

HELCOM nutrients recycling strategy – the current state

Dmitry Frank-Kamenetsky
Professional Secretary, HELCOM Secretariat

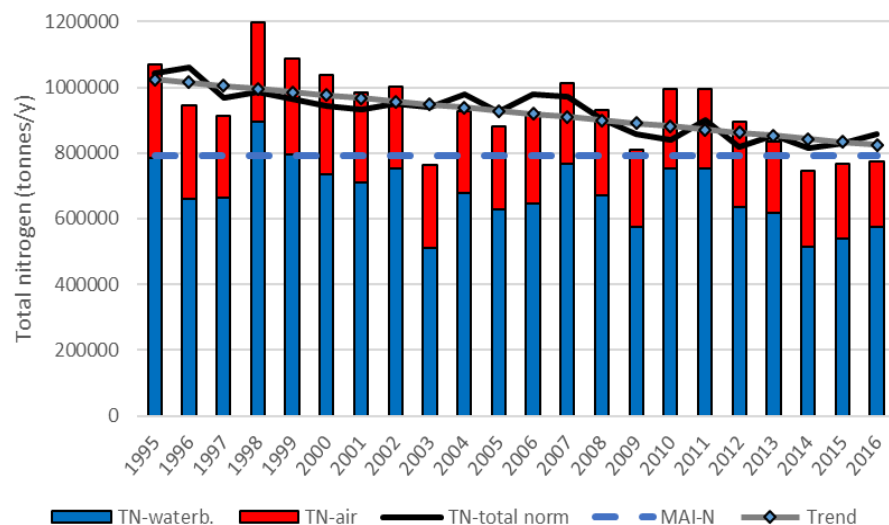


© METSÄHALLITUS NHS

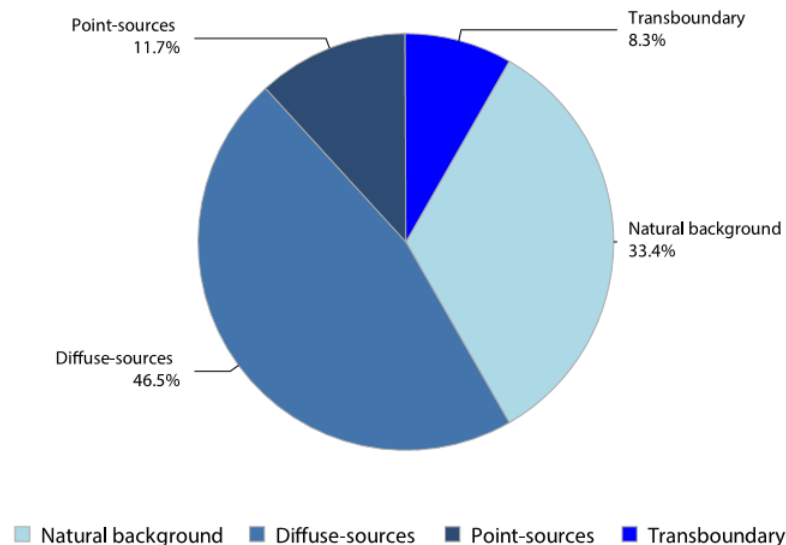


HELCOM

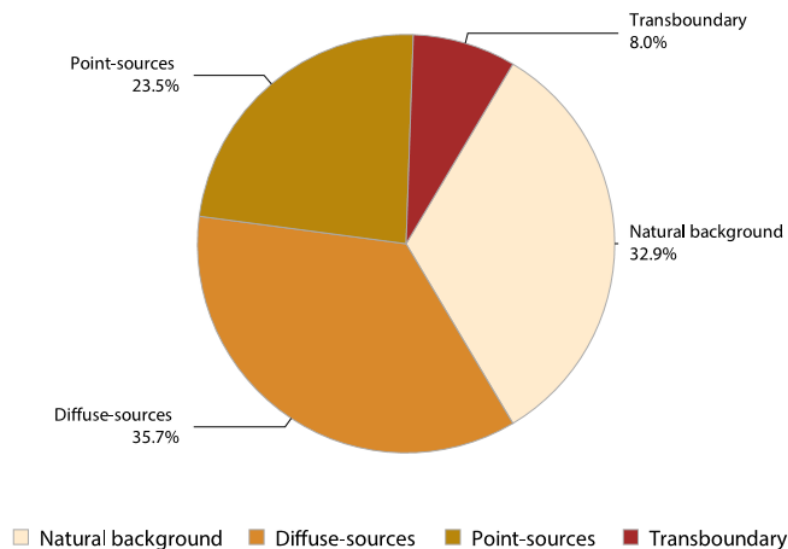
TN BAS



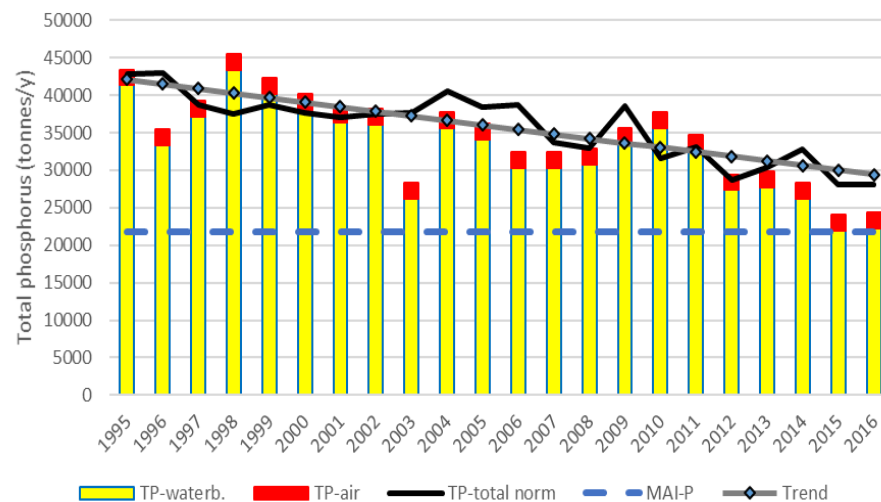
TN (529,583 tonnes)



TP (22,273 tonnes)



TP BAS



HELCOM

Recycled nutrients can replace traditional fertilizers

The total amount of recyclable phosphorus

26 000 t / year



360 t

Food industry side streams



230 t

Sludges from pulp and paper industry



2 880 t

Municipal sewage sludge



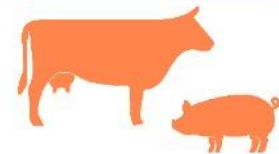
730 t

Municipal biowaste



2 540 t

Surplus grass



19 300 t

Livestock manure

26 000 t =

The portion of recyclable phosphorus would easily cover the amount needed for all of Finland's annual plant production.

>100%



The agricultural consumption of traditional inorganic phosphorus in 2015 was

11 000 t.

What is phosphorus?

Phosphorus is an element mined from the ground, used as a fertilizer to improve plant growth. Phosphorus becomes a problem when it flows into water bodies, where it causes algal blooms and increases eutrophication.

SOURCE: Marttinen et al.: Towards a breakthrough in nutrient recycling – State-of-the-art and recommendations for developing policy instruments in Finland. Natural resources and bioeconomy studies, Luke 45/2017.



HELCOM



Municipal waste water treatment
in accordance with
HELCOM RECOMMENDATION 28E/5
removes 70-90% of phosphorus.



**3.5 million ton of dry solids
per year in the BS region**

PURE project

Quick calculation based on
pessimistic assumptions on P content
and recovery gives:

- 21 th. t/P per year
- 270 th. t of phosphate rock
- 30 mln. dollars



HELCOM

Challenges for nutrient recycling

Extract from outcomes of HELCOM Workshop on regional nutrient recycling strategy, 6 November 2018

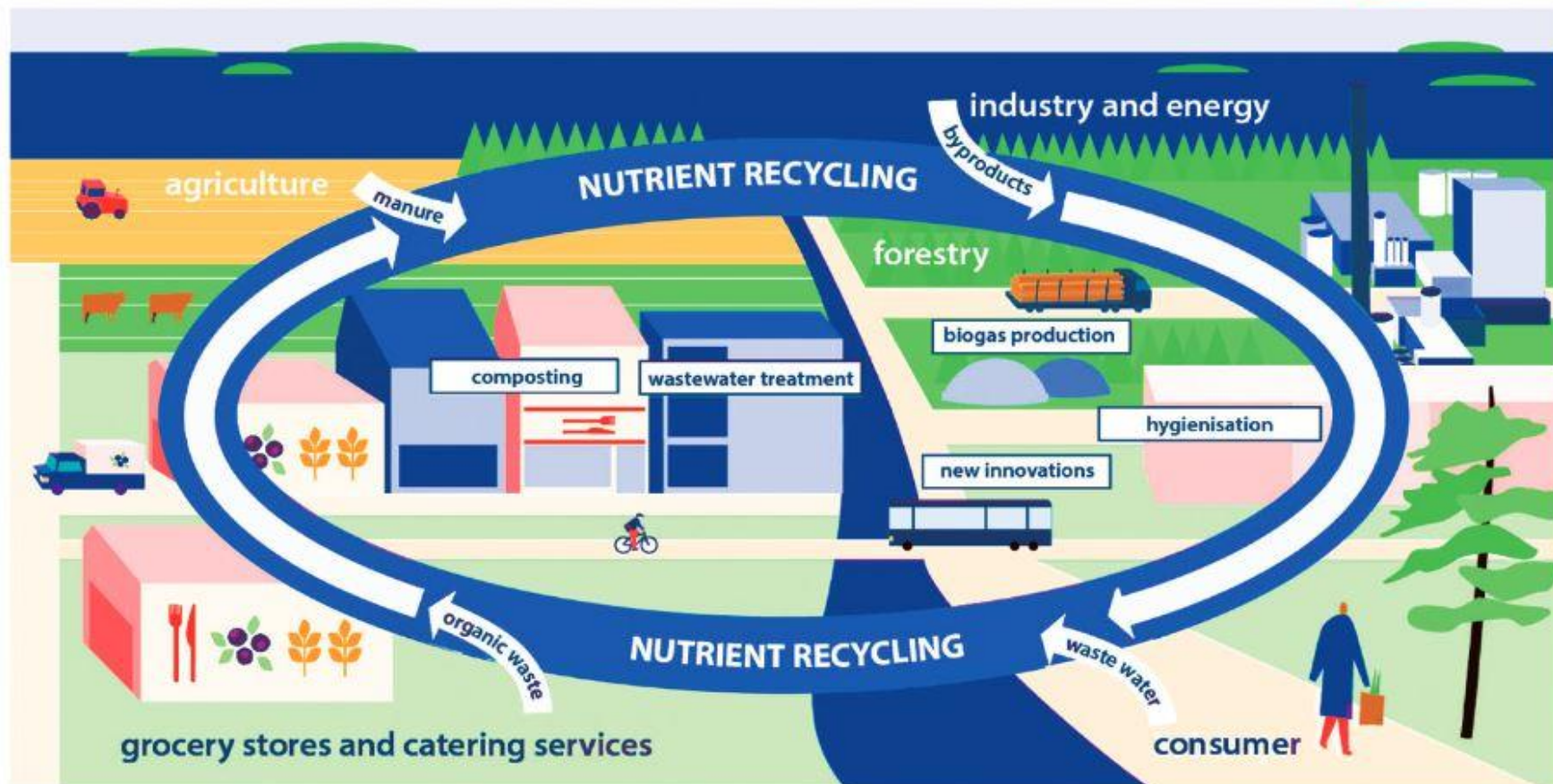
- Awareness and motivation - lack of understanding why to recycle nutrients;
- Risk of contamination - lack of assurance that recycled nutrients are safe to use;
- Challenges in farming practices and technologies together with disbalance in agricultural plant and animal production;
- Lack of holistic cross-sectoral approach



HELCOM

Recycle nutrients for clear waters

GOVERNMENT
KEY PROJECT



Recycled nutrients can be turned into fertilisers and soil amendments which are utilised in food production and forestry.



HELCOM

HELCOM Ministerial Meeting 2018:

Baltic Sea Regional Nutrient Recycling Strategy by 2020

- Aim:
 - Reduced nutrient inputs to and eutrophication of the Baltic Sea
- Principles:
 - Measures at source rather than end-of-pipe solutions
 - Best available scientific knowledge
 - Safe recycling of nutrients especially from manure and sewage
- Step-by-step approach:
 - Vision
 - Objectives
 - Measures to be included in the updated Baltic Sea Action Plan



HELCOM

DRAFT VISION

Nutrients are managed sustainably in all HELCOM countries, securing the productivity of agriculture and minimizing nutrient loss to the Baltic Sea environment through efficient use of nutrients and cost-effective nutrient recycling.



HELCOM

Baltic Sea region as a model area for nutrient recycling

- Increasing nutrient use efficiency
- Increasing the circulation of the available nutrient resources and reducing nutrient inflows to the region
- Utilizing nutrient rich organic residues originating from areas with high nutrient surplus for production of fertilizer products

Reducing environmental impacts

- Reducing nutrient losses to the Baltic Sea area and closing nutrient cycles
- Reducing greenhouse gas emissions
- Reducing ammonia emissions
- Utilizing appropriate solutions to recycle nutrients for the specific conditions preventing contamination of the environment
- Improving soil quality and enhancing carbon sequestration by using organic fertilizers
- Promoting/advancing site specific optimized fertilization plans

Safe nutrient recycling

- Minimizing the risks for humans and environment posed by contamination



Improving policy coherence

- Increasing cooperation of governmental agencies to improve policy coherence
- Updating legal framework to facilitate nutrient recycling

Creating business opportunities

- Encouraging new business models with cross-sectoral cooperation
- Improving the economic viability of nutrient recycling

Knowledge exchange and awareness raising

- Promoting new research and technological development
- Increasing research and knowledge sharing on risks and safe practices
- Facilitating knowledge transfer and information exchange on nutrient recycling
- Cooperating with other regions and global organizations to exchange information on the most up-to-date knowledge and techniques
- Raising awareness of the benefits of nutrient recycling
- Promoting holistic view of food production



HELCOM

HELCOM framework for the development of the nutrient recycling strategy

Finland is leading the development.

The Strategy development is one of the priorities for the **EU SBSR PAs Hazards and NUTRI**.

HELCOM Working groups **AGRI** and **PRESSURE** are committed to develop the Strategy



HELCOM

Anticipated contribution

INTERREG BSR water project platform

Palette of solutions to recycle P in WW sector - measures on safe recycling of nutrients from sewage.

PLATFORM
BSR WATER



INTERREG SuMaNu project platform

Sustainable management of nutrients in agriculture – measures on efficient recycling of nutrients in agriculture.



HELCOM



Seppo Leimonen 2018/seppo.net



HELCOM