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Balt-Plast-Free

Monitoring and quantification of microplastics emissions and measures to decrease microplastics pollution from Finnish and Estonian WWTPs into the Baltic Sea

Johanna Puranen, Project Manager, Mikkeli Development Miksei Ltd.

Why Balt-Plast-Free Matters?

- **Knowledge gap:** Microplastic (MP) emissions from Finnish and Estonian WWTPs remain largely unknown, while the Baltic Sea is among the world's most polluted seas globally. MPs from wastewater pose a growing threat to its ecosystem and human health.

- **Regulatory pressure:** New EU regulations, such as the Urban Wastewater Directive (2024), require advanced treatment and monitoring of MPs emissions, creating urgent needs for compliance, cost-effective solutions, and operational readiness.

- **Shared responsibility:** Finland and Estonia must collaborate across borders to protect the Baltic Sea by developing, piloting, and sharing effective solutions.

Our contribution: Balt-Plast-Free leads the way – setting standards, piloting innovative technologies, and empowering WWTPs to meet future requirements for a cleaner, healthier Baltic Sea.

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An Integrated Approach for Real Change

combining collaboration, technology, and awareness to reduce microplastic emissions

Joint action: Finnish–Estonian collaboration with harmonized and validated protocols for sampling and analysis

Piloting: Technical measures at WWTPs in Mikkeli (FI) and Elva (EE)

Mobile lab vehicle: On-site sampling (wherever needed), training, and awareness

Target groups: WWTP staff, authorities, SMEs, researchers, and the general public

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Value and expected impact

Delivering Solutions

Innovative Solutions	• Technical measures to retain microplastics in WWTPs
Practical Tools	• Guidebooks and harmonized protocols for operators
Capacity Building	• Cross-border training to strengthen expertise
Outreach	• Mobile laboratory for on-site education and public engagement

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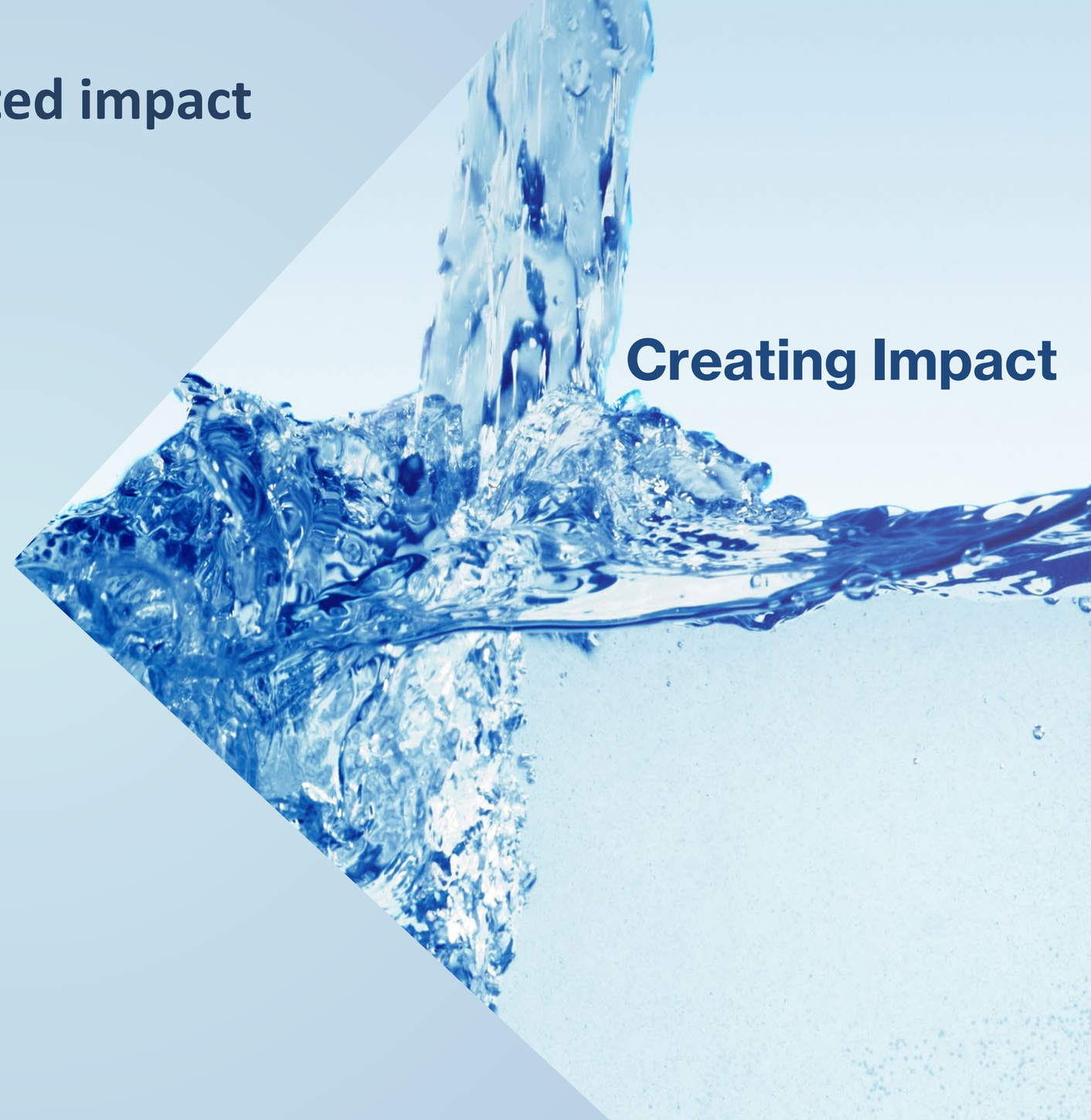
Value and expected impact

Significant reduction	• Pilots aim to cut microplastics emissions by up to 95% in treated water and sludge
Scalable solutions	• Transferable approaches for WWTPs across the region
Regulatory readiness	• Supporting compliance with new EU requirements
Awareness and action	• Empowering operators, authorities, SMEs, and communities



Creating Impact

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Lessons Learned and Implementation Insights

01 Cross-border Collaboration

Essential for tackling transboundary pollution

Lessons Learned and Implementation Insights

02 Protocol Harmonization and Validation Collaboration

Ensures reliable, comparable data

Lessons Learned and Implementation Insights

03 Early Engagement

Speeds up adoption by WWTP staff and authorities

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Lessons Learned and Implementation Insights

04 Tailored pilots

Flexibility is key for local conditions

Lessons Learned and Implementation Insights

05 Communication and Outreach

Drives impact beyond technical results

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Our Roles and Contributions

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Our Roles and Contributions

MikseiMikkeli:

Manages project coordination, pilot implementation, and communication effectively

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Our Roles and Contributions

LUT University:

Leads sampling, pilot design, TGA development, and training

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Our Roles and Contributions

KBFI:

Coordinates sampling, analysis, strategy, and training in Estonia

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Our Roles and Contributions

TalTech:

Supports digital modelling, data integration, and techno-economic assessment; harmonizes data and communicates results

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Our Roles and Contributions

EVV:

Operates Elva WWTP pilot and mobile lab

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Our Roles and Contributions

Our diverse expertise ensure every aspect of the project is covered – from technical innovation to community outreach

Duration: 1.8.2025-31.7.2028
(36 months)
Budget: 2.571.555,62 €

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Join us in protecting the Baltic Sea – your questions and ideas are welcome!