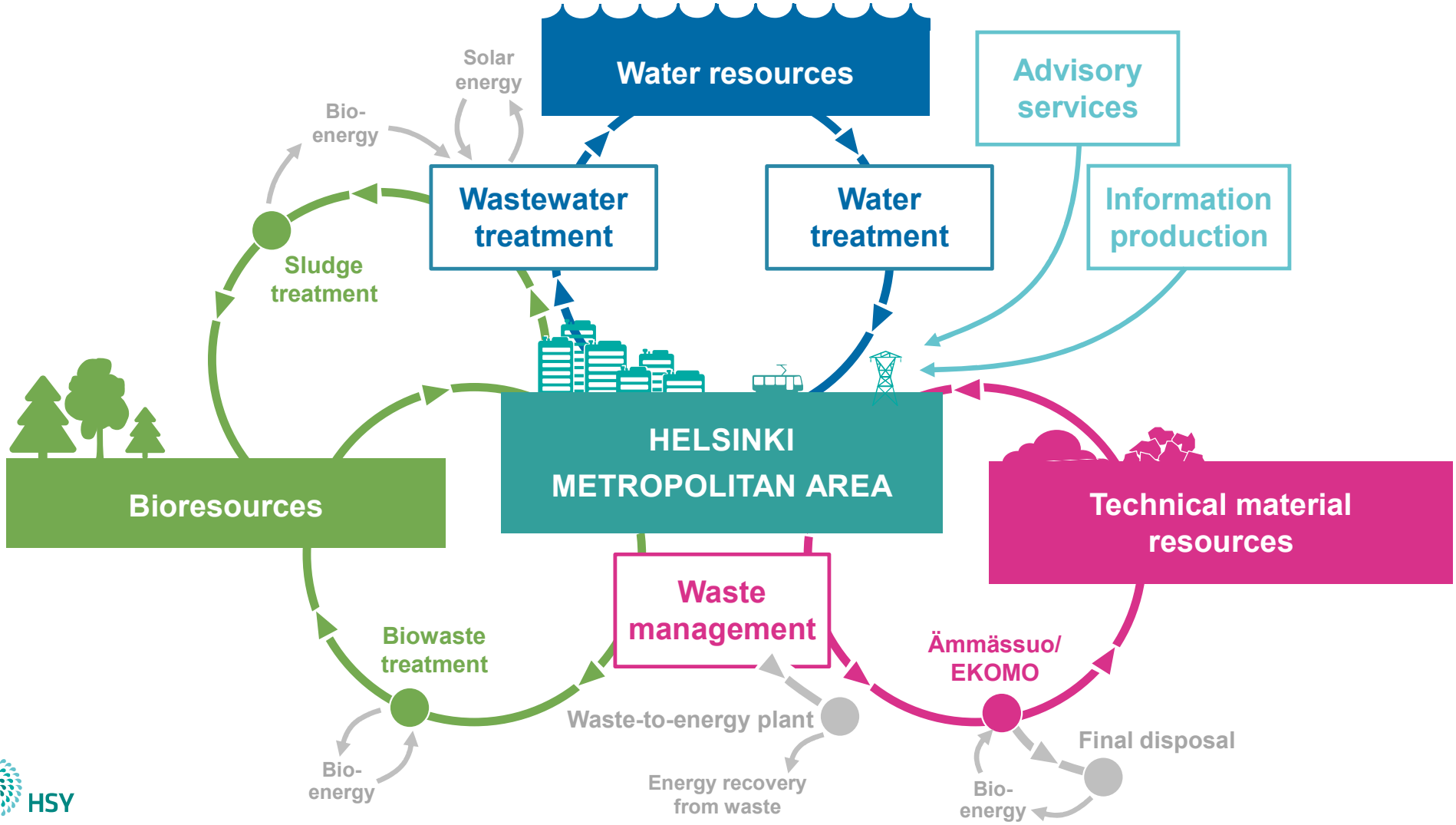
Stable business

Responsible

Open

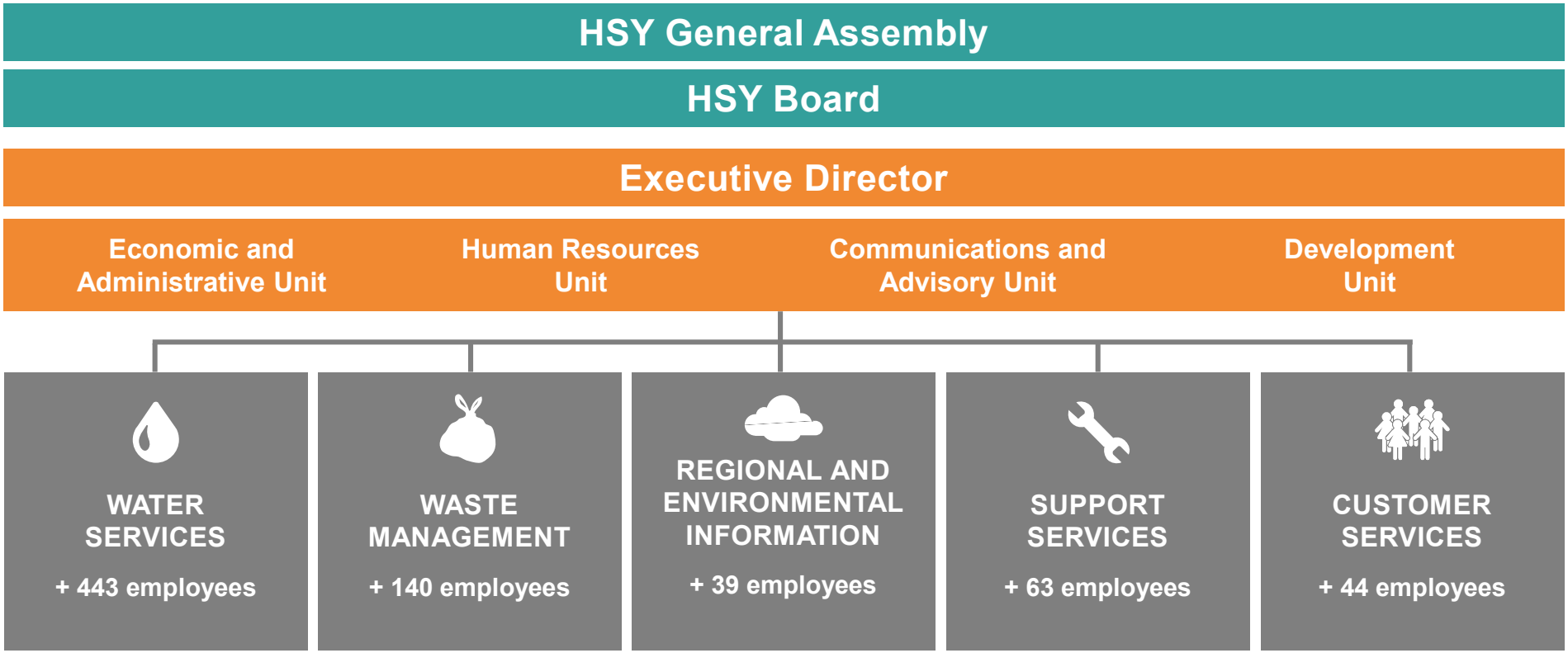
Service minded

Self-renewal


Water resources
Advisory services
Information production
Solar energy
Bio-energy
Wastewater treatment
Water treatment
Sludge treatment
HELSINKI METROPOLITAN AREA
Bioresources
Technical material resources
Waste management
Biowaste treatment
Ämmässuo/ EKOMO
Waste-to-energy plant
Final disposal
Bio-energy
Energy recovery from waste
Bio-energy

HSY

Organisation 2019



HSY

Basic agreement and general assembly

- The Helsinki Region Environmental Services Authority municipal federation was established by the basic agreement approved by the member municipalities (Helsinki, Espoo, Kauniainen and Vantaa)
- The duties of the general assembly (the highest decision making body) include
  - approval of activity plan and budget
  - decisions on approving the balance statement and granting a discharge from liability for the accountable parties
  - election of the Board of Directors and Audit Committee
  - The general assembly elects the members of Board of Directors for the municipal term in accordance with the political dominance
    - The Act on Equality is followed in the constitution of the board
    - The Local Government Act defines the duties of the board. The administrative rule has the necessary regulations concerning administration and decision-making procedure. The executive rule, on the other hand, defines the authority of the implementing powers and office holders.

HSY

The Board and The Audit Committee

- The Board consists of the 14 actual members elected by the general assembly, one of which will be names as the President and one as a Vice President. Each member has a personal substitute member. Seven of the members and substitute members are from Helsinki, three from Espoo, one from Kauniainen and three from Vantaa.
- The Audit Committee is in charge of organizing the audits for the administration and finance and performing the audits in accordance with the Local Government Act. The Audit Board has 7 members and they all have a personal substitute member.
- Water services: several “operative” agreements to govern HSY’s co-operation with municipalities
  - KT agreement, storm water agreement, fire fighting water agreement,…

- https://www.hsy.fi/en/abouthsy/decision-making/Pages/default.aspx

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Topics

Introduction and some background

1. Water Services in Europe
2. Water Services in Finland
3. Helsinki Region Environmental Services Authority (HSY)
4. **HSY Water Services**
5. From strategy into actions: development plans
6. Something to discuss…

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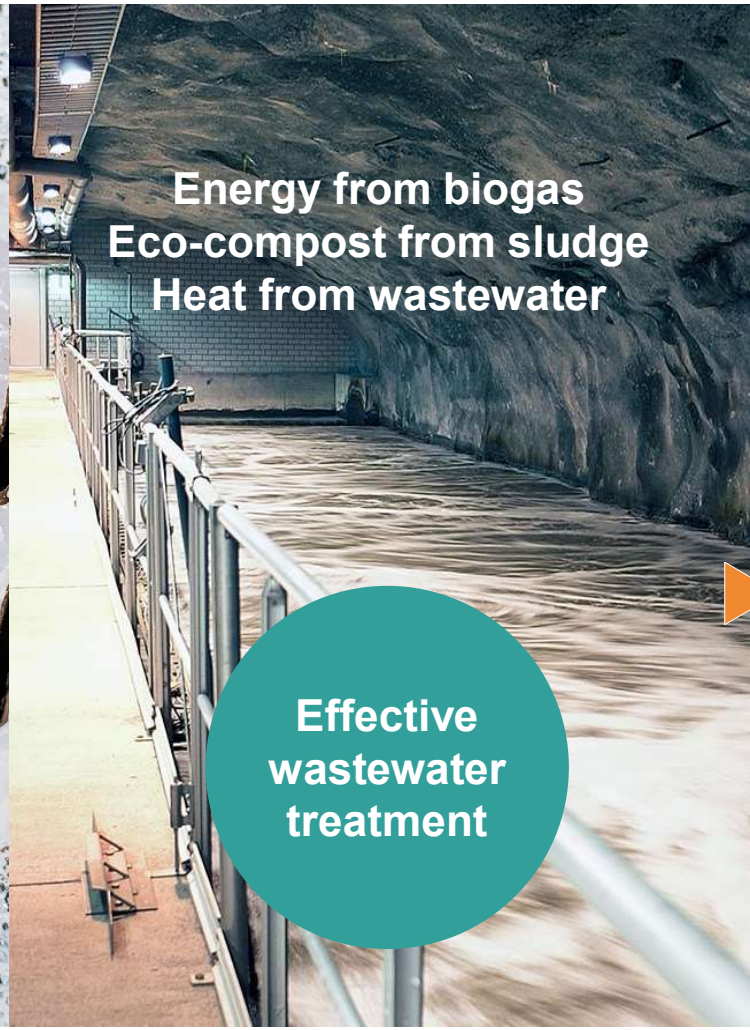
Helsinki Region Environmental Services Authority

Water services


High-quality drinking water for over a million inhabitants


Functional stormwater drainage


Energy from biogas
Eco-compost from sludge
Heat from wastewater
Effective wastewater treatment

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WATER SERVICES

director Tommi Fred
executive secretary Merja Heikkinen

FINANCES AND ADMINISTRATION
Mervi Copeland

INVESTMENTS
Jyrki Kaija

REGIONAL NETWORKS
Jukka Saarijärvi

NETWORK PROJECTS
Ilpo Korhonen

PLANT PROJECTS
Arto Kallio

NETWORK
Kia Aksela

EXCAVATION UNIT
Eeva Huhtanen

CONTRACT WORK UNIT
Jere Metsävuo

MAINTENANCE UNIT
Eeva Huhtanen

NETWORK SERVICES
Pentti Janhunen

NETWORK SUPPORT
Sami Sillstén, Ilmala
Hannu Vornanen, Mikkelä
Tuomas Turunen, Vantaa

WATER TREATMENT
Veli-Pekka Vuorilehto

PLANT MAINTENANCE
Harri Kolehmainen

PRODUCTION
Heli Härkki

PROCESS LABORATORY
Tuula Laakso

WASTEWATER TREATMENT
Mari Heinonen

MAINTENANCE
Petteri Jokinen

PRODUCTION
Marina Graan

REMOTE OPERATION
Teemu Ketola

PRODUCTION SERVICES
Janne Nipuli

MONITORING SERVICES
Eija Lehtinen

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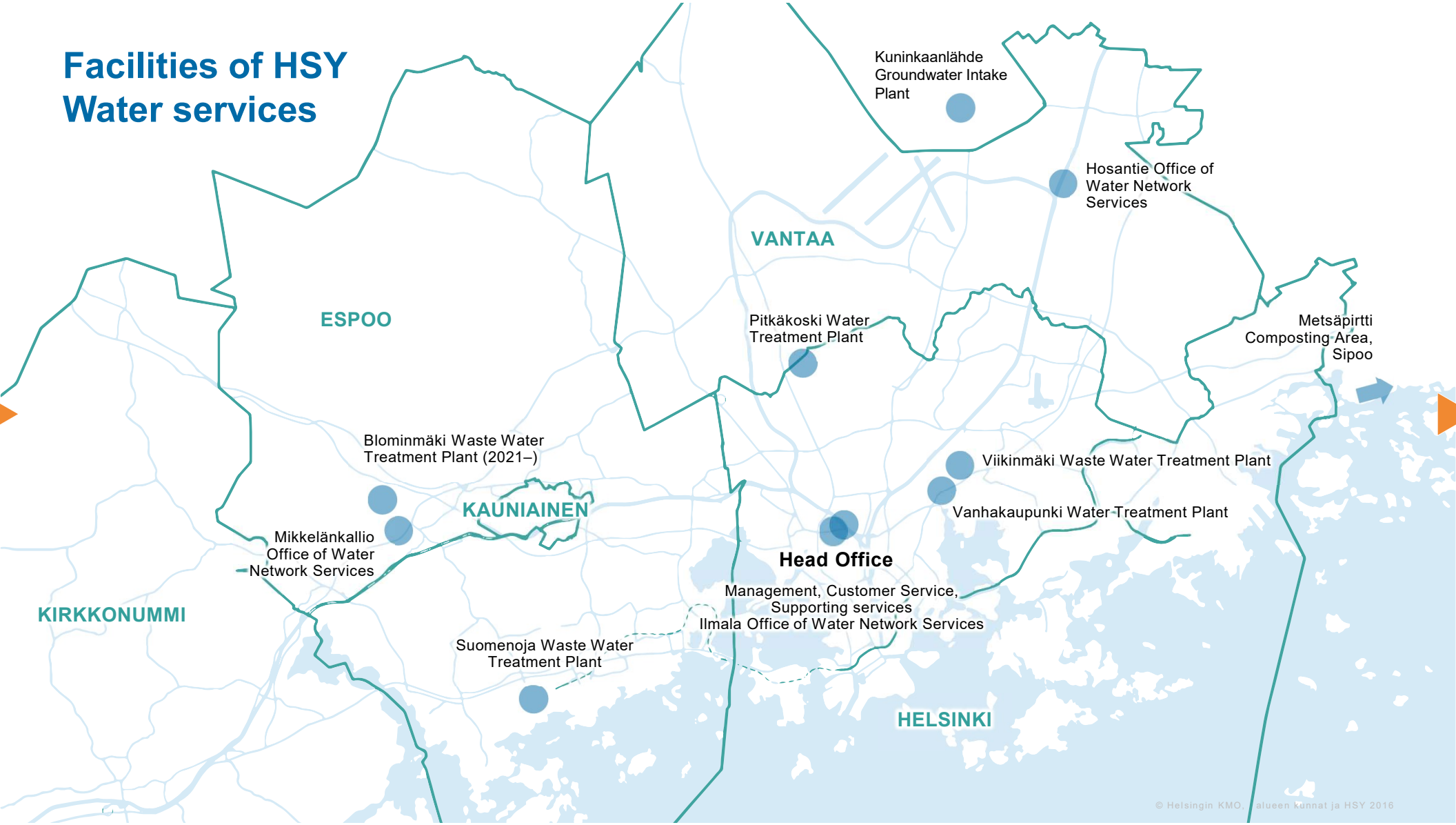
Facilities of HSY Water services

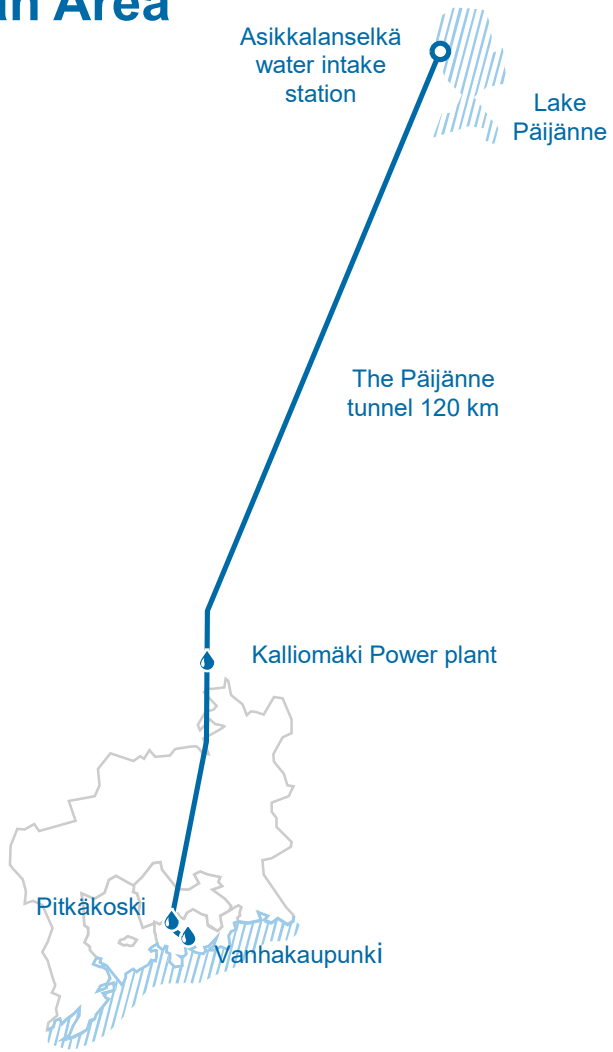


Water acquisition in the Helsinki Metropolitan Area

The majority of the raw water in the Helsinki Metropolitan Area flows in through the Päijänne tunnel

In addition, HSY has a single groundwater intake plant

Total water pumped into the network: 98 million m³ in 2019



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Water distribution system in the Helsinki Metropolitan Area

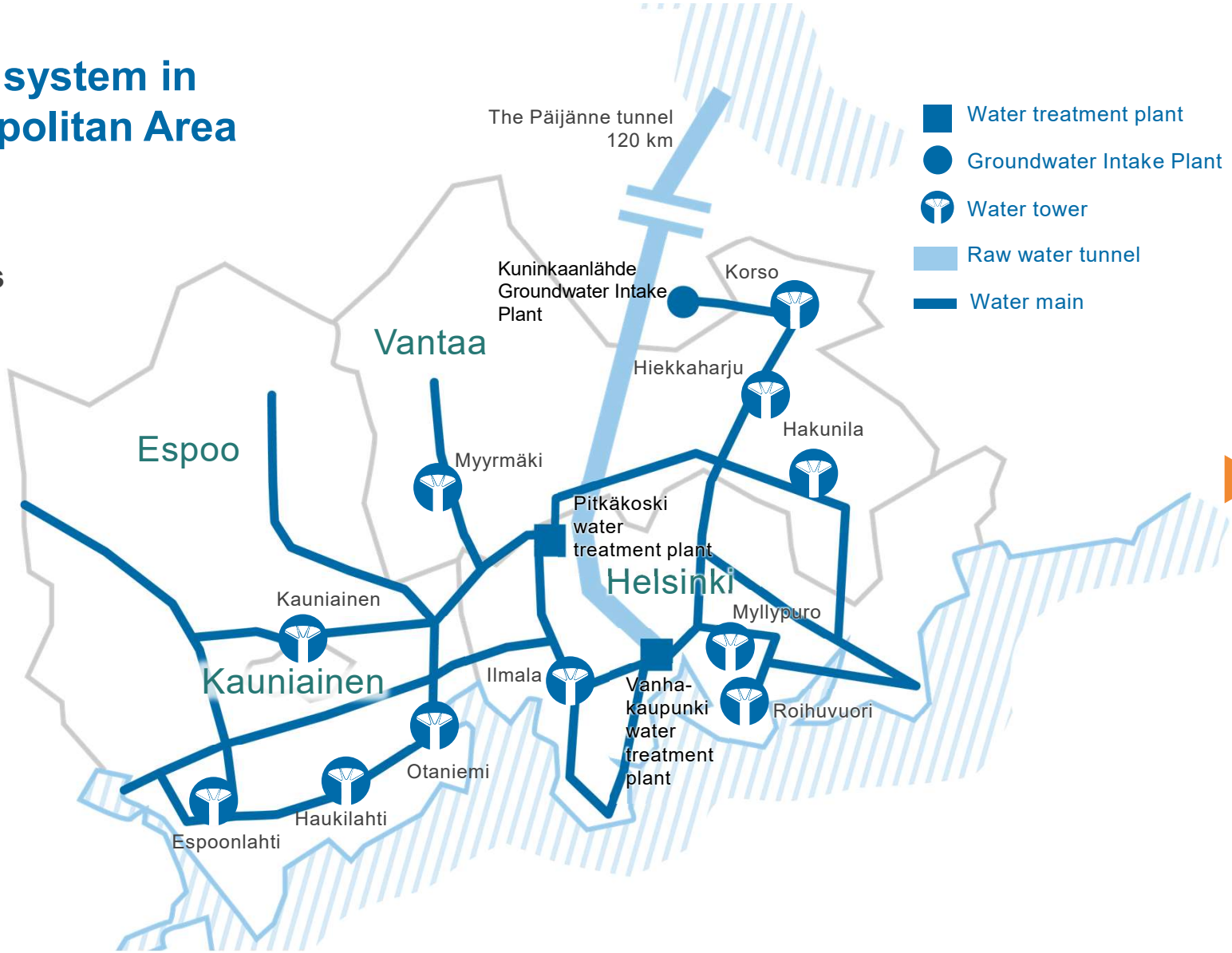
Water mains

Over 30 booster stations

12 water towers

Water distribution control system

Systematic renovation activities



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Underground water networks

Network property management is based on life cycle thinking.

The service life target is nearly 100 years.

Maintenance operates around the clock, every day of the year.

Key figures

	2019	2018
Water pipes		
Pipe breaks (qty)	**305**	300
Supply interruptions (min/res)	**7,8**	6,1
Sewers		
Sewer blockages (qty)	**78**	102

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Key figures for the underground water networks 2018

WATER NETWORKS	Total length of network	New built in 2019	Old renovated in 2019
Water pipes	3 127 km	40,2 km	11,5 km
Wastewater and combined sewers	2 911 km	22 km	6,5 km
Stormwater sewers	2 832 km	38,1 km	1,9 km
Total	**8 870 km**	**100,3 km**	**19,9 km**

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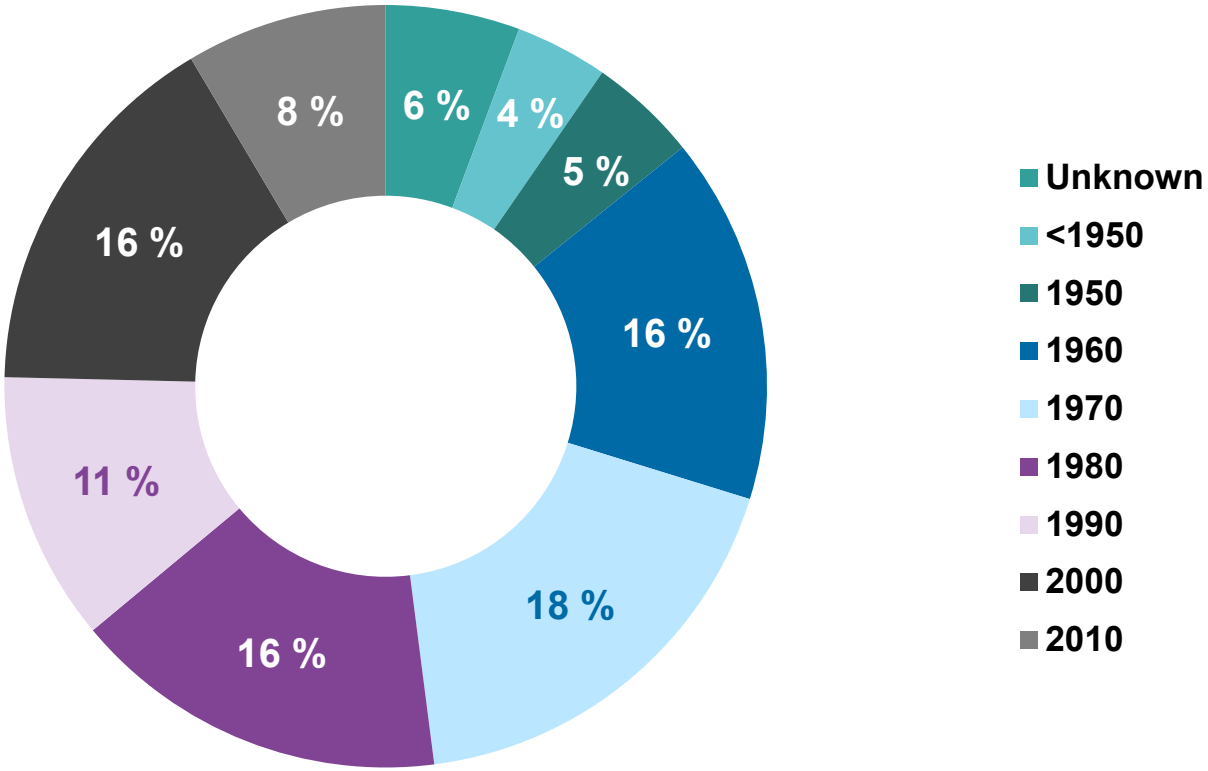
HSY water pipe age distribution



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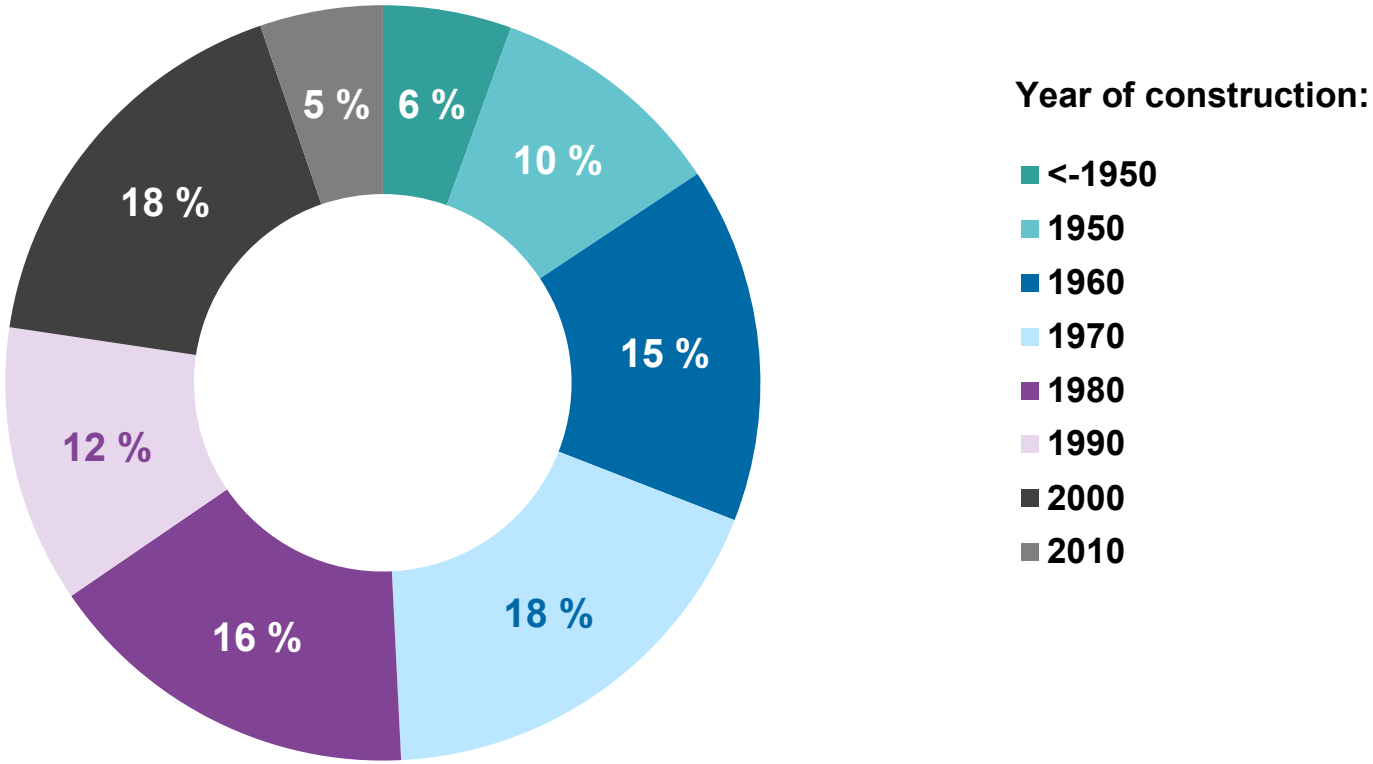
HSY sewer age distribution (WS, CS, PWS, SS)



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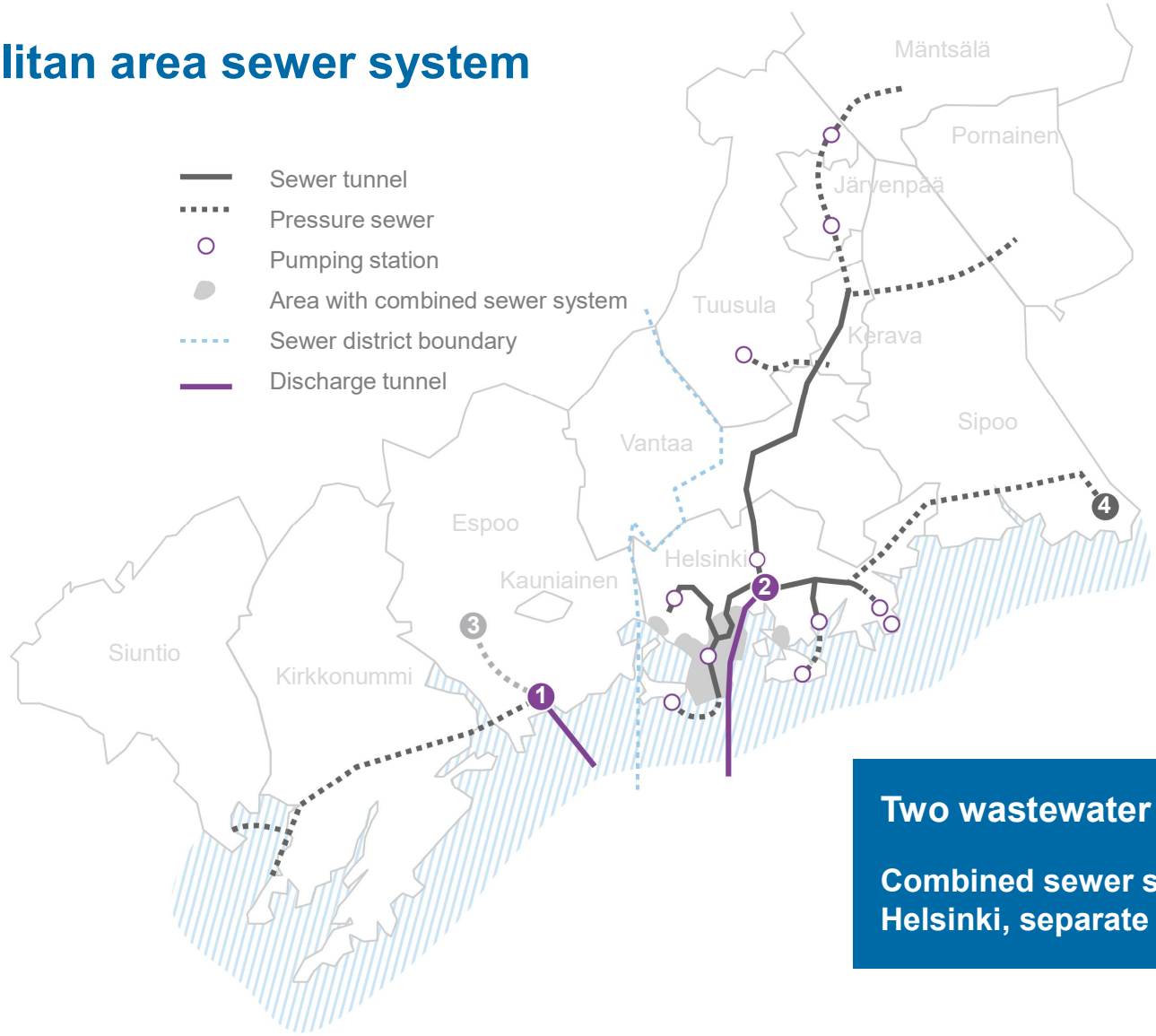
Metropolitan area sewer system



1. Suomenoja wastewater treatment plant
2. Viikinmäki wastewater treatment plant
3. Blominmäki wastewater treatment plant and tunnels (under construction)
4. Metsäpirtti composting field

Two wastewater treatment plants

Combined sewer system in the centre of Helsinki, separate sewers elsewhere

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Key figures for HSY Water services in 2019

Operations (2019, million m^3):	
Amount of water pumped to water networks	97.6
Water sales	76.7
Amount of wastewater treated	148.9

Finances (2019, million €):	
Operating income	275.9
Operating expenses	102.7
Investments	236.4
Contribution to member municipalities	62.8

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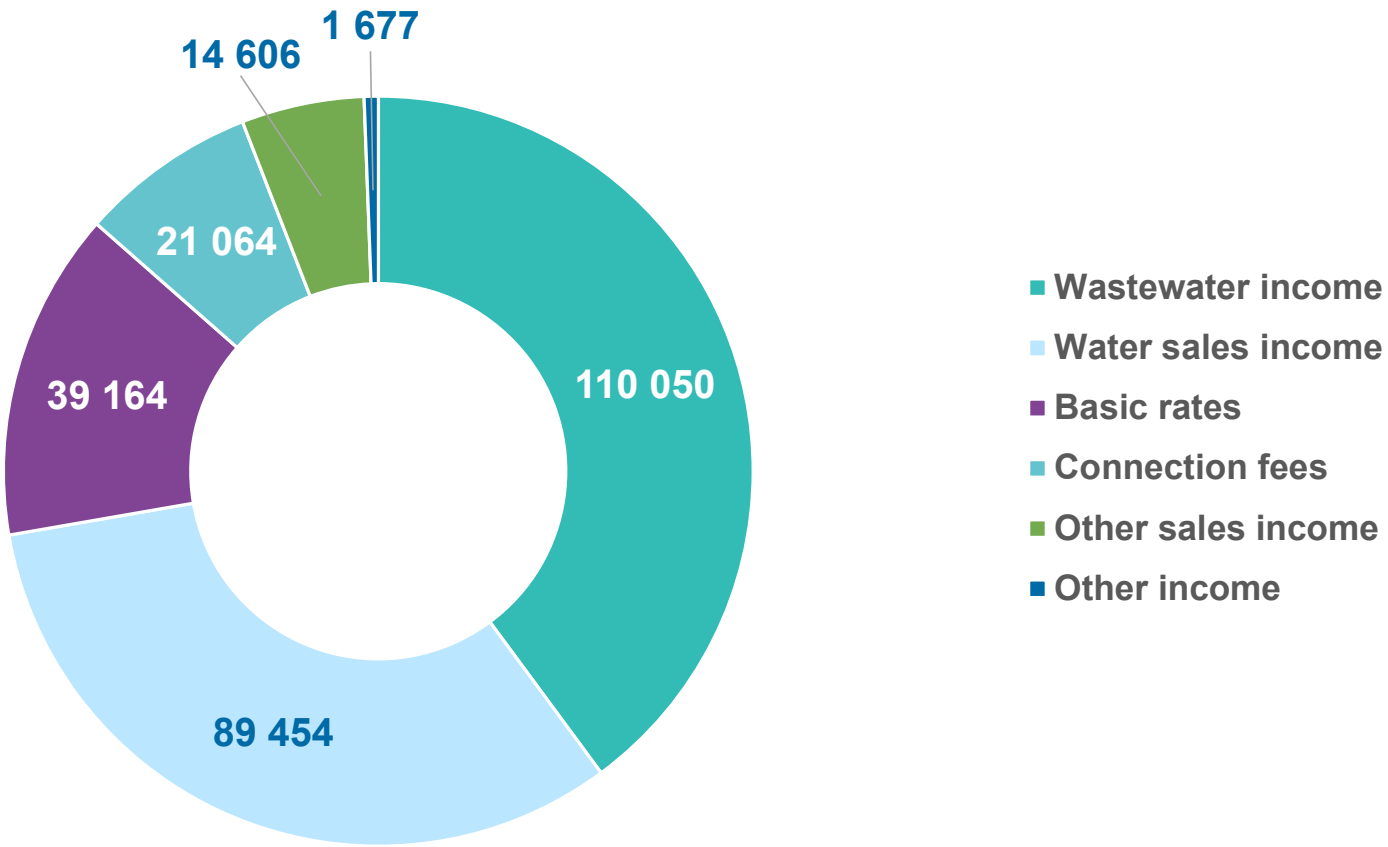
Water services operating income 2019 (*1000 €)



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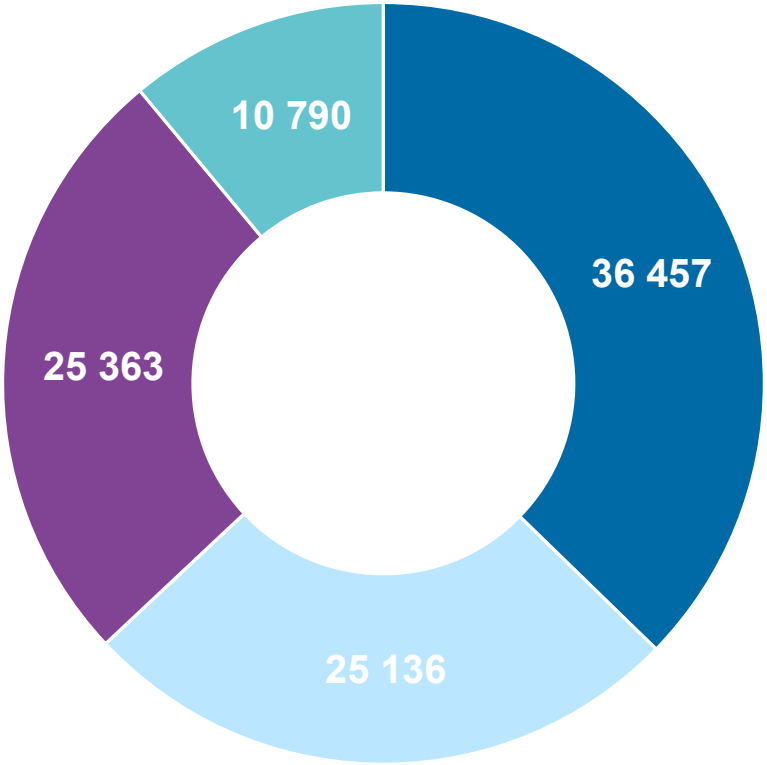
Water services operating expenses 2019 (*€1,000)



- Service purchases
- Personnel expenses
- Materials and equipment
- Other operating expences

Operating expenses (2018)
€82.3/resident

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Water services asset itemisation/balance 2019 (*1000 €)

ASSETS	
FIXED AND LONG-TERM ASSETS	**2 223 787**
Intangible assets	**1 683**
Tangible assets	**2 040 721**
Buildings	122 327
Land and water structures, networks and devices	1 527 109
Machines and equipment	3 746
Incomplete procurements	383 789
Investments and receivables (shares and holdings)	181 383
CURRENT ASSETS	13 500
Materials and supplies	1 713
Sales receivables	14 217
Cash and bank receivables	-2 429
TOTAL ASSETS	**2 078 199**

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Water services: cheap or expensive?

Metered charges 2020
(water and wastewater) 3.23 €/m^3

Basic rate
(detached house, 4 residents) 10.94 €/month

Water consumption 137 l/res./day

➡ **53 cents/res./day**

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Water tariffs

1. Metered charges

- The water rate (€/m^3) is collected for supplied water according to the measured consumption
- The wastewater rate (€/m^3) is collected for each invoiced cubic metre of water

2. Basic rates

- Collected based on the use, property type and the floor area class of the property. Divided into the basic charges for water, sewage and stormwater

3. Connection fees

- Divided into the connection fees for water, sewage and stormwater

4. Service fees

- Service fees for e.g. the connections to HSY networks are billed according to the price list

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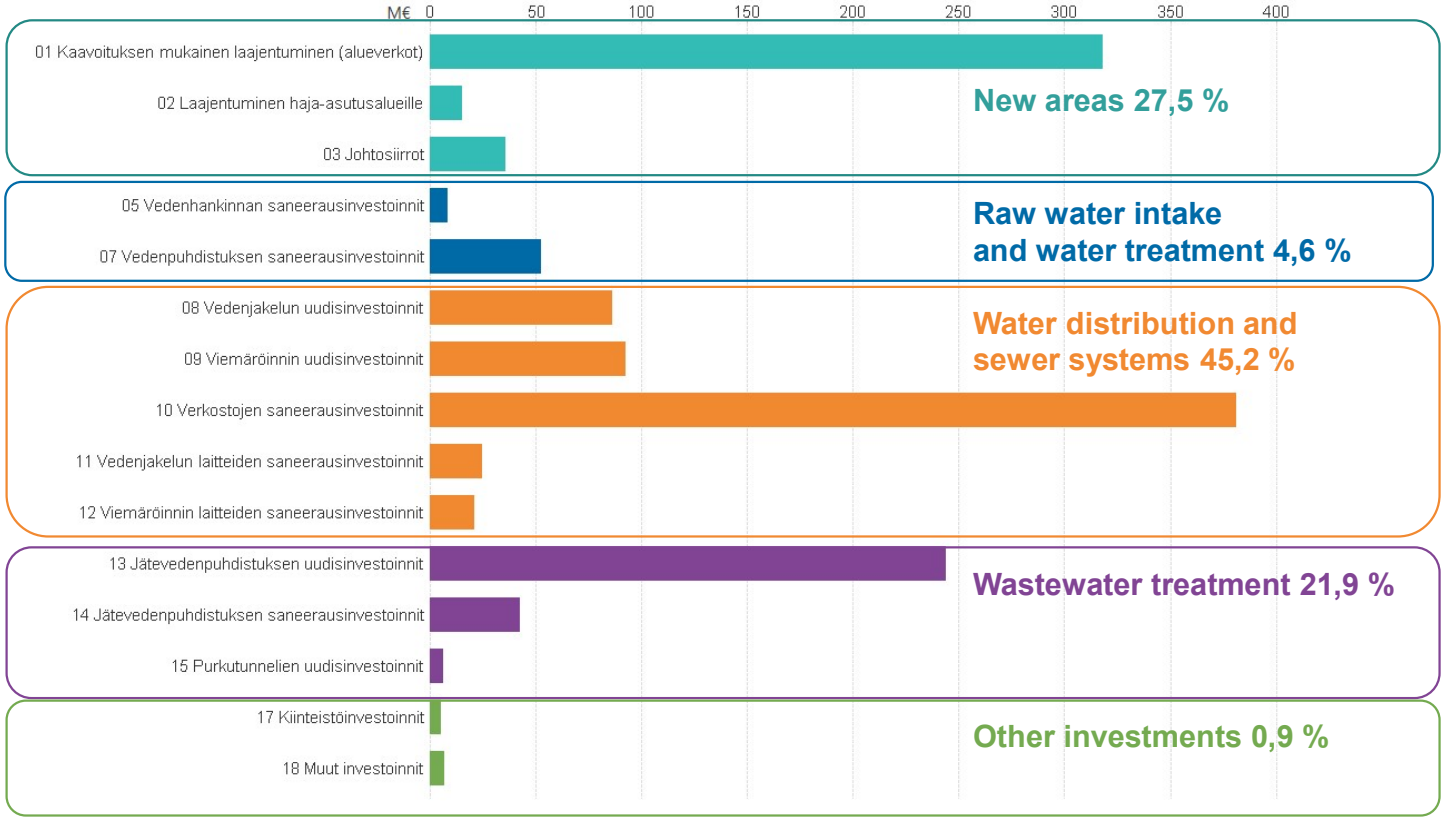
Investment programme 2019-2028



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Summary of the strategic projects of Water services

MISSION:

To be an enabler of a clean and sustainable urban environment

STRATEGIC GOALS:

Forerunner in environmental responsibility and resource efficiency

Highly reliable

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Summary of the strategic projects of Water services

Strategic project		Description
Increasing the reliability of water production and distribution	Increasing the capacity of water treatment (€39.55 million).Completion date in 2024.	The production capacity of the Pitkäkoski plant will be increased to 9000 m3/h by renovating existing process parts, removing production bottlenecks and replacing devices and methods that are obsolete, expensive or in poor condition with modern environmental and energy-efficient solutions.
	Securing water distribution of Vantaa	Strengthening of water distribution in Myyrmäki, Tikkurila and Hakunila pressure circuits. Water tower in Hiekkaharju to ensure water distribution in Eastern Vantaa, will be completed in 2020.
Securing wastewater treatment capacity	Blominmäki wastewater treatment plant (€390 million). Completion date in 2022.	Constructing a new biochemical wastewater treatment plant in Blominmäki, (550,000 res. PE, 150,000 m³/d) along with approx. 19 km of inlet and discharge tunnels.

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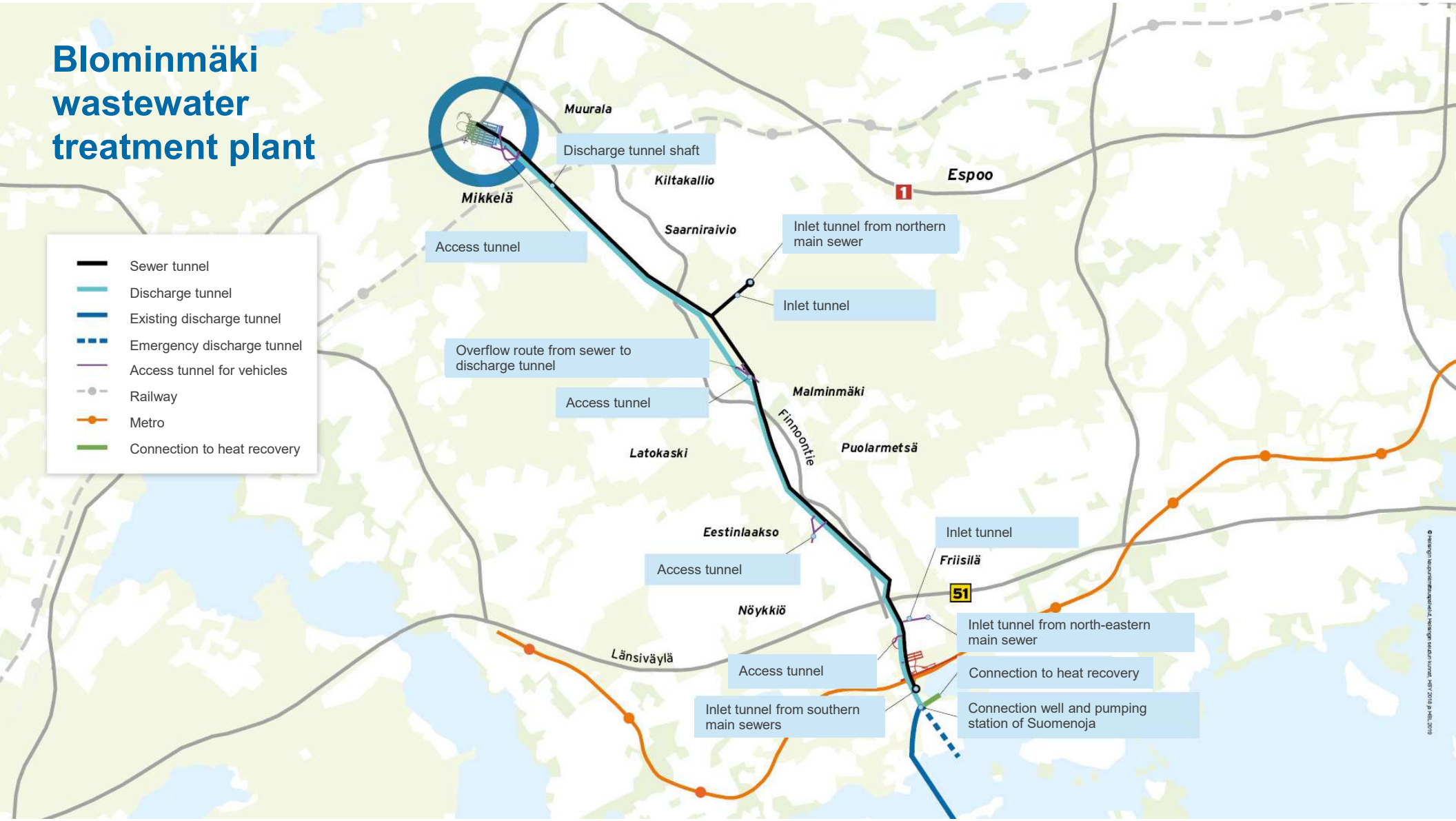
Blominmäki wastewater treatment plant

- To be completed in 2022
- Will replace the current Suomenoja wastewater treatment plant
- Will treat the wastewater of 400,000 residents

Blominmäki wastewater treatment plant



Good citizen and a service provider

- Co-operation with member municipalities
  - Contingency plans
  - Baltic Sea Challenge
  - Climate change
  - Enabling growth and development of the area
  - Storm water management plans
  - Investment planning
  - Maintenance planning
  - …close connections in many ways and on many levels… same goals…
- Co-operation with other municipalities
  - Based on agreements
  - HSY more like a service provider

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Our work with society stakeholders and international partners (case WWTPs)

- More than 4000 visitors annually
  - Schoolchildren and students
  - Group of experts and VIPs from all over the world
- 15-20 trainees annually
- 1 to 2 thesis every year
- Research and development
  - Participation in several studies
  - Own R&D work
- Education
  - Teaching material
  - Teaching in Aalto University
  - Several articles and publications annually

- Cooperation
  - Developing wastewater treatment with SWTP / Ecovod in St. Petersburg
    - Twinning 1995-2006
    - Maintenance Management 2009-2011
    - Micro Plastics 2014 (HELCOM)
  - Consulting
    - BSAG
    - John Nurminen Foundation
- International cooperation
  - Nordic wastewater treatment plants
  - Nordic wastewater conference / NORDIWA
  - TAG by ISLE utilities, EBC,…
- Lobbying
  - Finnish Water Association (FIWA)
  - National biogas producers association
  - EUREAU

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Topics

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6. Something to discuss…

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Development planning of water services

Henna Luukkonen

29.1.2019

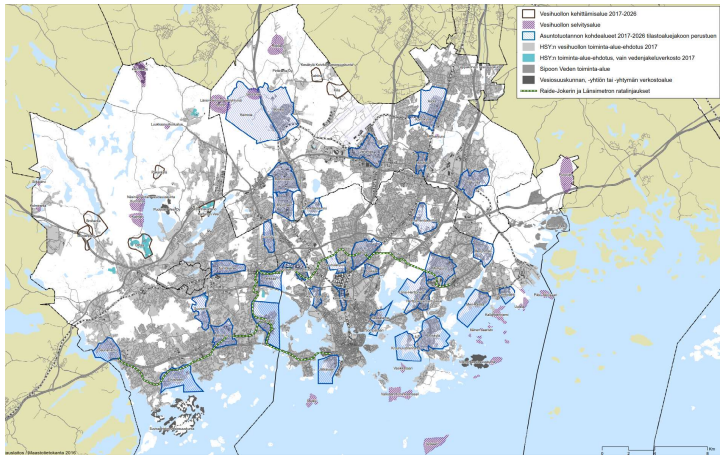
Development plans

- HSY organises the planning project but the cities are responsible for development planning → **cooperation**!
- HSY and its member municipalities have agreed that development plans are updated once in four years
- Each municipality has their own development plan and development plan concerning the whole HSY area is generated from these plans
- Development plans are made for next 10 years
- Decision making: member municipalities approve their own development plan. HSY approves the development plan for the whole HSY area after that.

Water Services Act

A municipality shall develop water services and sewerage in its territory in accordance with the development of communities so as to meet the objectives of this Act in cooperation with the water utilities in its territory.

Main map of the development plan: blue areas are statistical areas that will have the most significant population growth in 10 years



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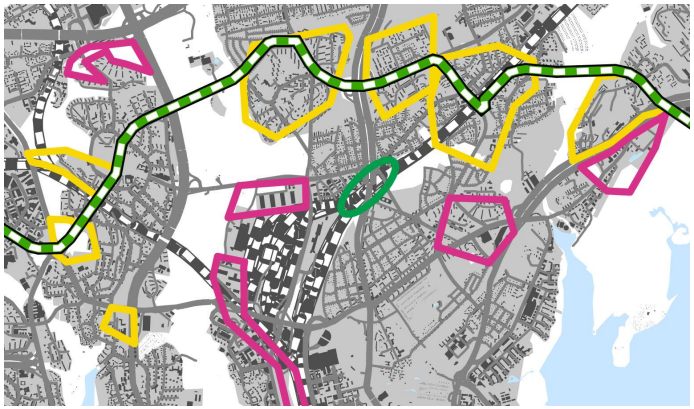
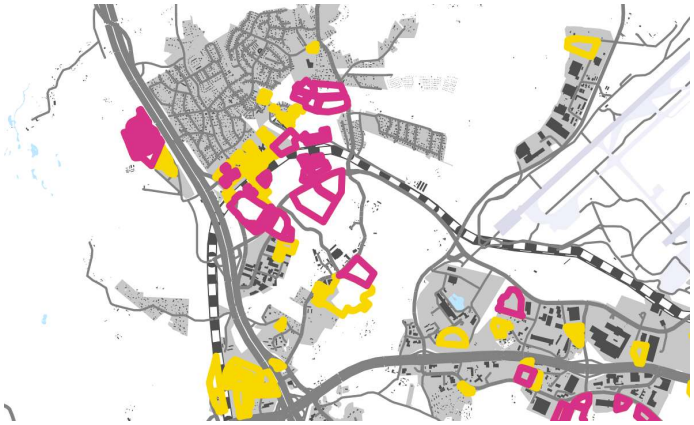
The content of the development plans

- The main goal of development plans is to identify areas where water services will be extended (build)
- The need for water services is mainly based on the needs set in city planning
  - New areas, for example: Jätkäsaari, Kalasatama, Pasila Kivistö, Suurpelto, Kruunuvuorenranta (pink areas in the map)
  - Changes in the land use, for example: Länsimetro route, Raide-Jokeri route (yellow areas in the map)
- During the planning process areas that will develop significantly in a longer time period than 10 years were identified and marked to the maps (green areas in the map)
  - Examples: Östersundom, Malmi Airport area





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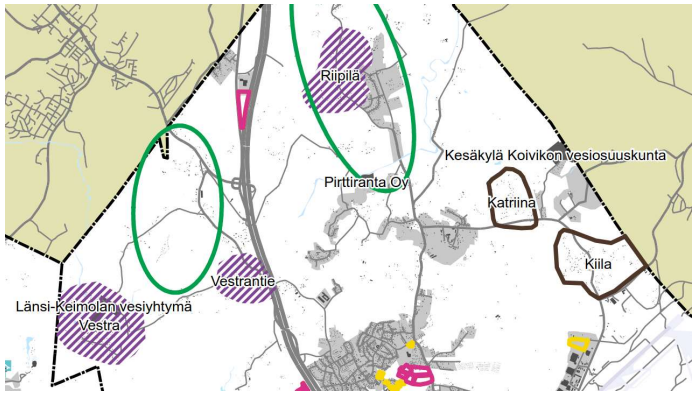
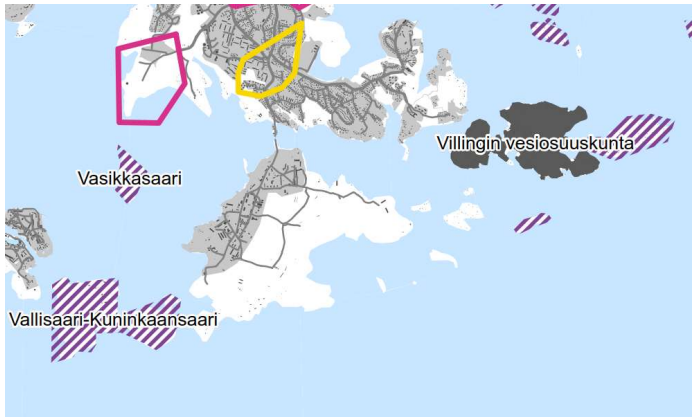
The content of the development plans

- The need of water services in sparsely populated areas (rural areas, islands etc.) is evaluated during the planning process and following areas were detected:
  - Development areas: HSY will build water and/or wastewater networks in the area in a timetable that is estimated in the development plans (brown areas in the map)
    - The need for water services is based on relatively large number of inhabitants or health or environmental protection reasons
    - Areas are identified by using GIS analysis
  - Inspection areas: The need for water services must be investigated more closely before decision can be made (purple areas in the map) → These areas do not meet the criteria set for development areas





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Questions? Or something to discuss…

- How would you define and measure ”sustainable water services”?
- Governance in HSY is a mixture of laws, permits, agreements, habits,… and it is changing all the time…

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Topics

Introduction and some background

1. Water Services in Europe, some examples
2. Water Services in Finland
3. Helsinki Region Environmental Services Authority (HSY)
4. HSY Water Services
5. From strategy into actions: Energy Efficiency
6. Development plans
7. **Something to discuss…**

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Finally…


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

HSY

Danva


Sustainable development goals and the water sector
Core tasks of water companies
Goals depending on water companies
New tasks and other relevant goals
6 CLEAN WATER AND SANITATION
11 SUSTAINABLE CITIES AND COMMUNITIES
3 GOOD HEALTH AND WELL-BEING
14 LIFE BELOW WATER
4 QUALITY EDUCATION
5 GENDER EQUALITY
7 AFFORDABLE AND CLEAN ENERGY
13 CLIMATE ACTION
17 PARTNERSHIPS FOR THE GOALS
15 LIFE ON LAND
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

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Van de Meene et al.: Towards understanding governance for sustainable urban water management / Abstract

“Shifting from traditional, large, centralised infrastructure to alternative, distributed technologies is widely accepted as essential for enabling sustainable water management. Despite technical advances in sustainable urban water management over recent decades, the shift from traditional to more sustainable approaches remains slow. Current research on socio-institutional barriers suggests this poor implementation relates to a limited understanding of the different forms of governance needed to support alternative approaches, rather than the potential ineffectiveness of the technologies and practice.” (...)

- **Do you agree?**
- **Can you name an example to support the conclusion of Meene et al. from the utility’s point of view?**

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Thank You for your kind attention!

Helsingin seudun ympäristöpalvelut -kuntayhtymä
Samkommunen Helsingforsregionens miljötjänster
Helsinki Region Environmental Services Authority