



The RETOUCH NEXUS project promotes a cross-sectoral Water-Energy-Food-Ecosystems (WEFE) Nexus approach to support a resilient EU water economy. It ensures that water governance considers ecological, social, and economic dimensions, fostering coherence and effectiveness across sectors and governance levels.

Greyfield businesspark Tielt-Noord
Rainwater use for industry and farmers
Smart water buffering



Newly developed residential area
Agnetenpark in city of Peer
Rainwater use for households



Newly developed business park Keiberg-Vossem
Rainwater harvesting and use for industry
Aquifer storage and recovery / blue-green infra



KEY STAKEHOLDERS

- Water utilities
- Project developers and investors
- (Local) governments
- Sector and business area representatives
- Research institutes

PRIORITY ACTIONS

- Integrate policies for coordinated, nexus-based water management
- Scale up collective, decentralized water reuse systems with clear rules and fair pricing
- Empower utilities and research partners to drive circular innovation

REGIONAL PARTNERSHIPS FOR INCLUSIVE GOVERNANCE

Scaling up decentralized water solutions requires legal and financial coordination, shared ownership, and clear agreements. Decentralized water systems strengthen resilience by spreading risk, ensuring service continuity, and reducing vulnerability to droughts, floods, pollution, or infrastructure failures. This enhances preparedness and reliability in times of crisis. Flanders' water utilities can bridge governance and technical gaps by linking centralized and decentralized systems. Fostering local partnerships and developing innovative financing and pricing models are key. As trusted public actors, they can drive circular, collaborative, WEFE-aligned water management, supported by research organizations that translate innovation into practical business and financing models.

CONTEXT

The case study advances integrated water management across two business parks and a residential area, aiming beyond network optimization toward sustainable living and working. Mandatory rainwater collection in Flanders enables circular rain applications. Built on multi-stakeholder partnerships, the sites demonstrate industrial reuse, irrigation, and domestic applications. By embedding a local WEFE nexus approach and tackling financing and governance challenges, the case study supports the EU Water Resilience Initiative and strengthens the market readiness of sustainable decentralized solutions.

NEXUS GOVERNANCE CHALLENGES & BARRIERS

Flanders has responded to growing water stress with its Blue Deal, but WEFE-nexus implementation remains difficult due to divided responsibilities and the need to integrate agricultural, energy, and environmental goals. Long-term water security requires complementing centralized supply with local measures such as circular rainwater use, which eases pressure on the system, reduces treatment costs, and boosts drought and flood resilience. Flanders emphasizes that circular use of rain- and wastewater is vital to address water stress, and to ensure a stable 24/7 drinking water provision.



FRAGMENTATION VS INTEGRATION

Aspect	Current State (Fragmented)	WEFE Nexus Approach (Integrated)
Policy Focus	Central water systems and individual rainwater management - in line with the Flemish legislation.	Central water systems complemented with decentral collective water systems.
Stakeholder Engagement	Limited.	Essential for governance, investments, pricing, and financing models.
Coordination Mechanisms	Water utilities and individual rainwater management.	Complexity increases: local companies or residents take part in decentral water systems.
Risks	Water blackouts during persistent droughts, flooding.	Increased complexity vs. long term governance.
Examples	Tap water provision by local utility.	Regional case studies in Peer, Keiberg-Vossem and Tielt.



PATHWAYS TO SUSTAINABLE NEXUS WATER GOVERNANCE

- **Early involvement** of banks and investors increases the bankability of projects and helps to shape viable financing structures.
- **Developing robust business models** is necessary, supported by comprehensive cost-benefit analyses, to demonstrate the full value of collective, local water systems. This includes the creation of alternative water sources, avoided flood damage, avoided investments in central infrastructure (e.g., sewerage), and environmental co-benefits.
- **Well-designed pricing mechanisms** are needed to align incentives, improve cost recovery, and reward efficient water use.
- **Comparing individual versus collective** decentral systems is key to identify when joint investments create greater societal value, facilitating fact-based decision-making.
- The **legal and organizational frameworks** are critical. Clear governance models, ownership structures, and risk allocation mechanisms enhance the confidence of investors and enable fair collaboration among partners.
- **Transparent agreements** on roles and responsibilities between utilities, municipalities, and private actors are essential for long-term system sustainability.
- **Adopting a local WEFE nexus approach** means linking water, energy, food, and ecosystems within the same local and decentralized projects. Integrating rainwater harvesting and use, and e.g. energy recovery from wastewater enhances both water and energy resilience. By coupling water management with renewable energy and efficiency measures, local systems can cut costs and emissions while improving circularity.
- **At the project planning level:** valuing ecosystem services such as groundwater recharge and flood mitigation ensures that investments deliver lasting environmental and social benefits.

PROGRESSION TIMELINE ROADMAP (2025-2035)



Phase	Short-Term: Cross-Sectoral Governance Alignment	Medium-Term: Strengthening institutions	Long-Term: Stakeholder Engagement and Performance Evaluation
Key Actions	<ul style="list-style-type: none"> • Develop a framework for evaluating the business case for decentralized collective water systems. • Build public awareness on water challenges. 	<ul style="list-style-type: none"> • Additional demo and full-scale cases. • Apply RETOUCH CBA methodology and developed business models. 	<ul style="list-style-type: none"> • Standardization of decentralized WEFE business cases, applicable to new industrial and residential developments (relation to a more robust water supply).
Responsibilities	<ul style="list-style-type: none"> • VITO (lead framework & cost-benefit analysis - CBA). • Utilities, municipalities, investors (data & input). 	<ul style="list-style-type: none"> • Utilities, municipalities, investors, project developers (standardization). • Refining methodologies and developing track records by research institutions. 	<ul style="list-style-type: none"> • Utilities, municipalities, investors, project developers (standardization).
Enablers/ Tools	<ul style="list-style-type: none"> • VITO business case framework. • Cost-benefit and co-benefits analysis. • Pricing mechanism design. 	<ul style="list-style-type: none"> • A thorough cost-benefit analysis methodology, a workable business case framework and inspiring references. • Impact monitoring of implemented and operational full-scale cases. 	<ul style="list-style-type: none"> • Embedding in legislation.
Challenges & Mitigations	<ul style="list-style-type: none"> • Low investor confidence → clear business cases are needed. • Limited awareness → targeted communication needed. 	<ul style="list-style-type: none"> • Mastering case complexity → track record of cases, knowledge dissemination. 	<ul style="list-style-type: none"> • Ad hoc case complexity and the need for a flexible approach → continuous development of the methodology, based on new (regional) insights.
Milestones / Outcomes	<ul style="list-style-type: none"> • Business case framework ready. • First pilot CBAs completed. 	<ul style="list-style-type: none"> • Impact monitoring and confirmation of the outcomes of preceding CBAs for different cases. 	<ul style="list-style-type: none"> • Exponential growth of decentralized water cases in a hybrid relation to an optimized centralized tap water supply.

