

From waste management to circular economy solutions

Municipal waste management company as a platform for circular economy R&D

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Lounais-Suomen Jätehuolto Oy (LSJH)

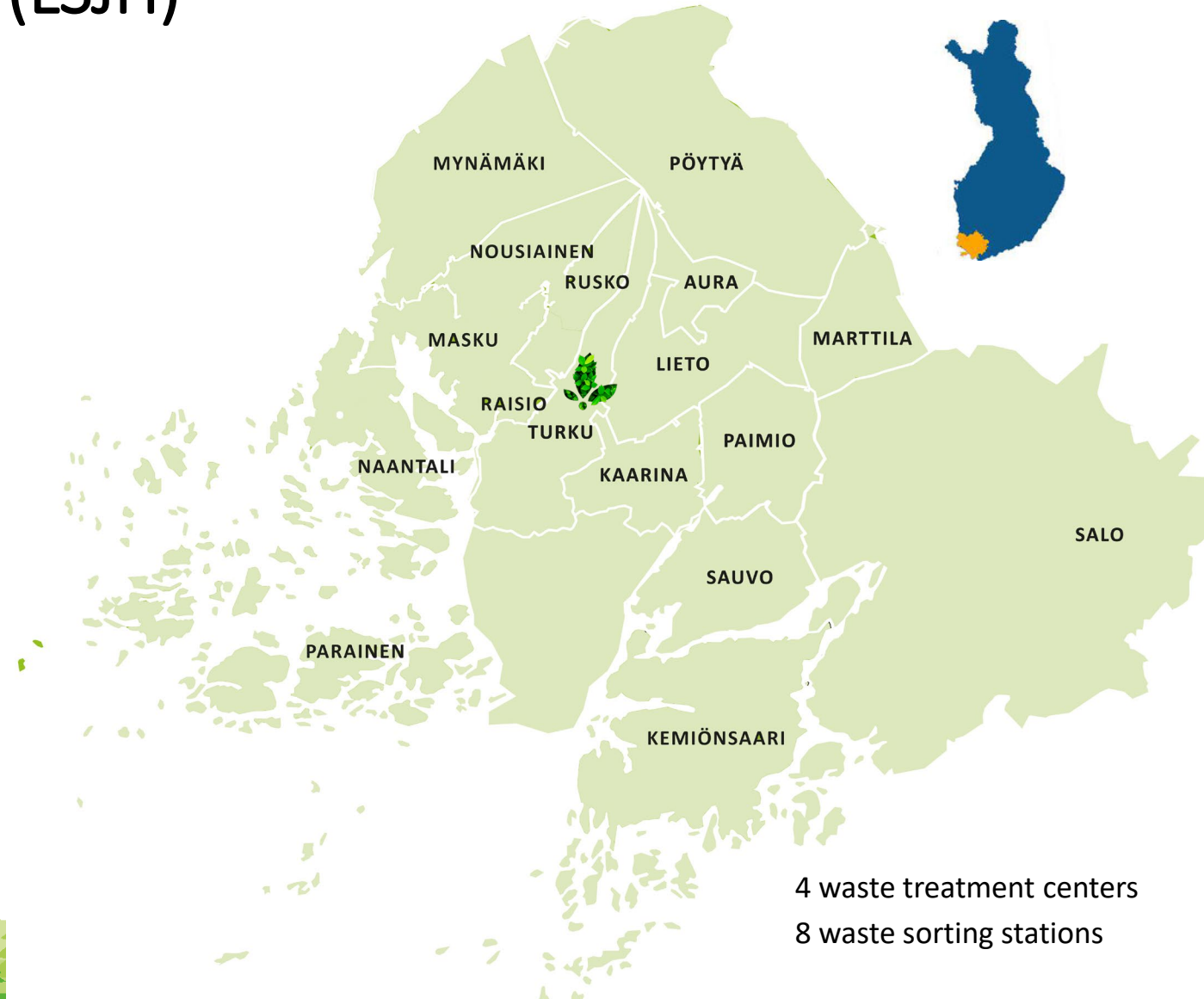
Lounais-Suomen Jätehuolto Oy (LSJH)

- Waste management for 17 municipalities
- 415 000 citizens in the area
- Turnover about 28 mil. €
- Operations funded by waste management and service payments which are decided by the municipal waste management board – **no funding by taxes!**

Ownership in Ekopartnerit Turku Oy, 2012

Partly owns Lounavoima Oy, 2018

Affiliate company Kiertomaa Oy, 2017

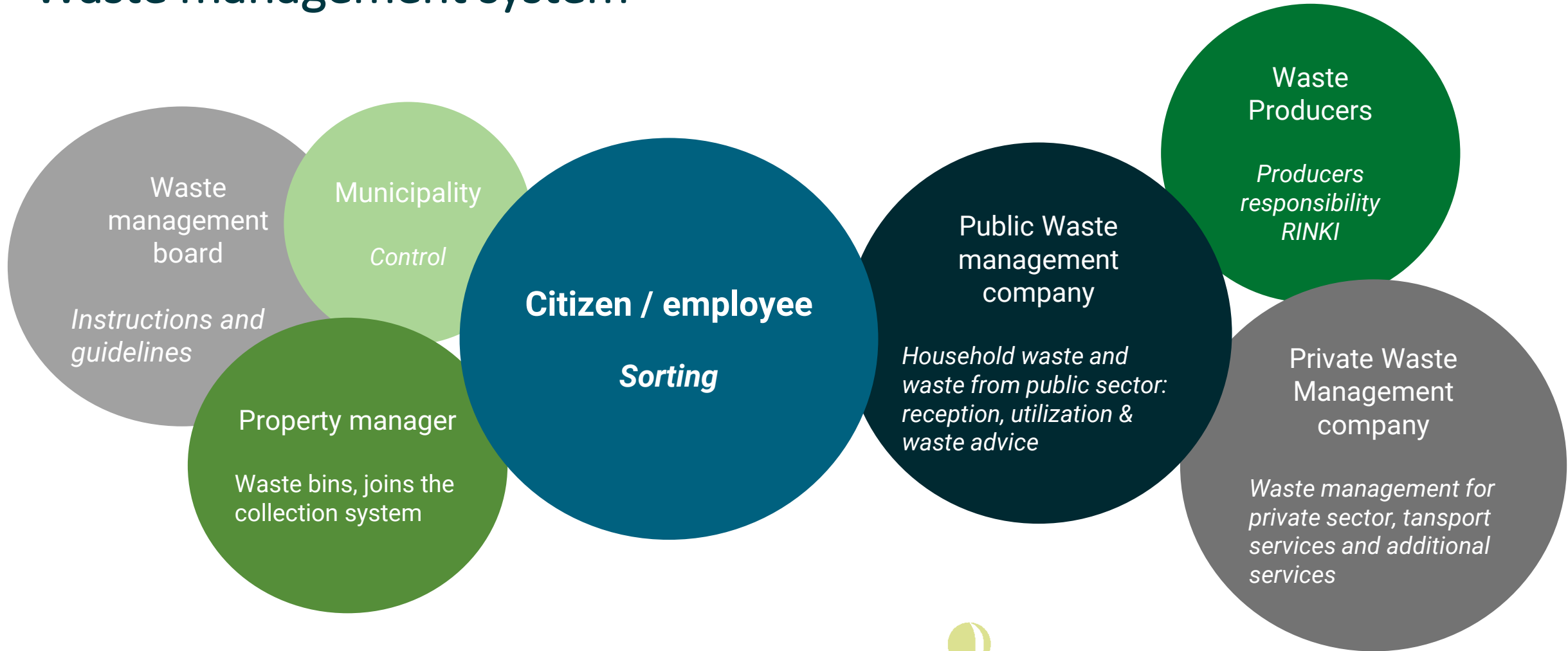


4 waste treatment centers

8 waste sorting stations



Waste management system



Among other waste, our waste centers receive up to 350 000 unrecyclable bags of waste - every single weekday.

~91 000 tonnes / year.



Waste to energy Incineration plant to be built in Salo

Lounavoima Oy

Capacity 120 000 t per year

- Uses unrecyclable municipal waste as fuel

Will save over 4 million euros in waste management costs annually

3/2019 building starts

1/2021 first incineration

6/2021 plant is ready



<https://www.lounavoima.fi/?lang=en>



Research and development in LSJH

Post consumer textile waste refining

- Textile refinement pilot plant in Turku, starting in 2020
- Material identification technology
- As a part of Telaketju -network

Topinpuisto circular economy hub and network

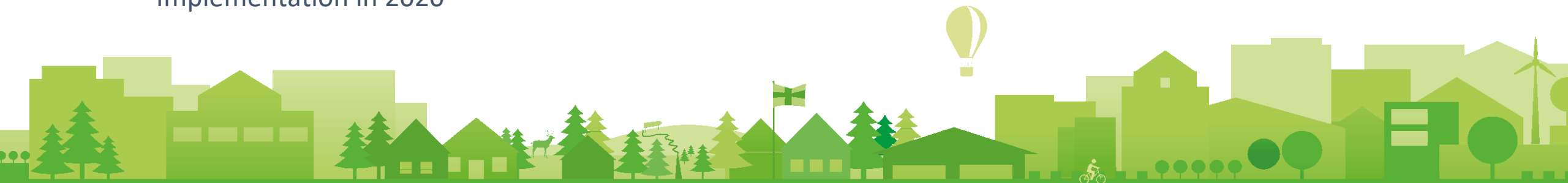
- Developing circular economy hub area and cooperation network between companies
- Implementation in 2020

Other internal projects t. ex.

- Waste tracking and statistics
- Waste software development coordination
- Developing digital channels in customer services

Our team started in september 2018

- 5 employees
- expertise of whole staff trough projects
- Cooperation with local universities





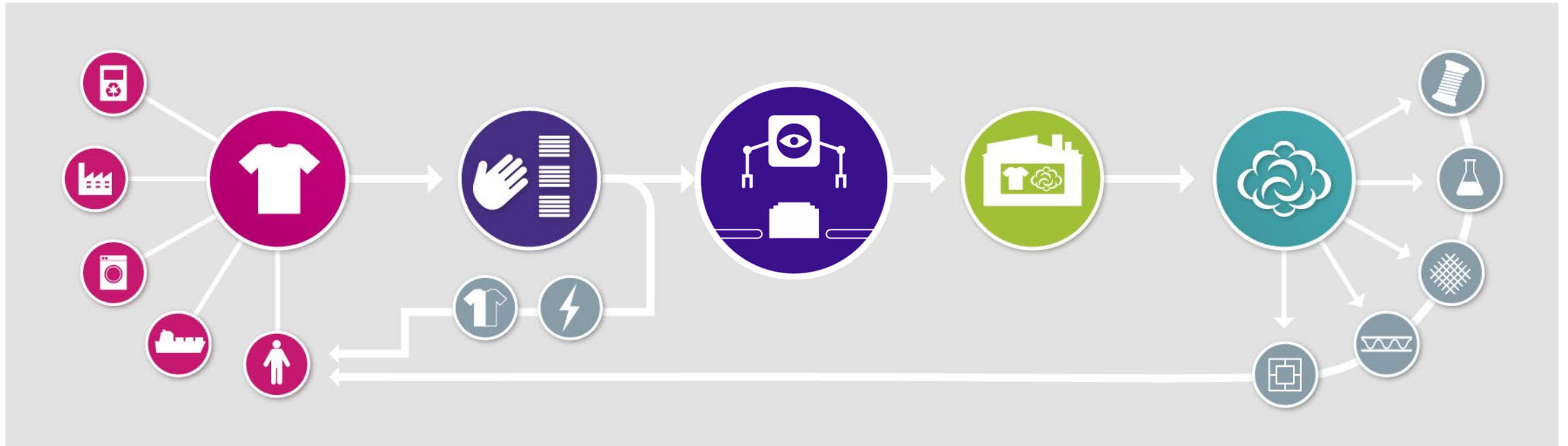
Textile refinement plant

www.telaketju.fi

#poistotekstiili #telaketju @poistotekstiili



Comprehensive solution



COLLECTION

AREAL
PRE-SORTING

OPTICAL
MATERIAL
IDENTIFICATION
AND SORTING

REFINEMENT
PLANT

FROM FIBERS
TO FINAL
PRODUCTS



Sorting and refinement plant

- Pilot plant 2019 - 2021
 - Pilot project funding granted by Business Finland and Ministry of Economic Affairs and Employment
 - Co-funding by 29 public waste management companies
 - Investment decision from fiber opening line 11/2019
 - Collection, sorting and recycling demos with partners
 - Development of material identification and refining technologies
 - Target for reuse and recycling rate - 30-50%
 - Capacity increase from 1 000 up to 5 000 Tpa



Inside the refinement plant



AUTOMAATTINEN
LAJITTELU



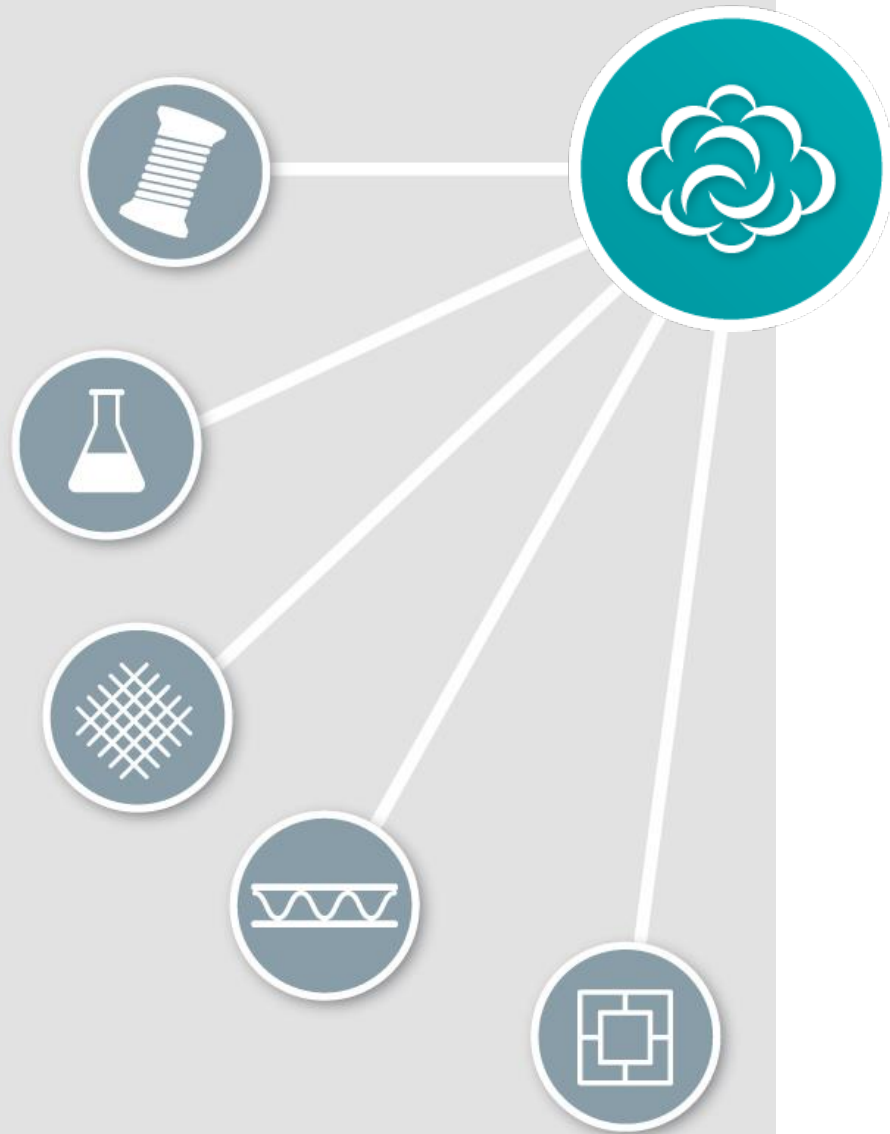
LEIKKAUS
SILPUKSI



KOVIEN OSIEN
POISTO



KUITUJEN
AVAUS



Industrial partnerships

- Sorted textiles to be mechanically refined into recycled fibers
 - 100% Cotton
 - 100% Polyester
 - 100% Wool
 - 100% Viscose
 - 100% Polyamide
 - 65%/35% Co/Pes
- Ability to supply the textile industry with recycled raw materials
 - Process and product development in cooperation with customers/partners
- High added value ensured by high quality sorting systems

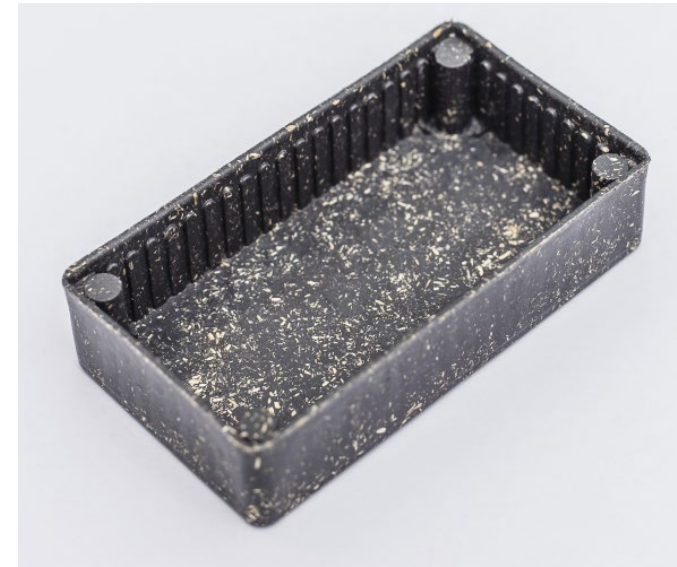
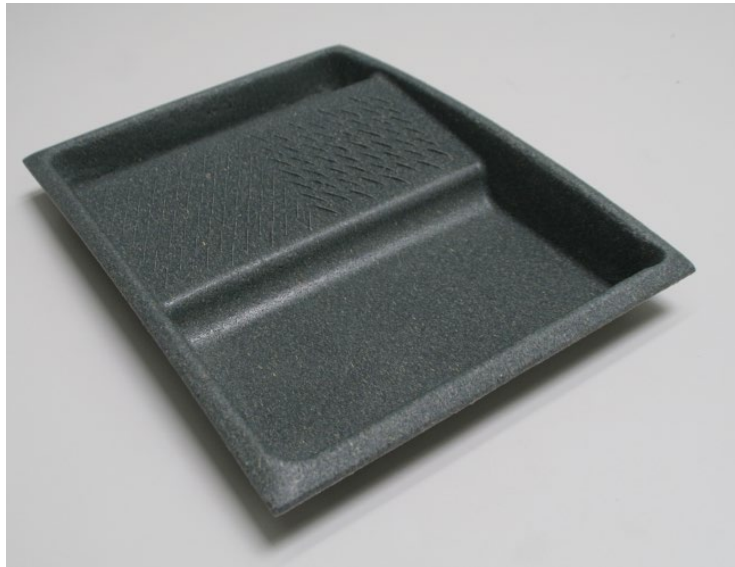


Recycled fiber as raw material





Recycled fiber as raw material



Collection and co-operation in Baltic Sea region



- 2021– 2024 Finnish full scale refinement plant
 - Capacity to match national textile volumes and needs
 - Contracts with textile refinement fiber users
 - Target for reuse and recycling rate over 50%
 - Capacity from 5 000 up to 20 000 Tpa
 - Nordic co-operation – interests and needs
- 2024 – Nordic refinement plant?
 - Services for Baltic Sea region
 - Capacity increase from 20 000 up to 100 000 Tpa





Topinpuisto circular economy network

   @Topinpuisto

www.topinpuisto.fi


Topinpuisto

What is Topinpuisto?

Topinpuisto is an circular economy hub and a network of circular economy experts.

The Topinpuisto hub in Turku is formed around the utilisation of central material, water, and energy flows, as well as the development of new services.

Currently 6 environmental companies operate in the area and control over 60 different waste and material streams.



Current situation in the area

1. Scale services
2. Transfer field
3. Bio waste hall
4. Transfer bunker for burnable waste
5. Sorting station
6. Vantage point
7. Collection of landfill gas
8. Eko-Topila
9. Topila field
10. Trap and gully waste treatment
11. Biogas plant
12. Treatment of land material
13. Balancing reservoir
14. Metsä-Topila
15. Recycling of metals



Network

The network includes various circular economy achievers, companies, start-up companies, business accelerators, research entities, and public operators.



Learning environment

Accelerate your circular economy business together with multidisciplinary students:

- Pilots
- Research
- Project hatcheries
- Other cooperation models

<https://www.youtube.com/watch?v=qBu4nmhnL8c>



The future



Circular economy visitor centre

The Circular Economy Visitor Centre is planned to be located in the Topinpuisto area. The centre will be a meeting place for new innovations and solutions. The Visitor Centre offers wide range of office and event services.

Both citizens and companies can learn about circular economy solutions and participate in developing new ones in a practical manner.

The baselines for the Visitor Centre are:

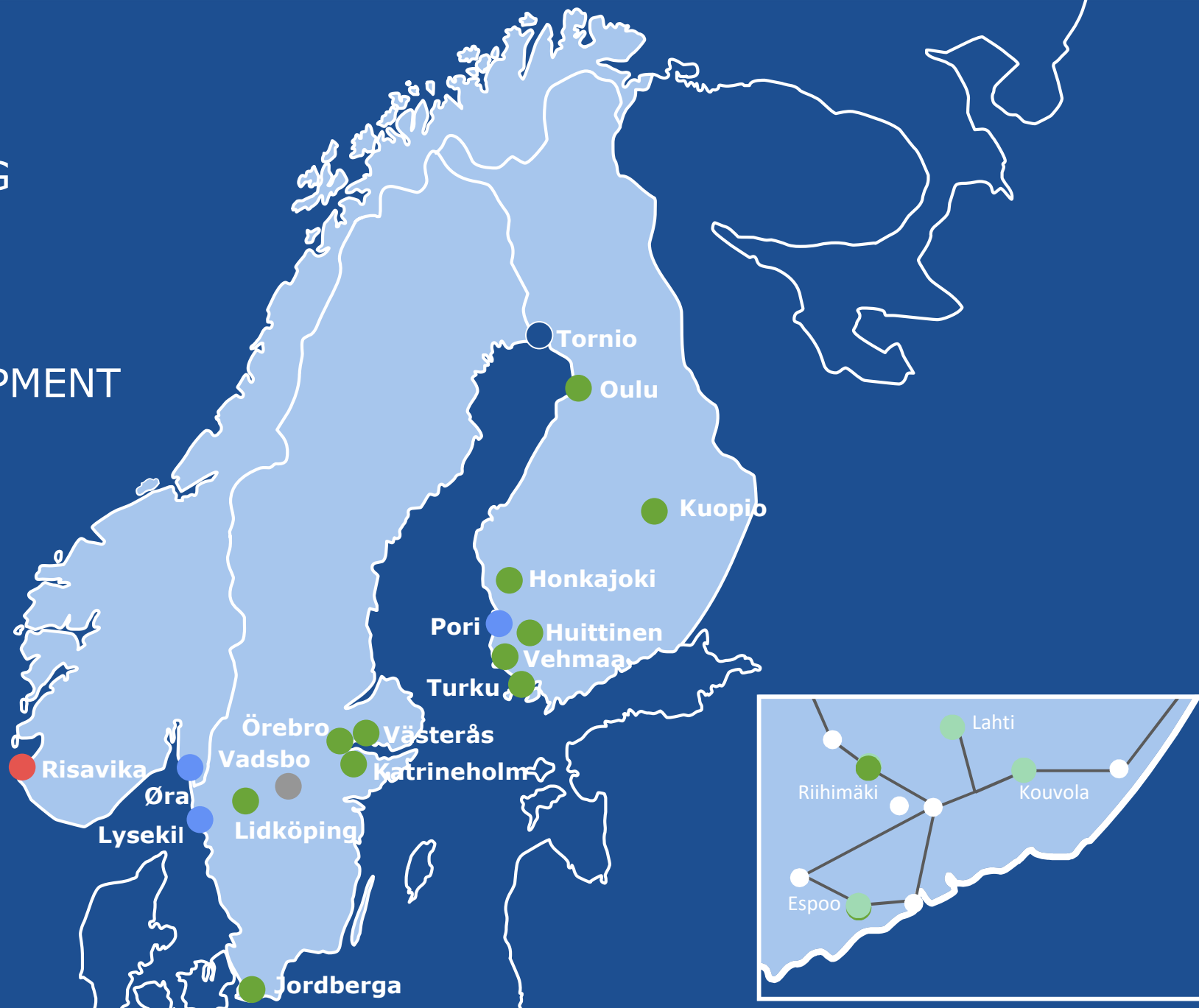
- Experiment and experience
- Learn and develop
- Exhibit your business and expand you networks



- In the year 2018 Visitor centre Kahmari had 3500 guests from over 20 countries
- Circular economy –pilot exhibition got over 2500 guests in Visitor centre Joki

GASUM IS DEVELOPING THE NORDIC GAS ECOSYSTEM AND PROMOTING SUSTAINABLE DEVELOPMENT

- LNG production plant
- LNG terminal
- LNG terminal (joint project)
- Gasum, biogas
- Gasum, biowaste and biogas
- Biogas production plant (joint project)



BIOGAS PRODUCTION PLANTS – OVERVIEW



Kouvola

- From 2011
- Capacity: 14 GWh/a
- Waste treat: 19 kt/a



Vehmaa

- From 2005
- Capacity: 30 GWh/a
- Waste treat: 90 kt/a



Turku

- From 2009
- Capacity: 61 GWh/a
- Waste treat: 95+35 kt/a (septic)



Riihimäki

- From 2016
- Capacity: 45 GWh/a
- Waste treat: 75k t/a



Oulu

- From 2015
- Capacity: 35 GWh/a
- Waste treat: 60k t/a



Kuopio

- From 2014
- Capacity: 35 GWh/a
- Waste treat: 60k t/a



Huittinen

- From 2010
- Capacity: 35 GWh/a
- Waste treat: 60 kt/a



Honkajoki

- From 2014
- Capacity: 35 GWh/a
- Waste treat: 60 kt/a



Espoo

- From 2012
- Capacity: 27 GWh/a



Lahti

- From 2013
- Capacity: 50 GWh/a



Jordberga

- From 2014
- Capacity: 110 GWh/a



Katrineholm

- From 2010
- Capacity: 28 GWh/a



Örebro

- From 2009
- Capacity: 55 GWh/a



Västerås

- From 2014
- Capacity: 29 GWh/a



Lidköping

- From 2011
- Capacity: 65 GWh/a



Vadsbo (50%)

- From 2014
- Capacity: 18 GWh/a



Nymölla

- From 2021
- Capacity: 75 GWh/a



Lohja

- From 2021
- Capacity: 40 GWh/a

- **Plants: 16+2**
- **Waste treatment: 900 000 tn/a**
- **Gas production: 800 GWh**
Finland: 420 GWh
Sweden: 380 GWh

TURKU, IN FINLAND

- Capacity:
 - Waste treatment capacity 110,000 tn/a
- Liquified biogas production 61 GWh/a.
- Fertilizer production
 - Concentrated Ammonia water 4,000 tn/a
 - Soil compost 80,000 tn/a
- Special:
 - Evaporator & stripping unit → high quality Ammonia water concentrate
 - The first LBG production plant in Finland
 - Cesspit sludge reception



Started 2009, extension 2019



**Turku biogas plant
production:**

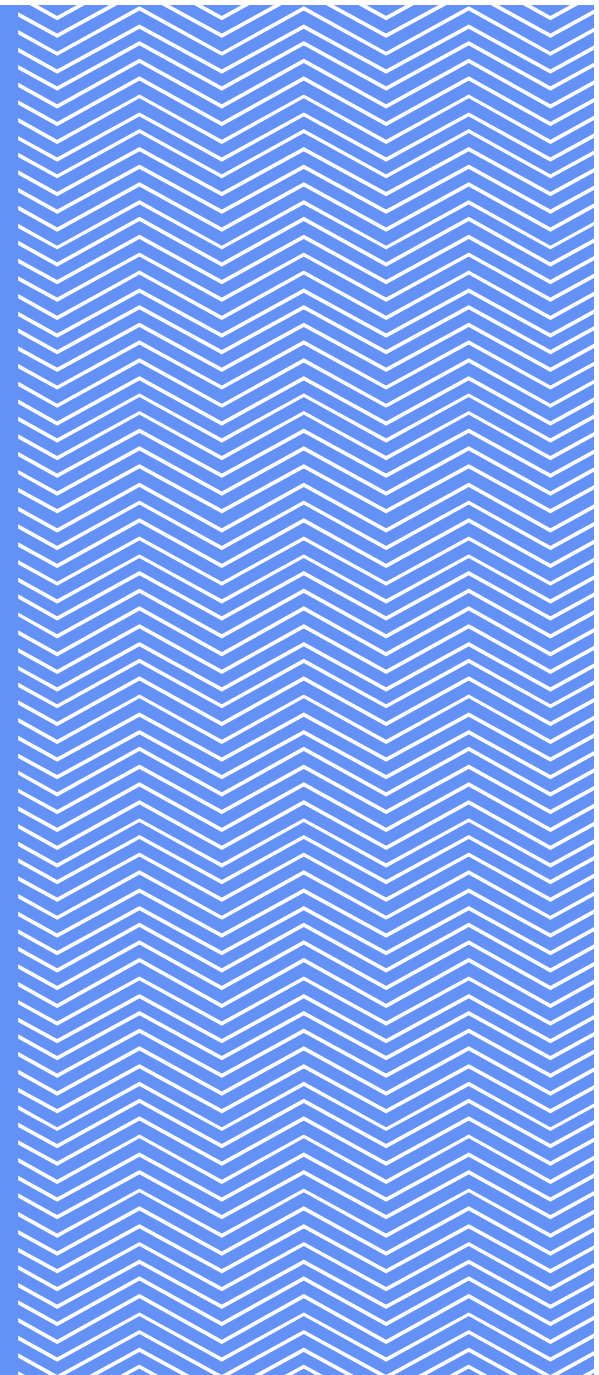
Biogas for 150 trucks

or

for 200 buses

or

for 6 000 personal cars



Thank you!

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<https://www.lsjh.fi/en/>

