Session I: Closing the gaps – Strengthening policies, financing, and business integration for Nature-Based Solutions (NbS) deployment

Presentation
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European Environment Agency

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Institute for European Environmental Policy

Ask your questions on
Slido.com
#1005658

European Climate Risk Assessment

Key findings for ecosystems

Dr. Julie Berckmans (EUCRA coordinator & Expert – Climate change and adaptation)
European Environment Agency

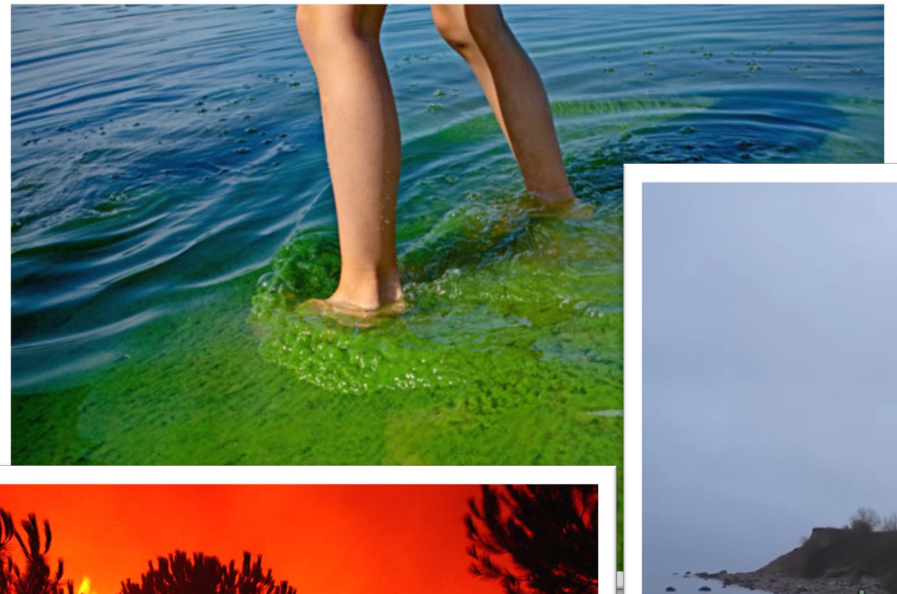
European Environment Agency

Ecosystems in times of climate change and extremes

Algae blooms force Poland to shut down 50 Baltic Sea beaches

In this photo taken Wednesday July 25, 201

Thinking of a dip in the Baltic Sea to summer? It's too hot for that.



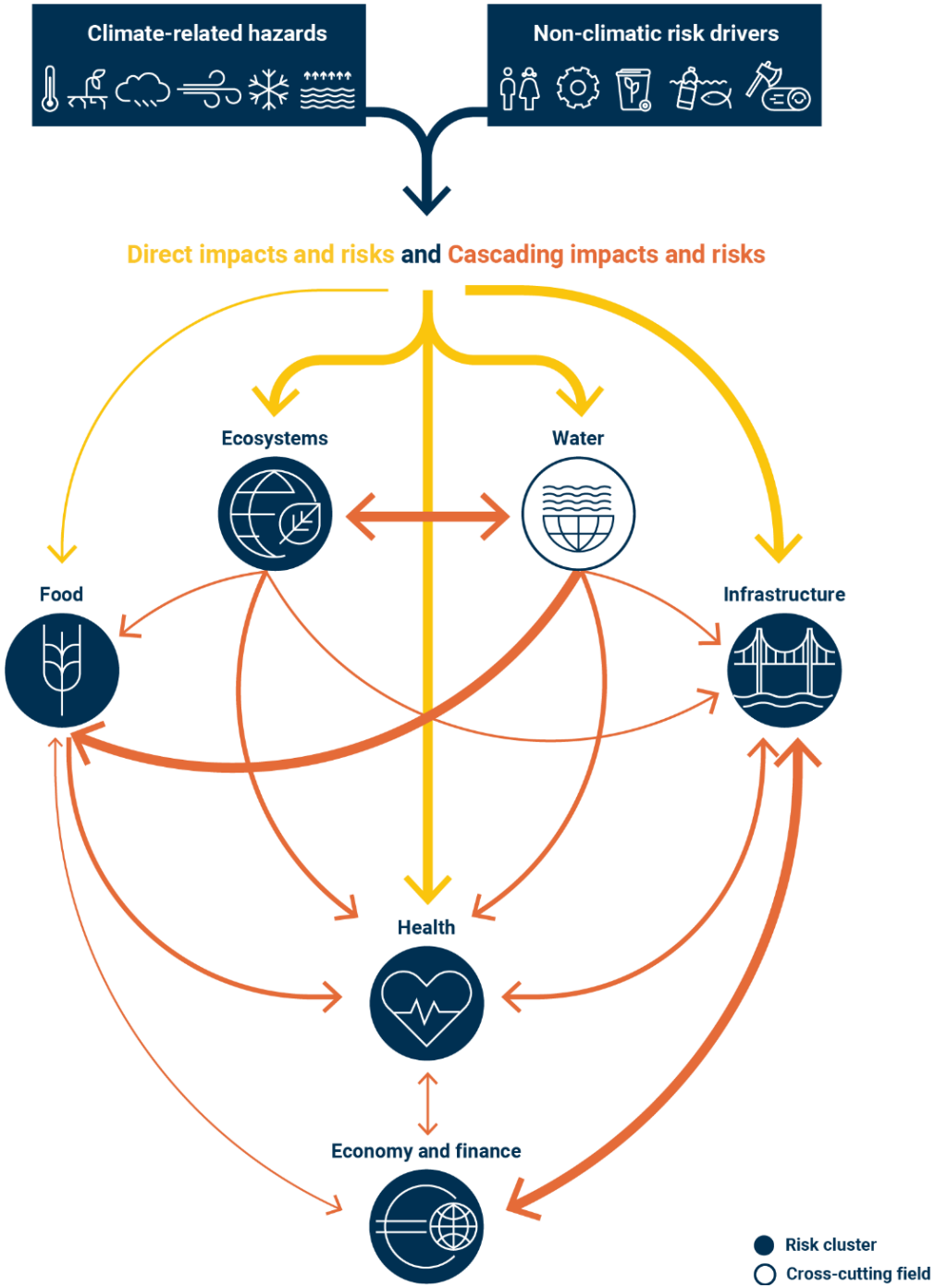
© Tony Gallicchio, Climate Change PIX /EEA

European Environment Agency

Europe is not sufficiently prepared for rapidly growing climate risks

- Climate risks are growing rapidly as we approach 1.5 degrees global warming.
- Europe is the fastest warming continent.
- Climate risks are threatening ecosystems, water resources, food and energy security, infrastructure, financial stability, and people's health.

Climate risks can cascade from one system to another



European Environment Agency

Priorities for EU policy on climate adaptation

EUCRA evaluates the urgency of major climate risks for Europe

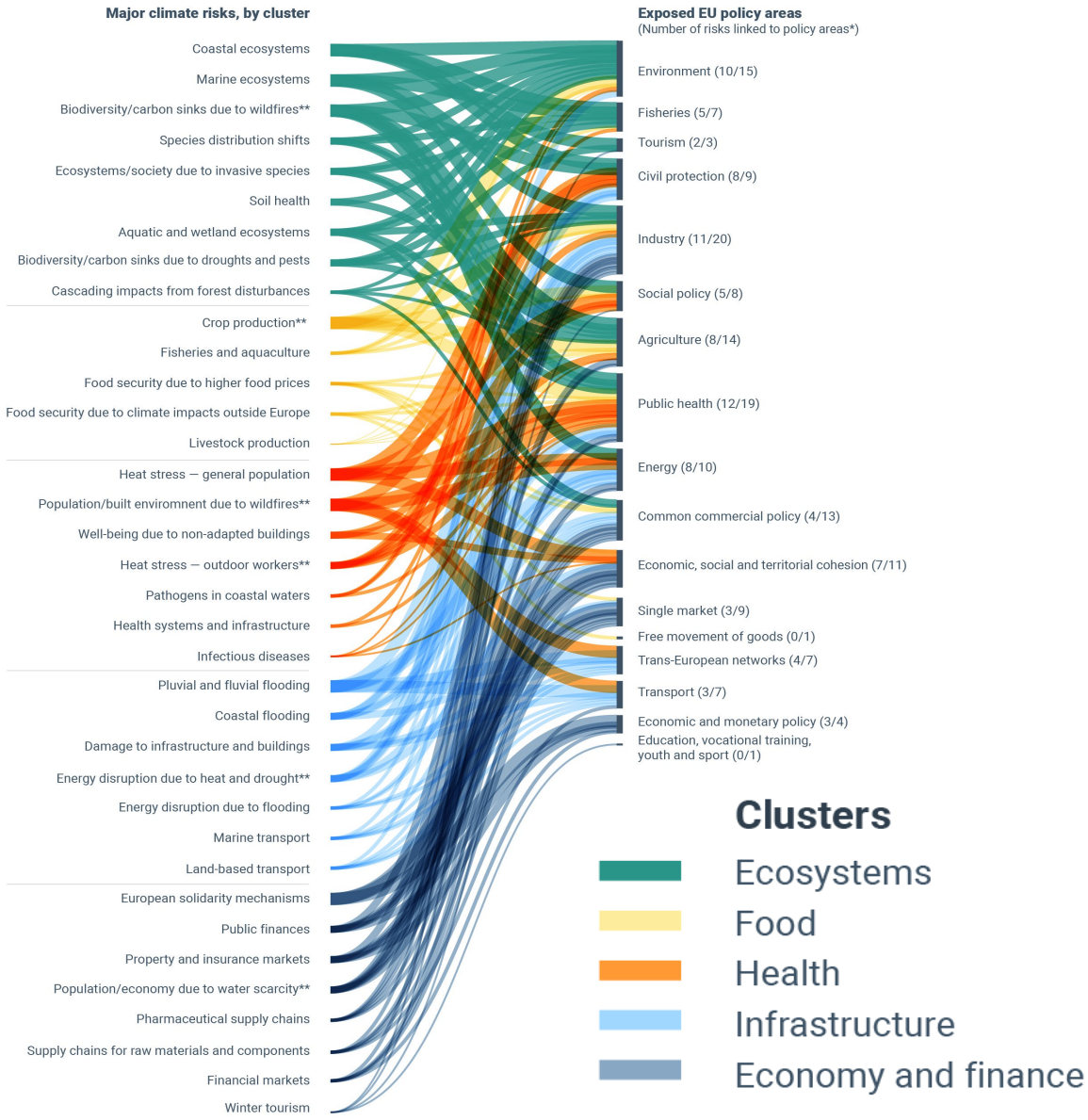
The largest number of urgent risks are in the health and ecosystems clusters

Ecosystems

- Coastal ecosystems
- Marine ecosystems
- Biodiversity/carbon sinks due to wildfires (1)
- Biodiversity/carbon sinks due to wildfires
- Species distribution shifts
- Ecosystems/society due to Invasive species
- Soil health
- Aquatic and wetland ecosystems
- Biodiversity/carbon sinks due to droughts and insect outbreaks
- Cascading impacts from forest disturbances

European Environment Agency

Climate risks to ecosystems affect many EU policy areas



Many policy areas are exposed to risks to ecosystems

- Environment
- Fisheries
- Tourism
- Social policy
- Agriculture
- Public health
- Energy
- Common commercial policy

European Environment Agency

EEA work on nature-based solutions

Nature based solutions (EC definition)

Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.

Nature-based solutions to key climate hazards

	Water management	Forests and forestry	Agriculture	Urban areas	Coastal areas
Key climate hazards	Water scarcity and water quality deterioration due to **droughts** Floods and landslides due to **heavy precipitation**	Limiting tree growth, increasing tree mortality and risk of pest outbreaks due to **droughts** and **forest fires** **Landslides** and **soil loss** due extreme rainfall events	Crop and livestock loss due to **heat stress**, increased risk to **pest and disease outbreak**, and water scarcity Damage to yield, transportation and asset loss due to **flooding**	Heat stress due to **heatwaves** Urban flooding due to **heavy precipitation**	Loss of land due to **rising sea level** and **coastal erosion** Loss of life due to **storm surges and inundation**
NbS options	Large-scale measures, e.g. river, floodplain restoration Small-scale measures, e.g. urban rainwater harvesting	Protection of intact forest Restoration of degraded forests Sustainable forest management, e.g. tree diversification, selective logging	Improved soil and water farm management Crop type diversification and rotation Agroforestry	Parks, urban forest, street trees Green buildings, e.g. green roofs and walls NbS for water management, e.g. bioswales, detention ponds	Rehabilitation and restoration of coastal habitats Near-shore enhancement of coastal morphology Hybrid solutions

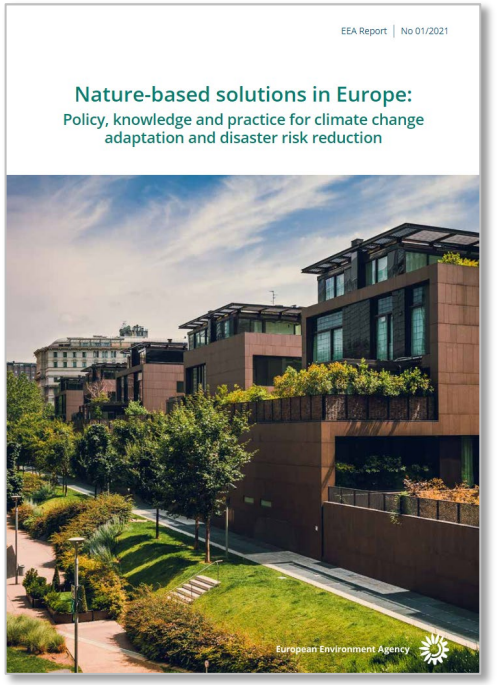
Source: EEA 2021

European Environment Agency

Nature-based solutions in EU policies and sectors

Biodiversity	Forests	Land use and forestry	Water	Agriculture	Climate change adaptation	Disaster risk reduction
· Biodiversity Strategy for 2030 · Strategy on Green Infrastructure	Forest Strategy	LULUCF Regulation	· Water Directive · Floods directive	Common Agricultural Policy	Strategy on adaptation to climate change	Action Plan on the SFDRR 2015-2030
EA/EbAp Ecosystem Approach/ Ecosystem-based Approaches **GI/BGI** Green Infrastructure and Blue-Green Infrastructure **SM/EbM** Sustainable Management and Ecosystem-based Management	**SFM** Sustainable Forest Management **SM/EbM** Sustainable Management and Ecosystem-based Management	**SFM** Sustainable Forest Management **SM** Sustainable Management	**NWRM** Natural Water Retention Measure	**NWRM** Natural Water Retention Measure	**GI/BGI** Green Infrastructure and Blue-Green Infrastructure **SM/EbM** Sustainable Management and Ecosystem-based Management	**Eco-DRR** Ecosystem-based Disaster Risk Reduction

'Umbrella concept'
NbS
Nature-based Solutions



Source: EEA 2021

ean Environment Agency

Thank you

For more information:
climate-adapt.eea.europa.eu/en/eucra

Contact us:
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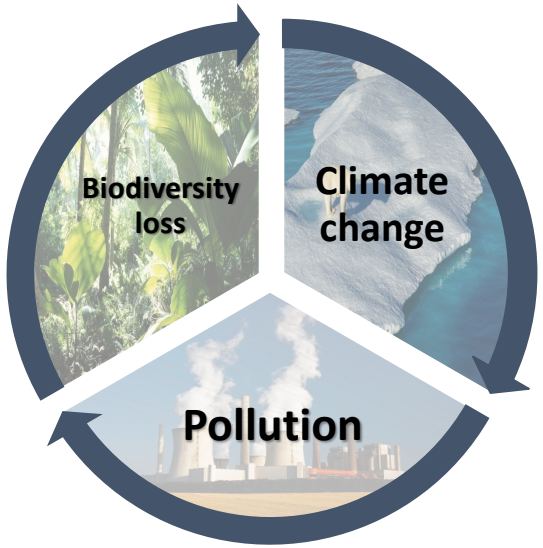
Closing the gaps: Strengthening Policies, Financing and Business Integration for Nature-Based Solutions (NbS) Deployment

European Investment Bank

Biodiversity Specialist Elina Vaara

Nature Based Solutions



- Nature-based solutions (NbS) have an important role in addressing the triple planetary crises while also providing a pathway for sustainable, resilient, and inclusive growth.
- There are varying definitions and interpretations on the concept of nature-based solutions (NbS) → policy incoherence
  - 17000 research papers and 90 systematic reviews
  - IUCN definition (2020)
  - **UNEA definition (2022)**

UN environment assembly

IUCN

Nature-based Solutions = Measures that Address Social, Economic, and Environmental Challenges

Focus: protection, restoration or sustainable management of ecosystems.

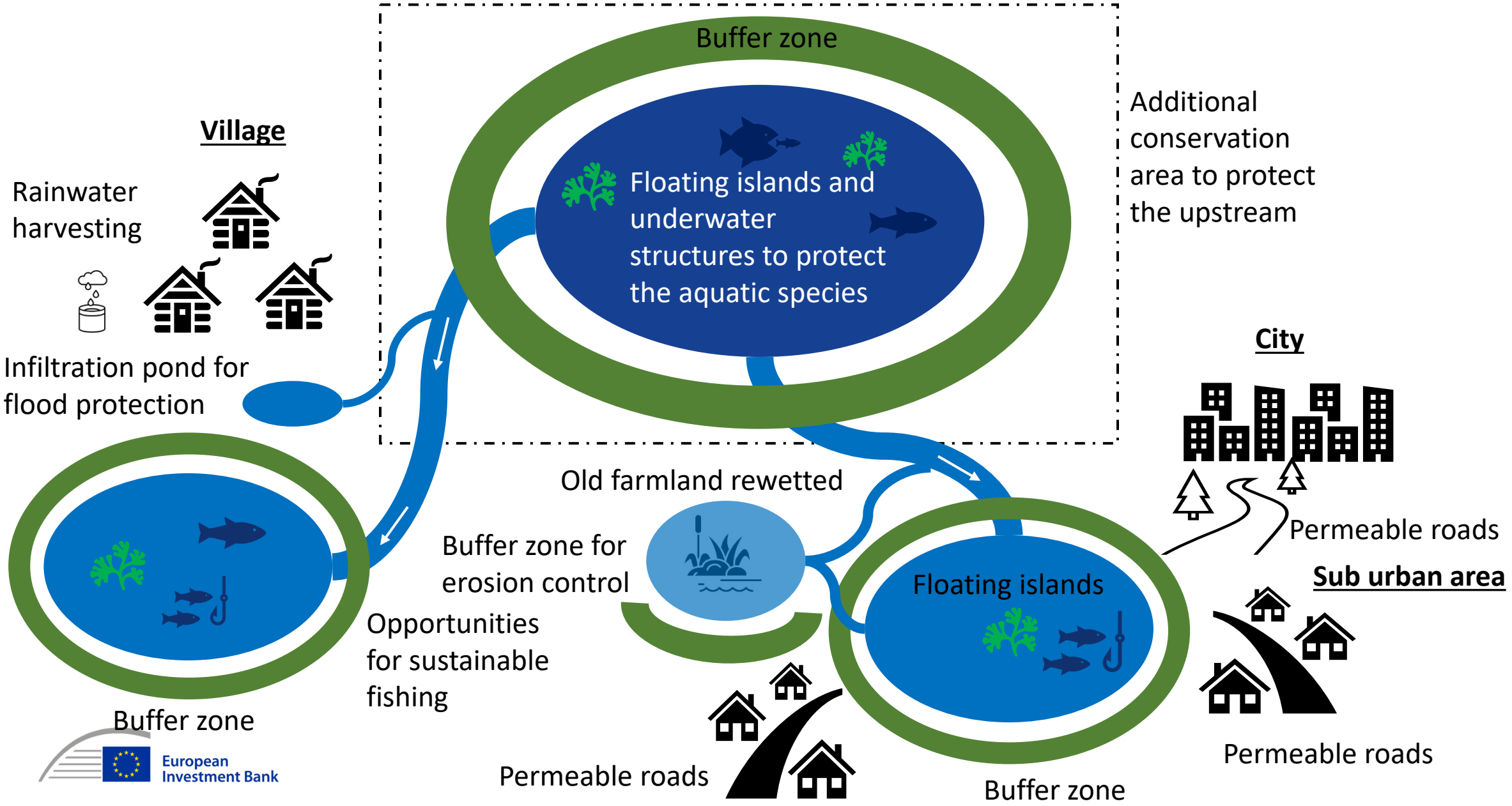
How: effectively and adaptively.

Requirements: Local implementation and support. Safeguarding human rights, human well-being, and the resilience of ecosystem services (= minimum safeguard)

End-result: achieving nature co-benefits. It is not an offset measure

European Investment Bank

A Combination of NbS Strategies to Address Challenges in Freshwater Ecosystems Can Look Like This:



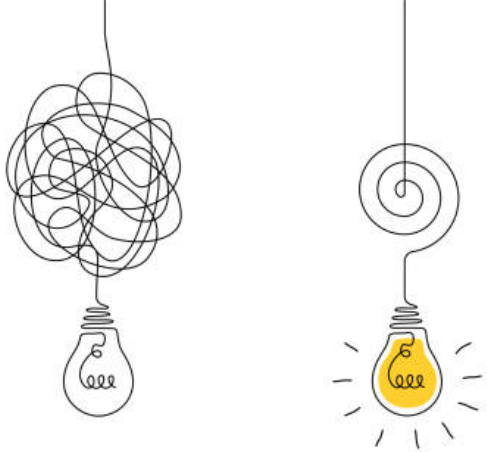
Financing NbS Measures

- NbS measures in the water sector may initially seem complex. A single measure is unlikely to address underlying issues on its own → Landscape approach required
  - From a financial perspective, NbS can create financing opportunities.
- Financing exists but requires scaling up
- Project sizes are generally small:
  - The average project size is less than €2 million.
  - 44 % of projects are below €1 million.
  - Only 18 % exceed €10 million.
- EU grant funds dominate NbS financing, followed by national funding.
- Private financing with market conditions remains negligible at only 3%.

Examples of Barriers

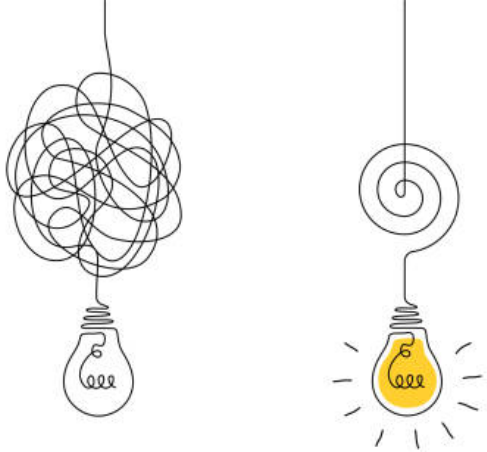
- **Information failures and coordination**
  - Stakeholder engagement crucial
  - Climate and other environmental risks need to be modelled
- **High transaction costs**
  - Small-scale measure have disproportionally high transaction costs
  - High cost to develop, implement and monitor
- **NbS seen as public good creating a mix of public and private benefits**
  - CAPEX for NbS measures is low
  - Banks do not finance operational expenditures
  - Timeframe to achieve nature co-benefits is long
- Simply removing the barriers will not change features of NbS →the way we calculate economic and financial return need to consider the long term benefits of NbS measures

Solutions the EIB Can Offer



- **Financial Instruments and Products**
  - Several options: the Bank can provide long term capital with long tenors where projects are aggregated to a sufficient size to provide stability, offer different conditions for different tranches, provide incentives, create specialised funds or financing mechanisms for NbS projects etc.
- **Technical Assistance and Capacity Building**
  - Project preparation support and training on NbS
- **Leveraging Public-Private Partnerships (PPPs)**
  - The Bank can bring together governments, businesses, NGOs, and local communities to co-finance NbS projects.
  - Can make NbS investments more appealing to private investors → risk sharing and broader collaboration.

Solutions the EIB Can Offer



- **Data, Research, and Monitoring**
  - Conducting research and developing tools and sta
    the effectiveness of NbS projects can help reassure investors of their impact
- **Policy Development and Regulatory Support**
  - Collaboration with government and member countries to integrate NbS in national policies

By strategically combining financing, technical support, policy advocacy, and partnership-building, EIB can be instrumental in advancing NbS initiatives and attracting investments by crowding in stakeholders and financiers.

THANK YOU!

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EUROPEAN ASSOCIATION
OF PUBLIC WATER OPERATORS

Aqua Publica Europea

The European Association of Public Water Operators

EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS

About Aqua Publica Europea (APE)

68 Members

Public water and sanitation operators

80 Million

Citizens served every day

2 Main Objectives

- *Promoting public management*
- *Providing a platform for mutual learning*

EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS

Contributing to EU and international dialogues

APE's initiatives

APE seminar on the revision of the UWWTD, with the European Commission

Rapporteur in the EP for the UWWTD visiting APE's member treatment plant

APE President at the UN Water Conference in New York

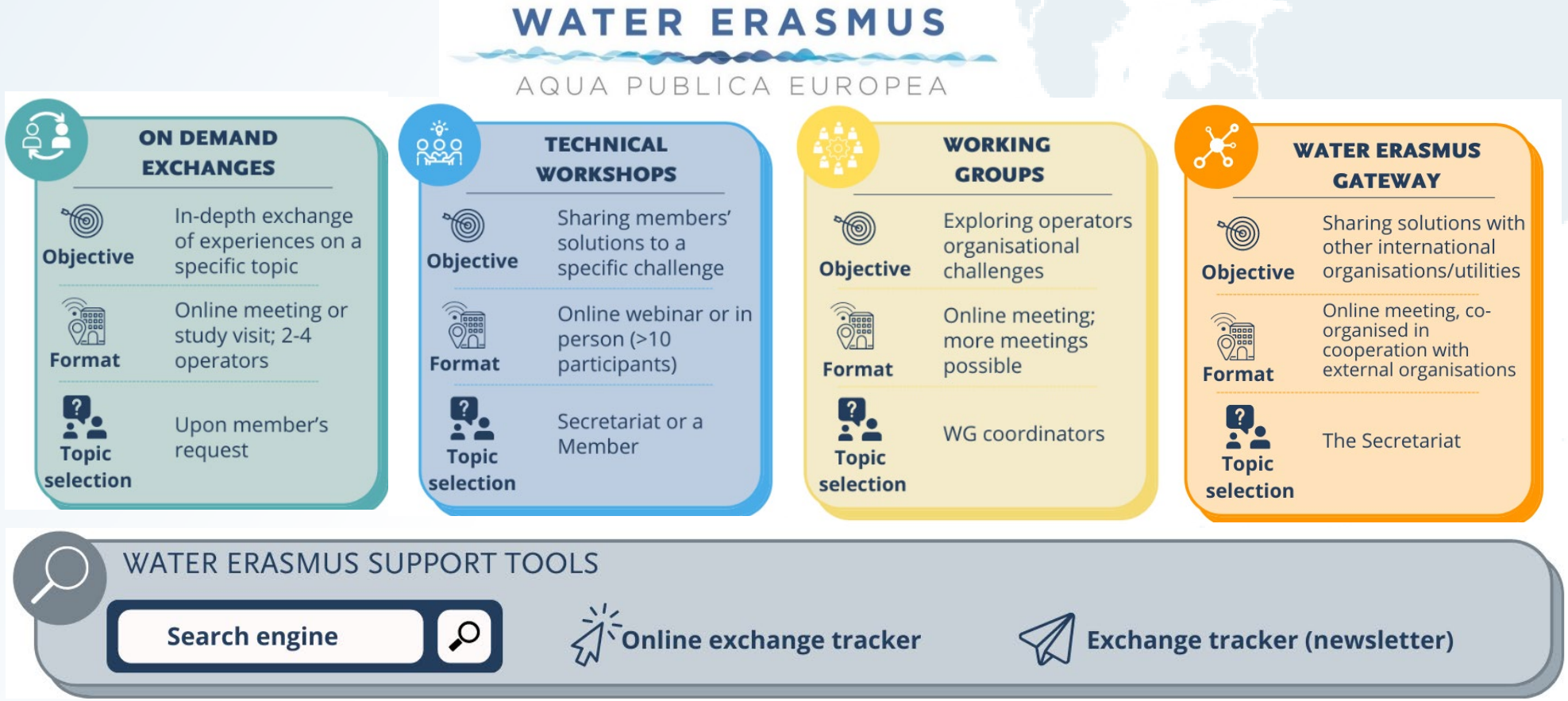
Participation in the ARTE TV programme on tap water pollution

Event on "Blue New Deal" in Porto, with the Portuguese Presidency of the EU

Publication on the public water service of the future

Providing a platform for mutual learning

Aqua Publica Europea offers its members different modalities by which they can engage and interact with each other. It also provides different web instruments to facilitate the circulation of information on members' needs and expertise. These different exchange modalities and support tools compose the **Water Erasmus Toolbox.**



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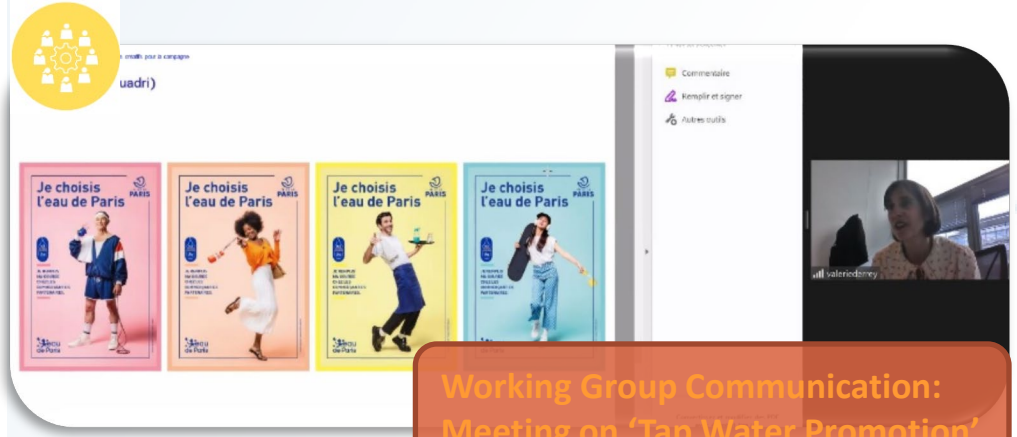
WATER ERASMUS

AQUA PUBLICA EUROPEA

Technical Workshop on Water Reuse

On-Demand Exchange on Data Governance: Eau De Paris (FR), VIVAQUA (BE), SWDE (BE)

Technical Workshop on leak control: Aguas de Gaia (PT), MPWiK (PL), Budapest Waterworks (HU)



Working Group Communication: Meeting on 'Tap Water Promotion'

On-Demand Exchange on public fountains: Eau De Paris (FR), Scottish Water (UK)

Nature-based Solutions

- The International Union for Conservation of Nature (IUCN) defines Nature-based Solutions (NBS) as **actions to protect, sustainably manage, and restore natural and modified ecosystems** that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.

Why are they interesting for public water operators?

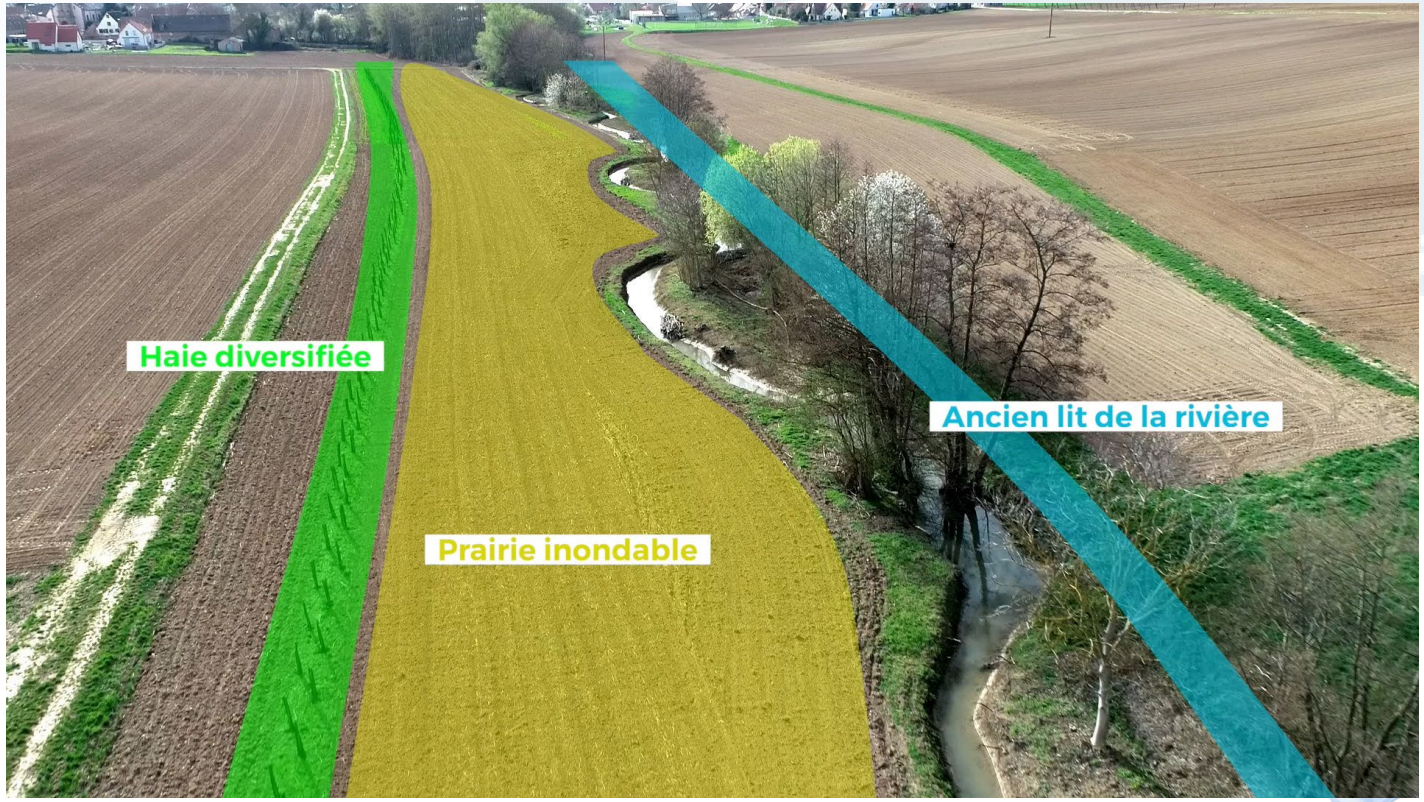
- Often more **sustainable** and **environmentally friendly** compared to traditional engineering solutions
- NBS are **cost-effective**
- They contribute to **enhancing the resilience** of water systems
- They are **viable** on the long-term

Members example – Large-scale projects (landscape)

Restoration and renaturation work on the Souffel river (SDEA, France)

The project had **two objectives**:

- To restore the river's main bed and course, creating a more dynamic and vibrant river with enhanced biodiversity.
- To mitigate flooding risks by creating a meso-hygrophilous meadow with flood-resilient plants alongside the river, to allow it to overflow if necessary.



EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS

Members example – Small-scale (urban)

Sustainable Urban Drainage Systems (SUDS) offer **alternative solutions to conventional drainage**, enabling the replication of natural water runoff behaviour in urban environments.

SUDS come in various forms and are classified into the following categories:

- Detention-Retention
- Filtration
- Infiltration
- Treatment

Ajuntament de Barcelona

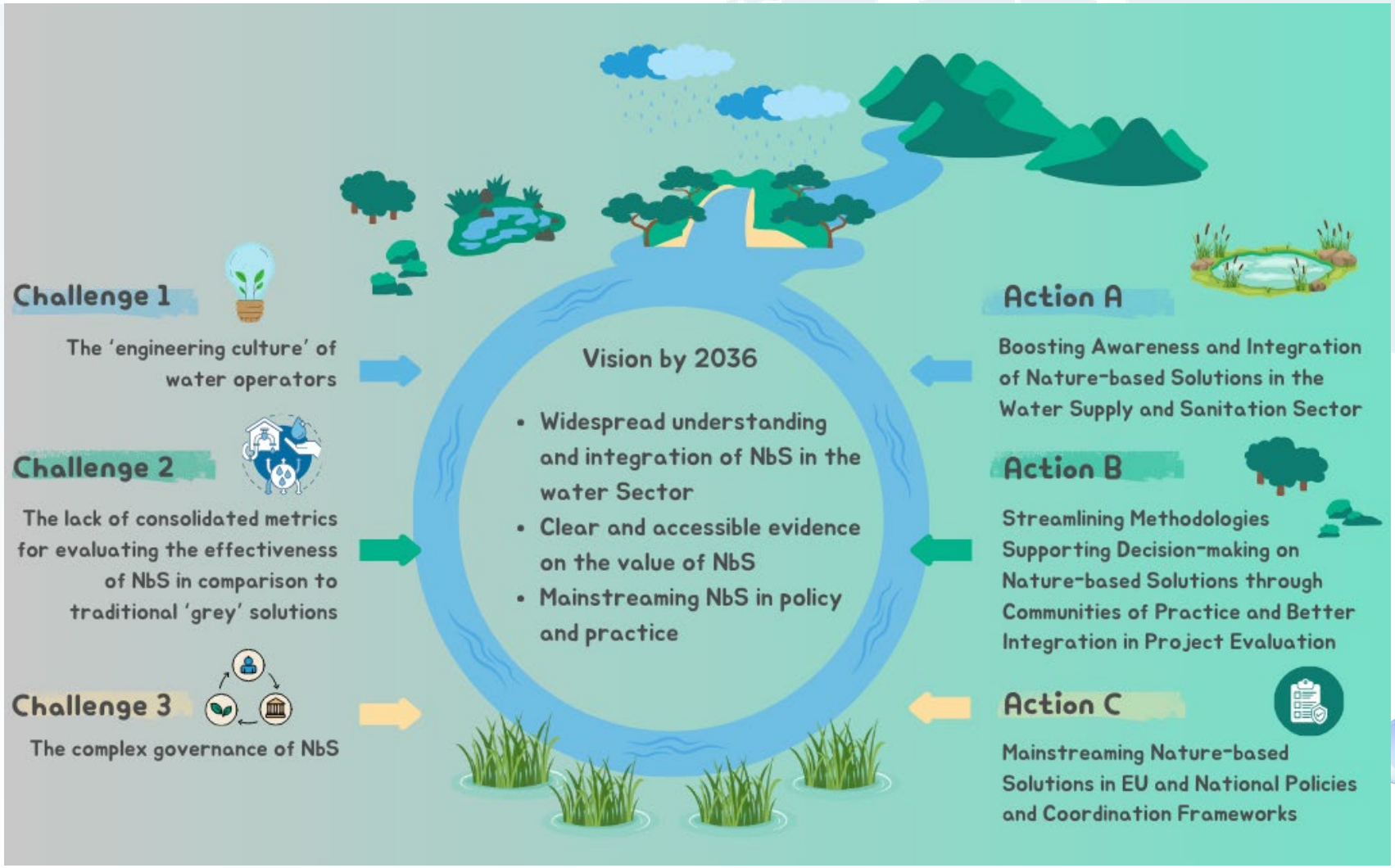
Retention (Barcelona)

Filtration (Brussels)

Fito-depuration (Milan)

APE & Nature-based Solutions

Main challenges of mainstreaming NbS in the water supply and sanitation sector, along with specific actions we have devised to address them (result of EU-funded MERLIN project)



APE & Nature-based Solutions

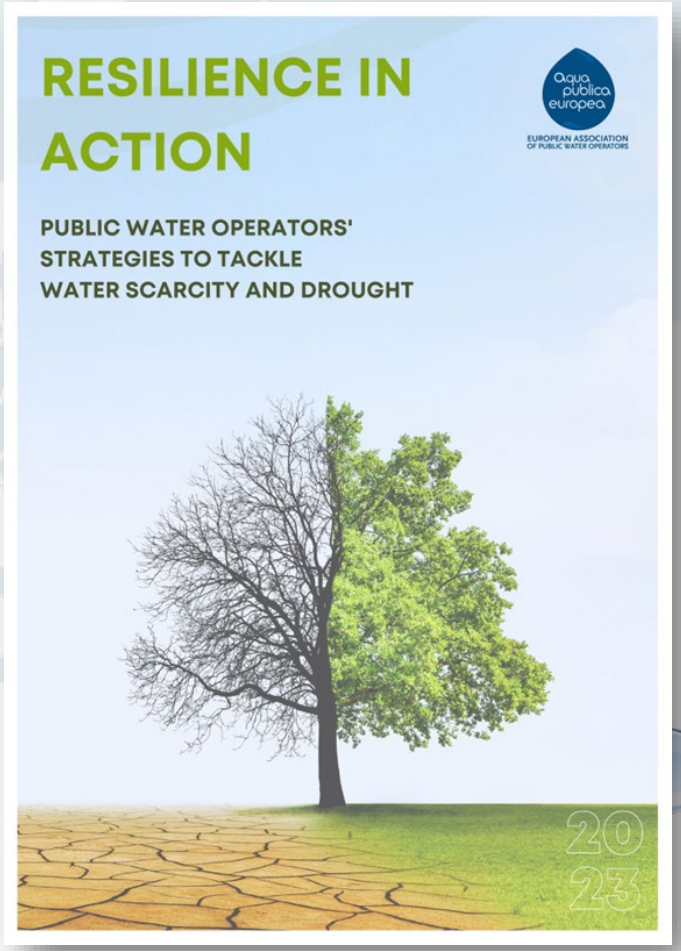
Public event: “BACK TO THE NATURE: Exploring the potential of nature-based solutions to face the effects of climate change on water

- Event organised in November 2021 to discuss the consequences of climate change on the water cycle, as well as the role that nature-based solutions can play in addressing some of the challenges ahead.
- Together with the European Commission, the European Investment Bank, civil society, public authorities…
- More information here

APE & Nature-based Solutions

Publication: Resilience in Action – Public Water Operators' Strategies to Tackle Water Scarcity and Drought

- Publication bringing together the good practices of member operators and outlining policy considerations on what can and should be done.
- Exploring Nature-based Solutions for drought and water quantity issues.



APE & Nature-based Solutions

Upcoming

- Publication on Nature-based Solutions, featuring case studies from public water operators

European Climate Risk Assessment for businesses

Aquafin

Preparing for a resilient and competitive business in 2025

18 February 2025

Katrien Moubax

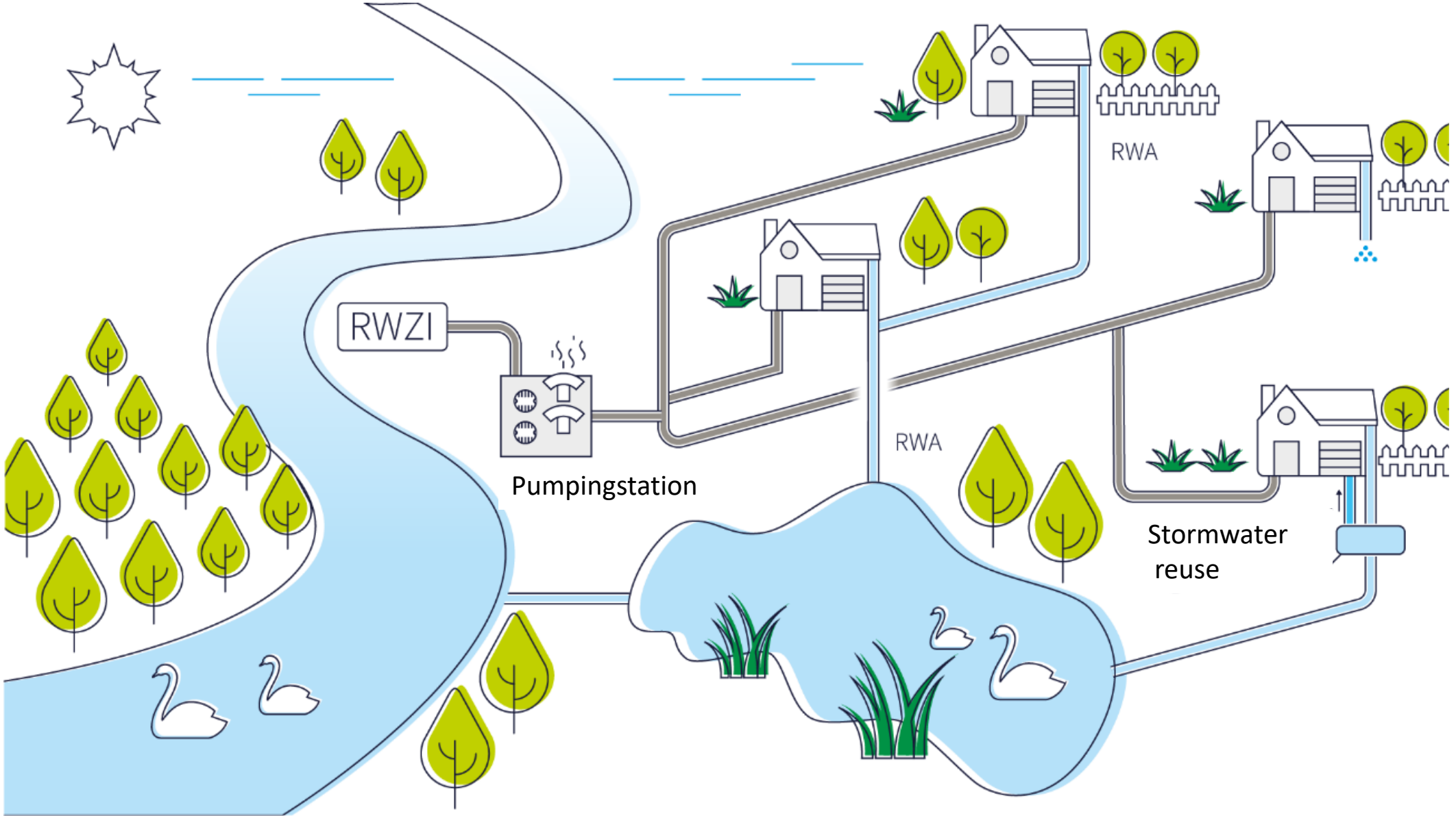
Aquafin

- Waste water utility since ’91
- Transport waste water of the households
- Treat wastewater to river quality
- And many more…

Brooks and rivers revive in Flanders

Thanks to the expansion of sewage treatment infrastructure by Aquafin

Taking a more integrated approach to storm and wastewater systems



329

WWTP

7.298

Sewer pipe

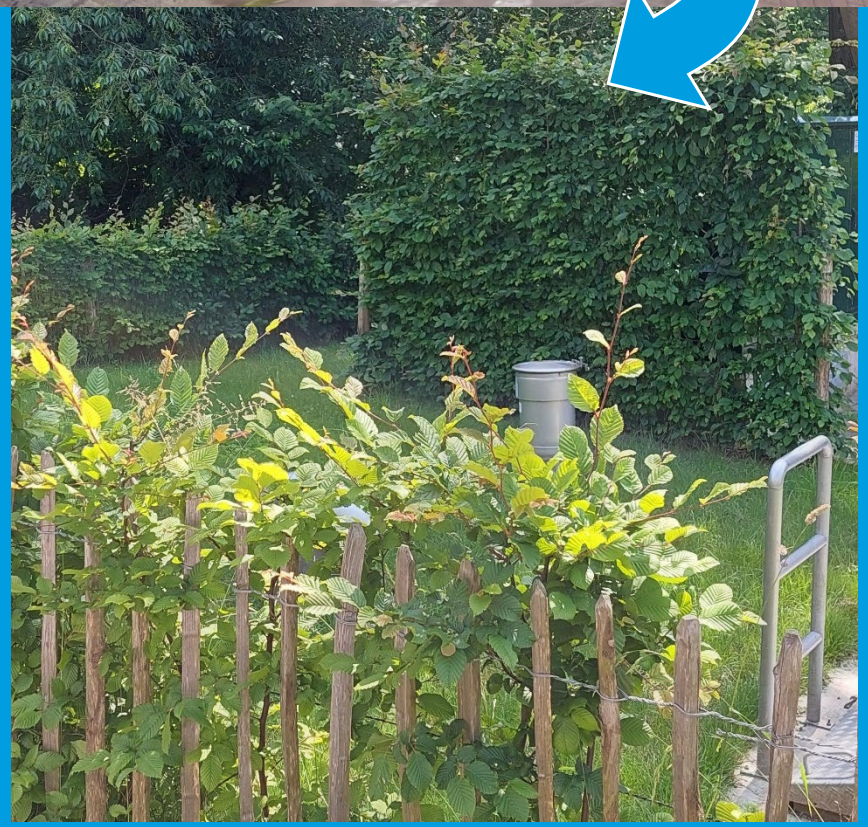
2.057

pumps

740 m3

Biologically treated water in 2020

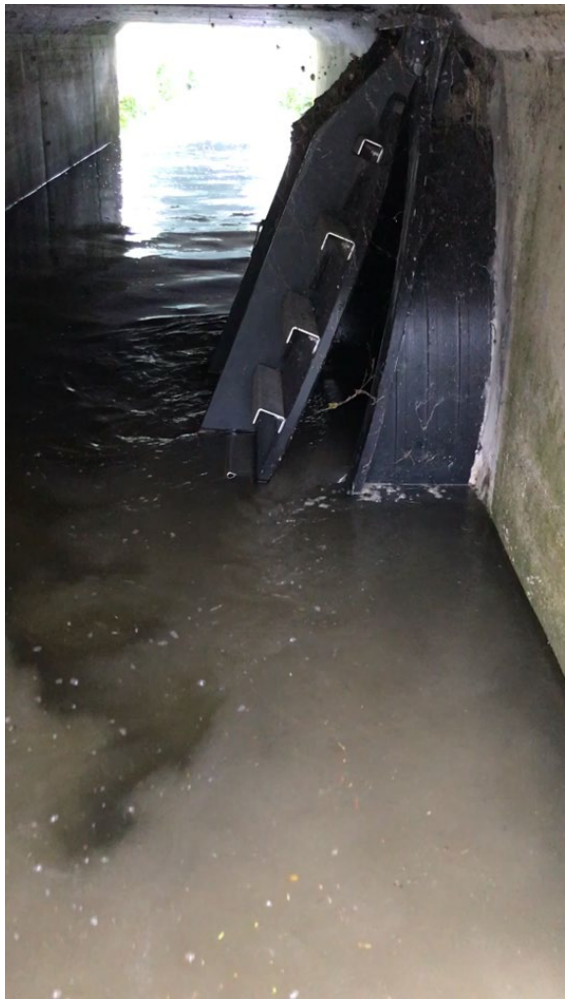
WWTP and water infrastructure as ecological stepstones



Link between green & blue with green ambassadors

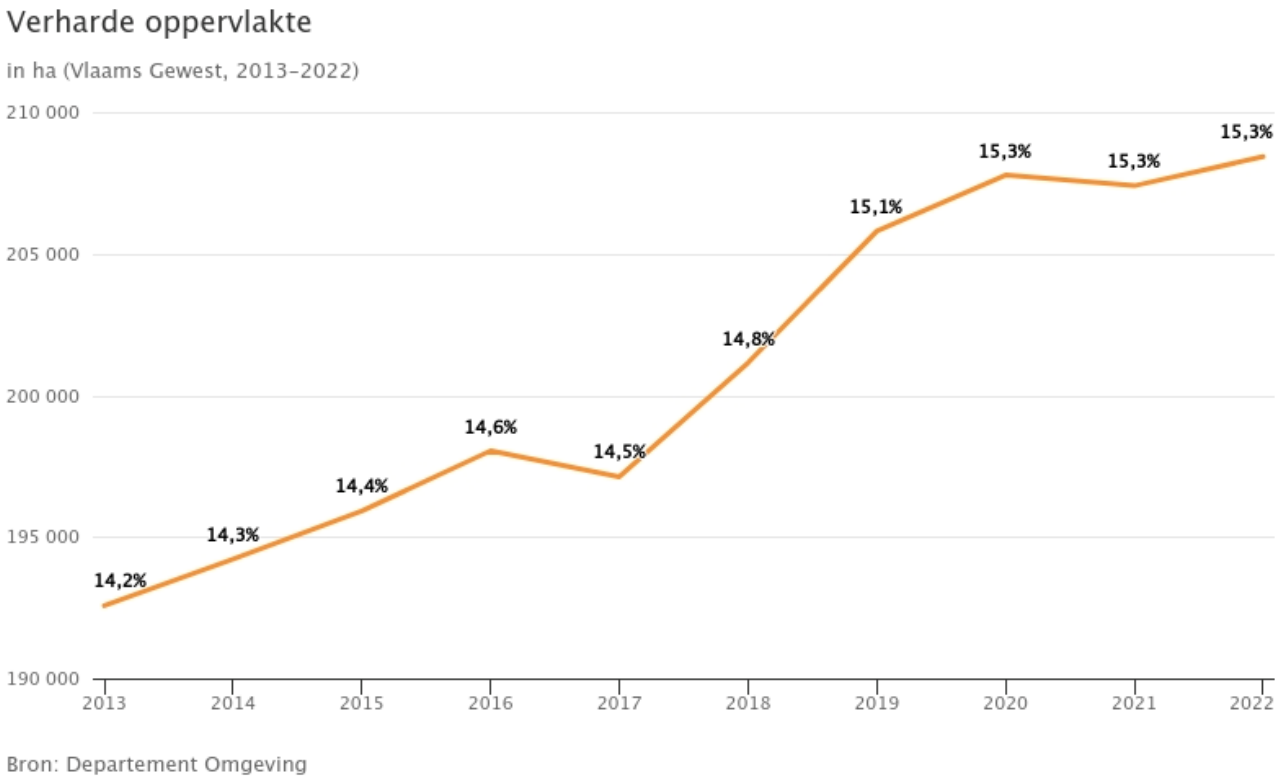
Risks of floods and drought on the environment

After period of drought => First flush : overflow causes heavy load of pollution



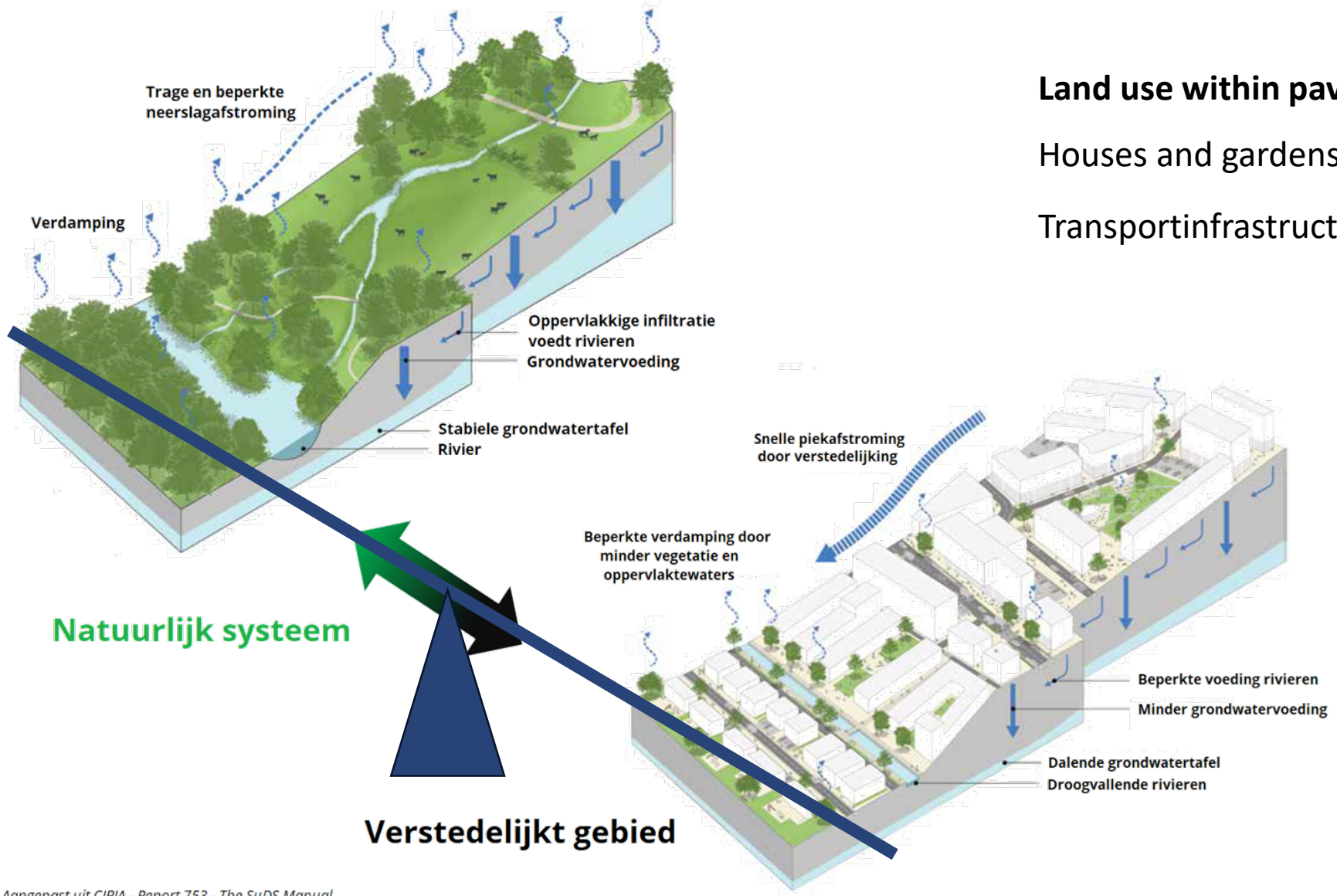
Flood: overflows, effluent can’t discharge due to high water levels.

Challenge: Water is out of balance: Paved surface in Flanders



[Betonrapport 2024 | Natuurpunt]

Restore the water balance -> search for new equilibrium



Aangepast uit CIRIA - Report 753 - The SuDS Manual

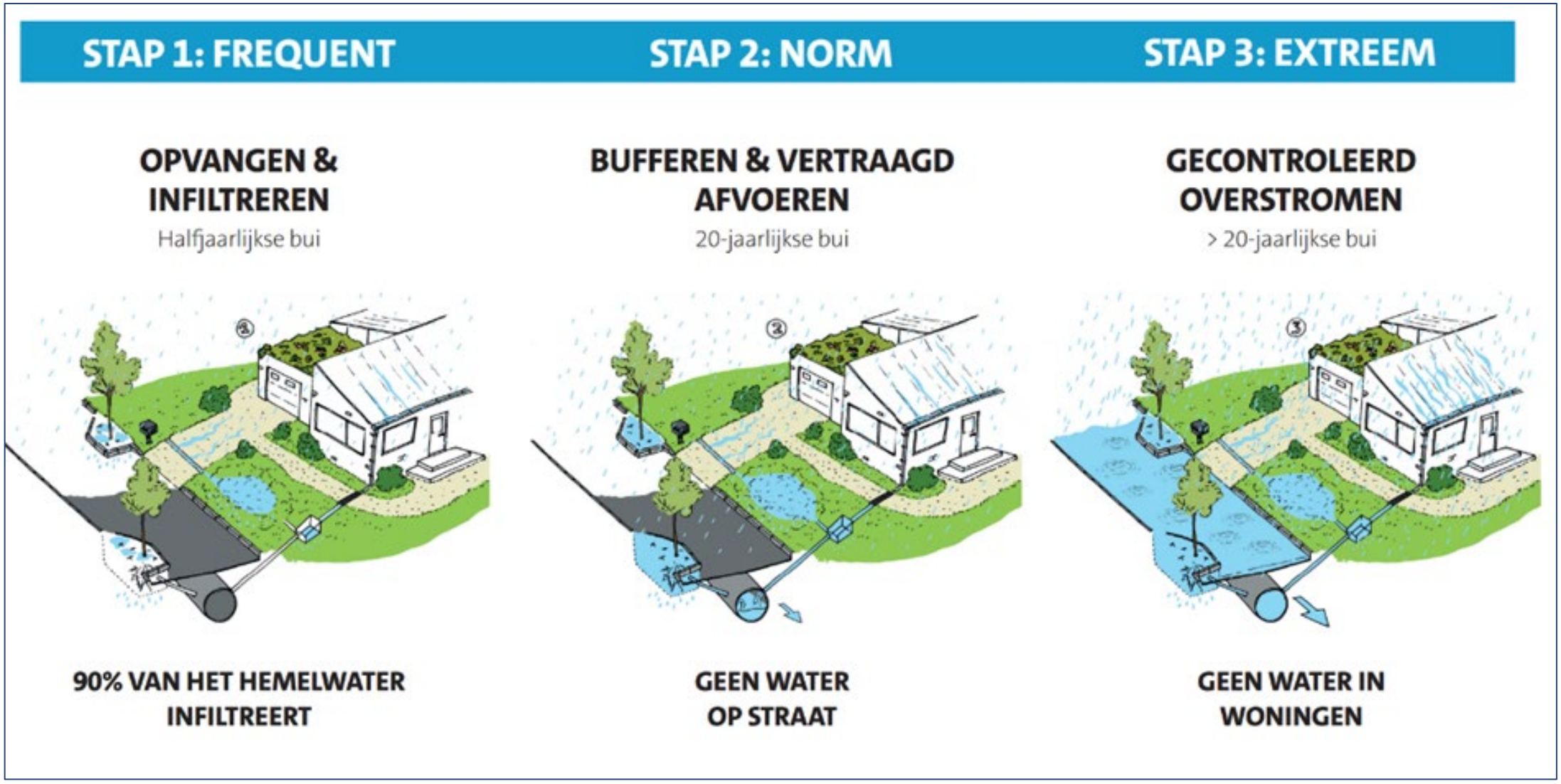
Land use within paved surface

Houses and gardens (37,0 %)

Transportinfrastructure (24,6 %)

Separating rainwater from wastewater leads to opportunities…

Three regimes in function of sustainable and safe urban water management



Complementary to implement regulation in pragmatic way

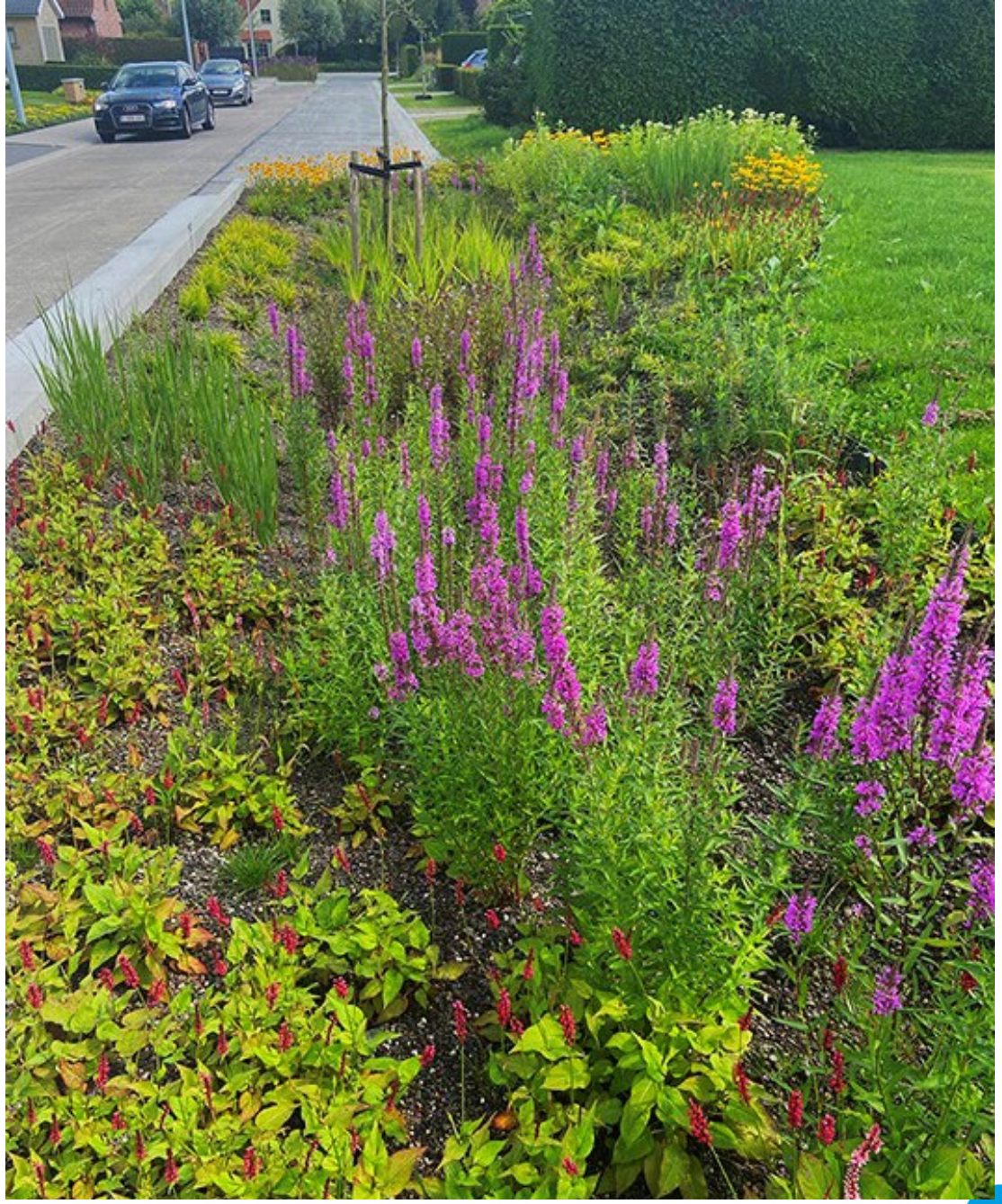
Mindshift: new way of using our precious space

Collaboration

Municipality Oostkamp

Planting by consultant on landscaping Denis Dujardin

NERO architecture & urbanism



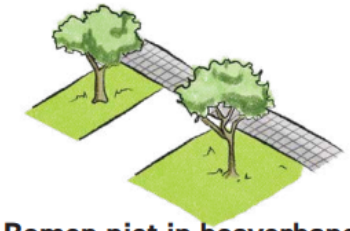
@Denis Dujardin

Garden streets: citizen participation

Tree decision tree

Bomen Beslissingsboom

Bos



Bomen niet in bosverband

Bomen behouden
(schade vermijden)

Enkel als kappen onvermijdelijk is

Heraanplanten
(schade herstellen)

Herstelcascade

01 **Benodigd herstel bepalen** (Opp / aantal) (1)

02 **Heraanplanten in de projectzone**

03 **Heraanplanten elders in de gemeente**

04 **Heraanplanten bovengemeentelijk** (3)

Enkel als heraanplanten niet mogelijk is of niet volstaat

Financiële compensatie
(bosbehoudsbijdrage) (5)

	Kappen van bos vermijden door aanpassen van tracé, werkzone, ...	Kappen en beschadigen van bomen vermijden door aanpassen van tracé, ontwerp, werkzone, uitvoeringsmethode, onteigeningen voor bijkomend fietspad, beschermingsmaatregelen voorzien, ...
	Bos mag alleen gekapt worden als er geen haalbaar alternatief beschikbaar is. De oppervlakte wordt beperkt tot het strikt noodzakelijke en wordt heraangeplant volgens onderstaande cascade.	Solitaire bomen mogen alleen gekapt worden als het niet mogelijk is om ze te behouden. De gekapte bomen worden heraangeplant volgens onderstaande cascade.
01	Te compenseren opp = opp van ontbossing x compensatiefactor (conform de wettelijke bepalingen) (4)	Als heraanplanten in de projectzone of elders in de gemeente mogelijk is, worden gekapte bomen 1 op 1 vervangen door nieuwe bomen. Als dit niet kan, worden gekapte bomen vervangen door nieuw bos aan te planten a rato van 25/200/400m² aan nieuw bos voor een gekapte boom met een omtrek van resp. <1m/1-2m/›2m (2)
02	Het gekapte bos wordt vervangen door nieuw bos op hetzelfde perceel.	**Openbaar domein** De gekapte bomen worden heraangeplant in of langs het tracé van het project. **Privaat domein** De gekapte bomen worden heraangeplant op hetzelfde perceel.Als de eigenaar niet akkoord is, worden de bomen in of langs het tracé van het project heraangeplant
03	Bos dat niet (volledig) op hetzelfde perceel kan gecompenseerd worden, wordt gecompenseerd op gronden van de gemeente (-> afstemming met gemeente ikv het project)	Bomen die niet binnen de projectzone kunnen heraangeplant worden, worden op beschikbare gronden van de gemeente heraangeplant. Dit kan bijvoorbeeld ook een andere straat zijn waar wel ruimte is om bomen aan te planten, een bebosbaar perceel, ... (-> afstemming met gemeente ikv het project)
04	Bos en bomen die niet in de projectzone of in de gemeente heraangeplant kunnen worden, worden elders vervangen door nieuw bos	

(1) Dit is een interne richtlijn van Aquafin. Als ikv de vergunning strengere eisen worden opgelegd, zijn de eisen van de vergunningverlener van toepassing
(2) De omtrek van de bomen wordt gemeten op 1m hoogte
(3) De heraanplanting wordt gerealiseerd in samenwerking met de Bosgroepen vzw
(4) Ook van toepassing voor bos waarvoor de boscompensatieplicht niet geldt (nl spontaan bos jonger dan 22 jaar)
(5) Enkel van toepassing op bos waarvoor de boscompensatieplicht geldt

Inspire with blauwgroenvlaanderen.be

FILTER OP

THEMA

- Voorkomen wateroverlast
- Water hergebruik
- Verdroging beperken
- Beperken van hitte
- Biodiversiteit versterken

WAAR

- ○ Gebouw
- ○ Straat
- ○ Plein
- ○ Park
- ○ Wijk

BOVENGRONDSE RUIMTE

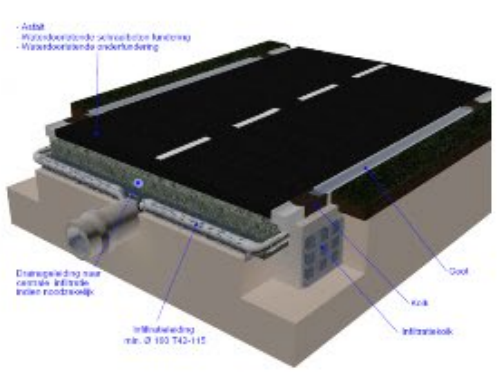
- ○ Ja

INFILTRATIEKOMMEN EN -VELDEN

WATERDAKEN

WATERPLEINEN

GROENE GEVELS



WATERDOORLATENDE ONDERFUNDERING MET ONDOORLATENDE VERHARDING

BOMEN IN DE STAD

Network of customers

Aquafin

Aquaplus

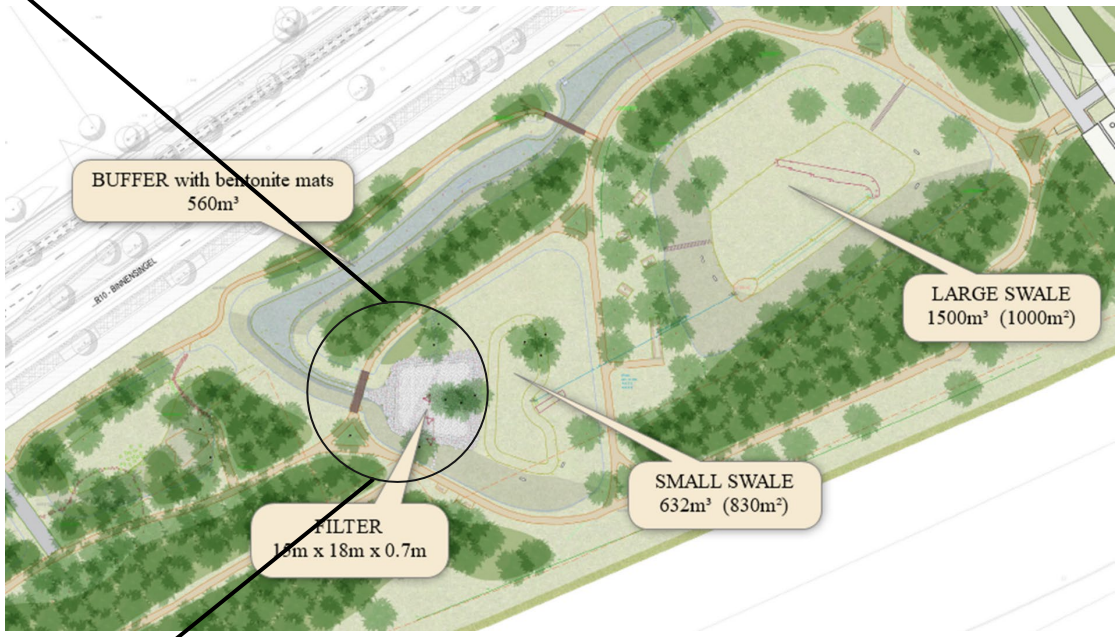
Risks prone to scaling up the blue green measures

- **Limited space**: well-considered and tailored to the needs of the neighborhood and surrounding area -> multifunctional use of space and creating ecosystem services
- **Water Quality**!
- **Maintenance** : challenge to maintain at large scale
- **Treatment of waste water**? Depending on the needs of the environment -> less efficient in treatment and space is limited

Research and development

Testing and demonstration projects

Rainwater treatment with NBS – STOPUP



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Treatment of effluent and overflow water with NBS

Small scale systems

Domestic wastwater treatment

- New technology available with nutrient removal
- Suitable for remote residential areas
- cost-benefit analysis (ecologic, social, economic benefits)

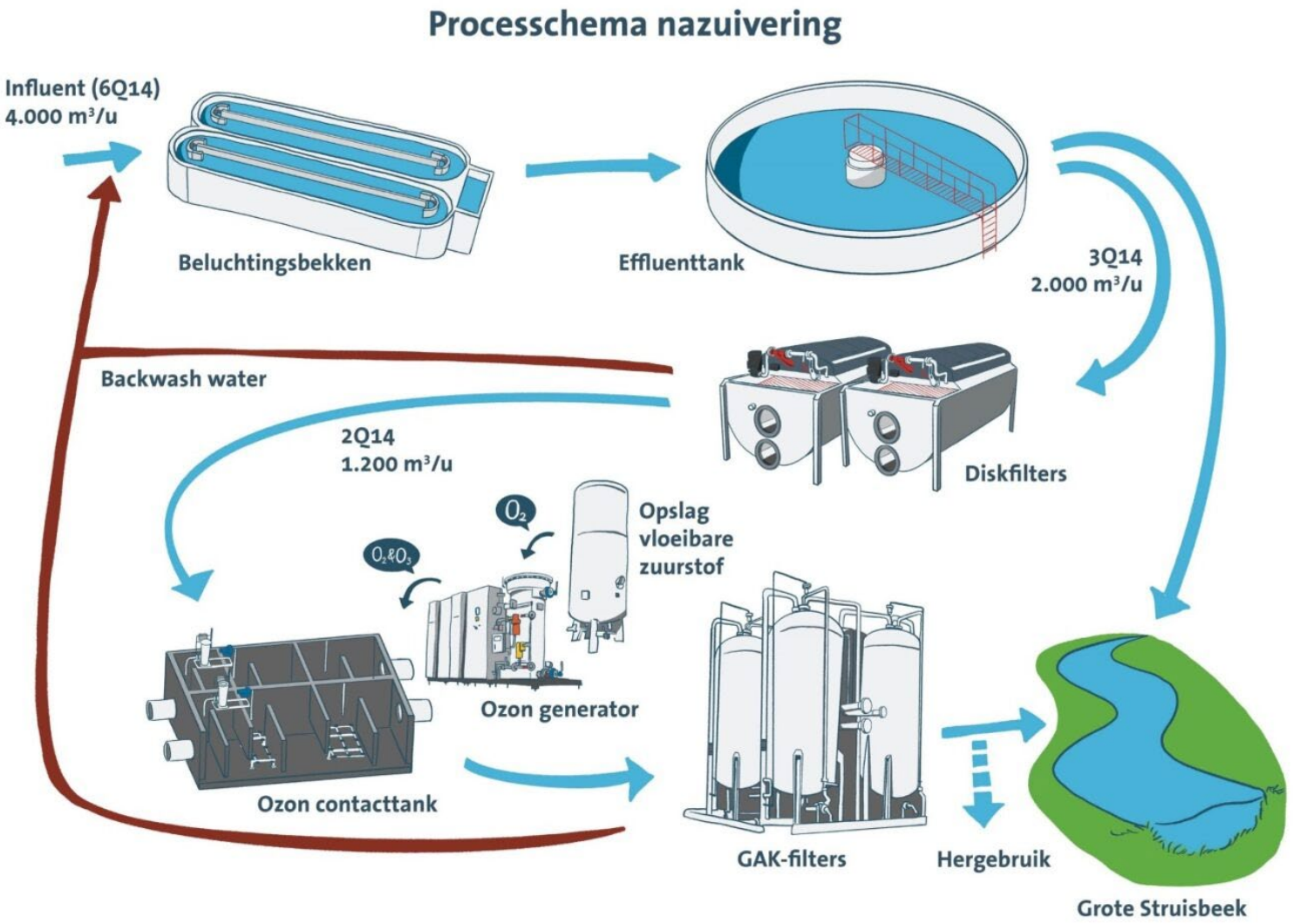
Revision of the urban wastewater treatment directive (> 30 years old)

Very ambitious, very expensive, tight deadline: 2045

Very positive impact for the aquatic environment

Political Agreement! Flanders needs to implement the directive within 3 years in the law.

Quaternairy treatment at WWTP Aartselaar: Removal of micropollutants



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Coffee break