

Advancing Nutrient Circularity in the Baltic Sea Region: CiNURGi Contributions to Policy, Practice and the Future EU Bioeconomy Strategy

Event: PA Nutri Talks – EU Green Week Partner Event

Date: 9 June 2025

Location: Online Meeting

Presenters:

Erik Sindhøj, PhD
Senior Researcher
Division Bioeconomy & Health
RISE Research Institutes of Sweden
erik.sindhoj@ri.se

Cheryl Marie Cordeiro, PhD
Senior Researcher
Division Built Environment
RISE Research Institutes of Sweden
cheryl.marie.cordeiro@ri.se

interreg-baltic.eu/project/cinurgi



CIRCULAR ECONOMY

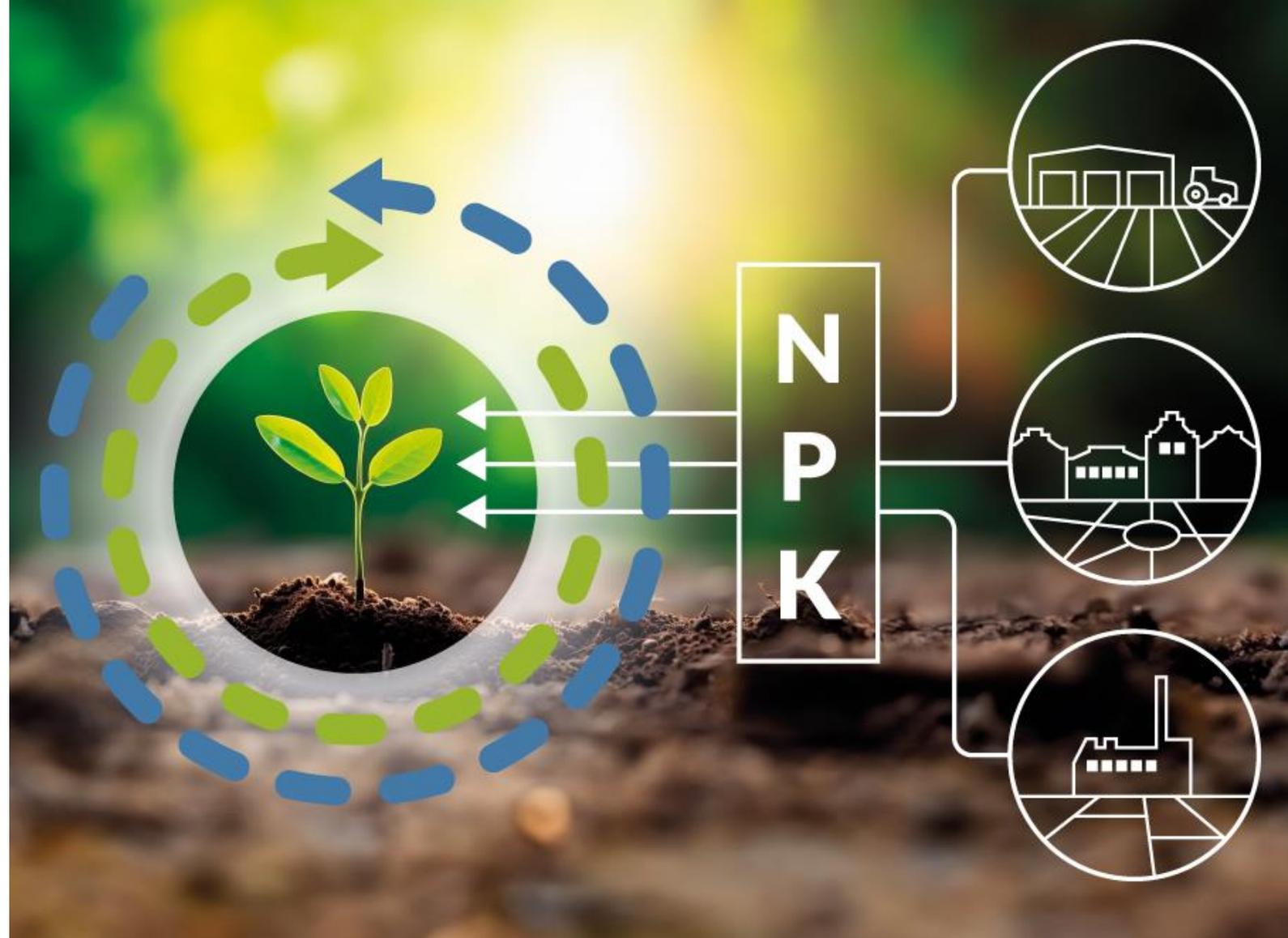


CiNURGi

Circular Nutrients for a Sustainable Baltic Sea Region

Project coordinators:
Erik Sindhøj & Cheryl Cordeiro
RISE – Research Institutes of Sweden

24 core partners
13 associated organisations
8 EU countries



Interreg
Baltic Sea Region



Co-funded by
the European Union

**RI.
SE**

Why Nutrient Recycling Matters – and how CiNURGi promotes it

- Reduces nutrient loads to the Baltic Sea by closing the loop on nitrogen and phosphorus
- Enables nutrient reallocation from surplus to deficit regions, reducing regional imbalances and environmental hotspots
- Strengthens circular economy and bioeconomy goals
- Improves food system resilience by reducing dependency on imported mineral fertilizers

CiNURGi (Circular Nutrients for a Sustainable Baltic Sea Region) is an Interreg Baltic Sea Region core project (2023–2026) that:

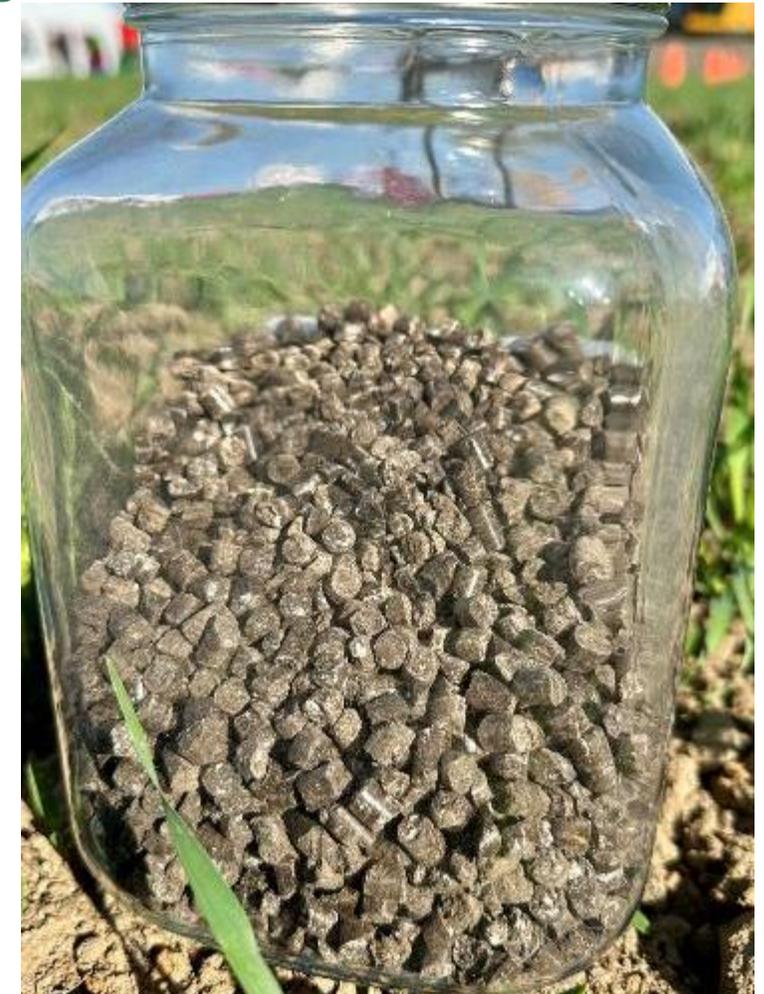
- Demonstrations of replacing mineral fertilizers with recycled nutrient fertilisers (RNFs) through large-scale field trials
- Drafting industry standards for safe and reliable recycling nutrients into RNF products
- Develops strategies to enable nutrient reallocation from surplus to deficit
- Builds cross-sector Knowledge Support Centres for processing and evaluation of RNFs
- Supporting actual commercial nutrient recycling investments
- Engages stakeholders across 8 countries to improve regional nutrient balance

CiNURGi directly supports the EUSBSR through its alignment with multiple Policy Areas (PAs) and macro-regional objectives.

EUSBSR Policy Area	CiNURGi Contribution
PA Nutri – Reduce nutrient inputs, promote nutrient recycling	<ul style="list-style-type: none">✓ Demonstrates recycled nutrient fertiliser (RNF) solutions across multiple Baltic Sea countries✓ Supports regional nutrient balance strategies and nutrient flow mapping✓ Provides feedback into nutrient-relevant legislation (e.g. UWWTD, Nitrates Directive)
PA Bioeconomy – Strengthen circular and sustainable use of biomass	<ul style="list-style-type: none">✓ Evaluates business models for nutrient value chains✓ Tests RNFs from Agricultural, Municipal and Industrial side streams✓ Contributes to EU Bioeconomy Strategy revision through stakeholder input
PA Innovation – Support smart specialisation and transnational knowledge exchange	<ul style="list-style-type: none">✓ Builds a cross-sector Knowledge and Processing Service Centre✓ Facilitates innovation transfer and stakeholder capacity-building✓ Links regional R&I ecosystems through practical RNF pilots

Linking CiNURGi contribution to PA Nutri objectives

PA Nutri Theme		CiNURGi Contribution
Reducing nutrient inputs to the Baltic Sea		Promotes the production and safe application of recycled nutrient fertilizers (RNFs) that reduce nitrogen and phosphorus losses from manure, sludge, and biowaste.
Closing nutrient cycles		Identifies circular solutions across sectors; supports SMEs and municipalities in implementing nutrient recovery from organic streams.
Regional nutrient reallocation		Maps nutrient surpluses and deficits; pilots transportable RNFs to enable safe nutrient transfer from hotspot to deficit areas.
Promoting innovative nutrient management solutions		Demonstrates 4 pilot investments and 24 case studies of technologies like biochar, struvite, and precision slurry application.
Balancing environmental protection with food production		Evaluates agronomic value, safety, and performance of RNFs through pot trials, incubation studies, and stakeholder testing.
Supporting policy alignment and harmonisation		Contributes to HELCOM's Nutrient Recycling Strategy; develops draft industry guidelines for RNFs and supports policy engagement
Cross-sector and transnational cooperation		Brings together agriculture, wastewater, industry, and policy actors across 8 countries via peer-review, support centres, and joint activities



CiNURGi in Action – Supporting PA Nutri Goals in Practice

Demonstrating safe, high-quality RNFs via regional pilot sites:

- Pilots in Sweden, Poland, Germany, and Finland test RNFs from diverse waste streams (e.g., manure, sludge, food waste)
- Results feed into standards, safety assessments, and market readiness

Establishing a cross-sector Knowledge and Processing Service Centre:

- Central platform for farmers, tech providers, municipalities to access validated techniques, tools, and policy guidance
- Enhances regional coordination and learning

Evaluating business models for nutrient value chains:

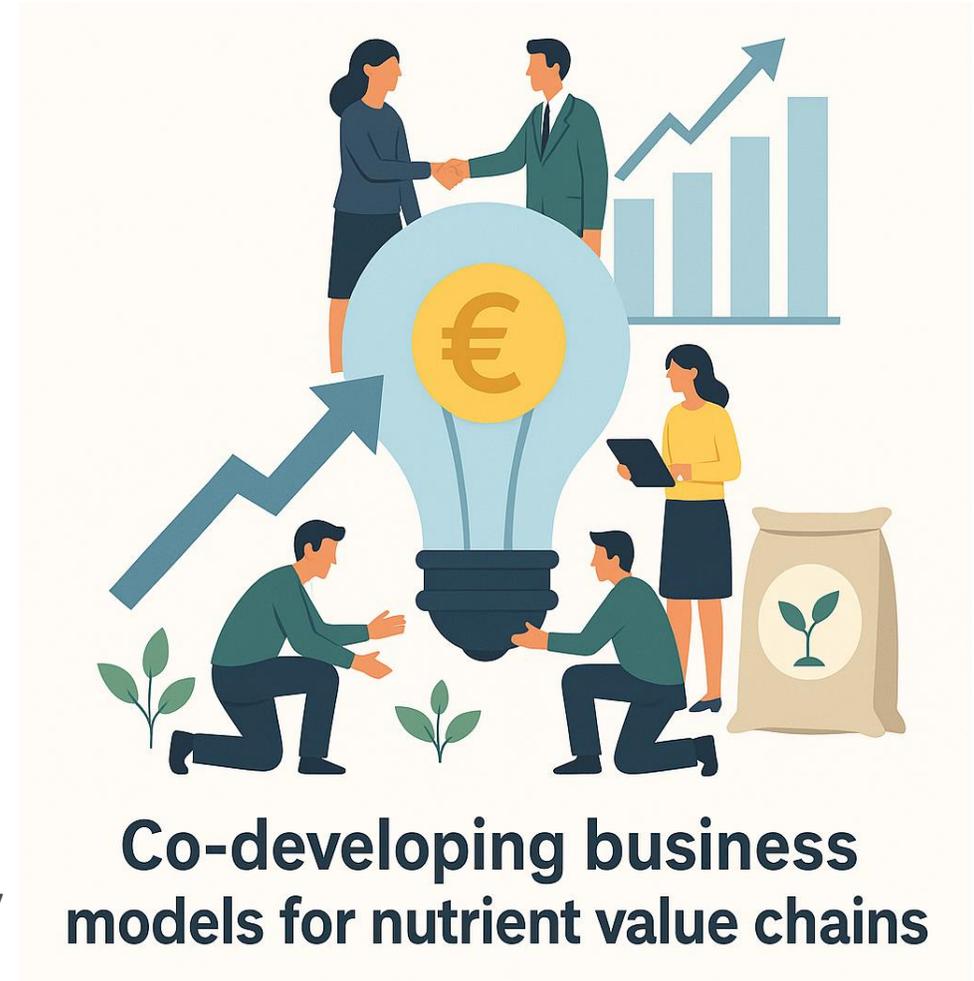
- Business cases tailor-made for rural/urban nutrient surpluses
- Includes cost-efficiency, logistics, value-added strategies for RNF producers

Gathering user insights to guide RNF design and adoption:

- Surveys, interviews, and workshops with farmers and advisors
- Aligns product formulation, packaging, and messaging with real-world needs

Informing EU and BSR nutrient and bioeconomy policy frameworks:

- Recommendations contribute to CAP, UWWTD, WFD, and Bioeconomy Strategy revisions
- Aligns with PA Nutri’s call for policy coherence across sectors



From EU Strategies to On-ground Action – CiNURGi in Support of Green Transition Goals

CiNURGi contributes to the EU Farm to Fork Strategy and upcoming Bioeconomy Strategy by:

 **Demonstrating RNFs as effective alternatives to mineral fertilisers**

Pilot production and field trials showcase how RNFs support reduced nutrient losses and maintain soil fertility

 **Understanding farmer and advisor perspectives**

Surveys and co-creation activities help align RNF products with user needs and support adoption

 **Providing input to the Integrated Nutrient Management Action Plan (INMAP)**

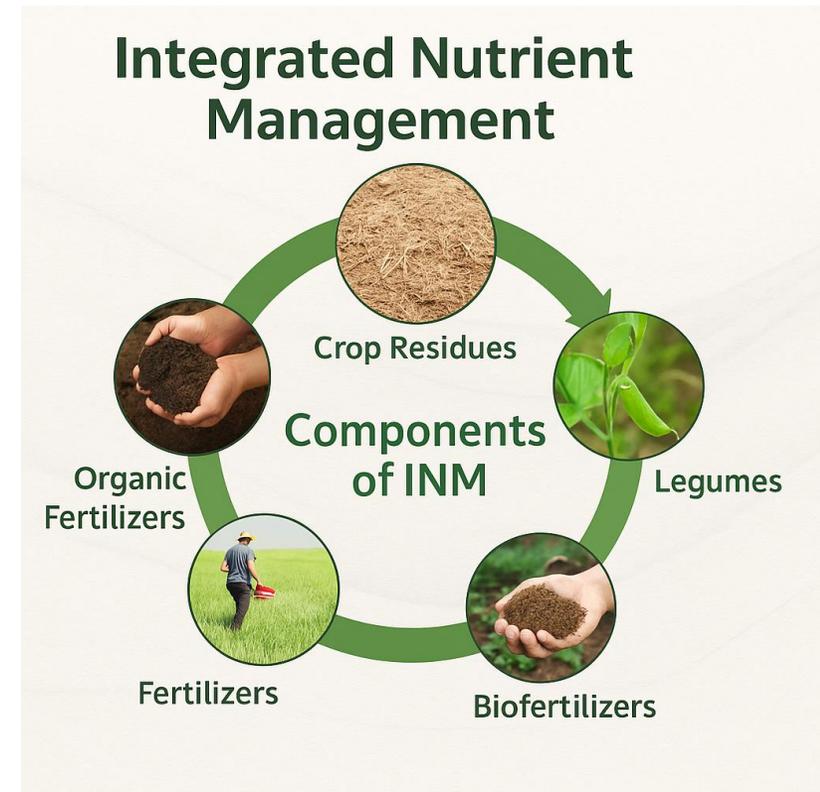
Evidence from CiNURGi informs nutrient reuse, regional redistribution, and circular practices in line with EU goals.

 **Contributing to policy consultations and regulatory coherence**

Lessons from pilots and stakeholder engagement support alignment between CAP, UWWTD, Nitrates Directive, and the Bioeconomy Strategy.

 **Upscaling for systemic impact**

CiNURGi builds capacity among farmers, municipalities, and SMEs, creating replicable models for nutrient circularity in the BSR and beyond.



Final Reflections

- Nutrient circularity is no longer a niche solution—it is a necessity for achieving zero pollution, sustainable food systems, and water resilience across the Baltic Sea Region.
- CiNURGi exemplifies how to operationalize EU and macro-regional strategies by piloting actionable solutions and aligning local actors with long-term climate and environmental goals.
- As PA Nutri Talks emphasizes, success depends on integration—of actors, sectors, and policies. CiNURGi models this integration by linking BBF innovation, stakeholder co-creation, and policy feedback loops.
- The upcoming EU Bioeconomy Strategy could prioritize nutrient recycling—not only as a technical fix, but as a social, economic, and governance innovation.
- CiNURGi offers tested pathways, practical tools, and regional partnerships to turn nutrient circularity into a mainstream solution across Europe.



CiNURGi Partnership

CiNURGi is a consortium of 24 partners and 13 associated organizations from all EU countries around the Baltic Sea.



RI
SE

