



EUROPEAN UNION



EU MISSIONS

ADAPTATION TO CLIMATE CHANGE

**The Mission Implementation Platform – #MIP4Adapt
Overview**



#EUmissions #HorizonEU #MissionClimateAdaptation



EUROPEAN UNION

Flood Resilience: Strategies and Solutions for a Safer Future

September 26th, 10:00- 11:30 CET



Agenda

Duration (min)	Agenda item
5	Welcome
5	Warm-up quiz: 5 questions in 5 minutes!
15	Floods – What to do? Tools, data available and local best practices in the EU’s flood risk management
10	Q&A
30	Showcasing experiences
10	Opportunities: Water4All ongoing projects and next calls
5	Q&A
5	Final quick check-up questions
5	Closing remarks

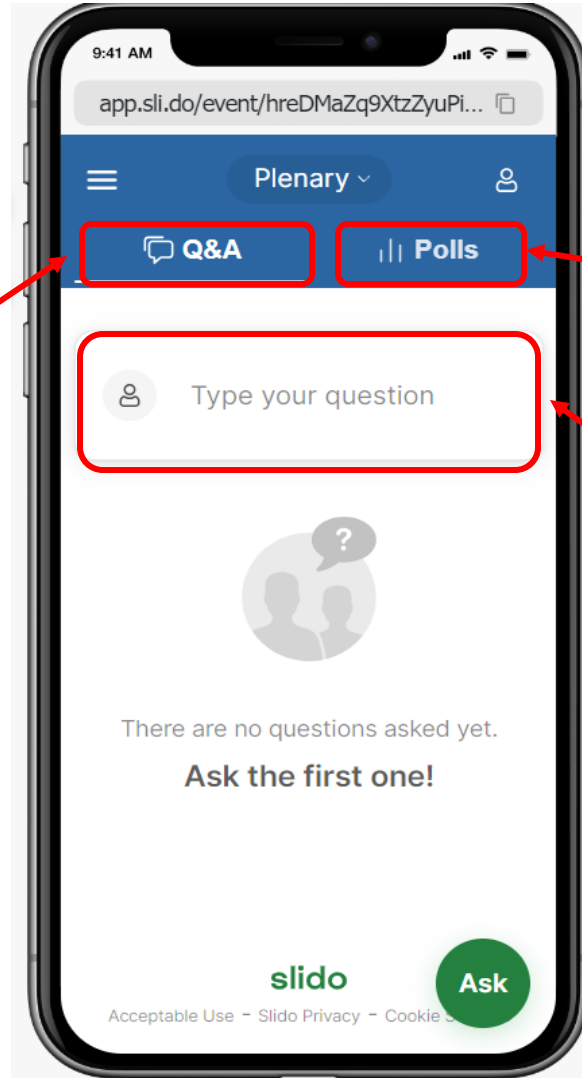


Housekeeping

- Please note that the **meeting is being recorded**.
- Please use slido for the Q&A to pose any questions to the speakers. Please don't unmute yourself, except for when your question is selected and you would like to ask directly.
- Select "Gallery view" in the top right corner so that you can see the presentation and the main speaker. For this to work, all other **cameras** and mics must be off, except for the speaker(s).



Slido



Click here to ask a question.

Click here for accessing the polls.

Type your questions here.





Warm-up quiz: 5 questions in 5 minutes!

Please answer the questions to test your knowledge on Flood risk in Europe





Floods – What to do?

Tools, data available and local best practices in the EU's flood risk management

Ioannis Kavvadas

Officer at European Commission
Directorate-General for Environment (DG ENV)



Good practice in flood risk management

The “floods viewer”

*EU Mission on Adaptation to Climate Change
Mission Implementation Platform MIP4ADAPT
Flood Resilience: Strategies and Solutions for a Safer Future*

26 September 2024

Ioannis KAVVADAS, European Commission, DG for Environment

The Floods Directive

Background

The legal basis

The Lisbon Treaty's (functioning of the EU) Article 191:

1. Union policy on the environment shall contribute to pursuit of the following objectives:

- *preserving, protecting and improving the quality of the environment,*
- *protecting human health,*
- *prudent and rational utilisation of natural resources,*
- *promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.*

2. Union policy on the environment shall aim at **a high level of protection** taking into account the diversity of situations in the various regions of the Union. It shall be based on **the precautionary principle** and on the principles that **preventive action should be taken**, that environmental damage should as a priority be rectified at source and that the polluter should pay.

The fundamentals of the Floods Directive/FD

- Introduced in 2007
- **Purpose:** establish a framework (incl. governance and measures) for the assessment and management of flood risks
- **Aim:** reduction of adverse consequences associated with floods for...
human health, the environment, cultural heritage and economic activity
- **Approach:** *textbook, “identify-evaluate-react to risk*” in (6-yearly) **cycles**, to account for various uncertainties*

**risk defined as impact x likelihood

The Floods Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32007L0060;>

The risk management cycle vs. the FD's cycle

Risk management cycle

Identify risk
Evaluate risk
React to risk

→
→
→

FD's cycle

Preliminary Flood Risk Assessments
Flood Hazard and Risk Maps
Flood Risk Management Plans

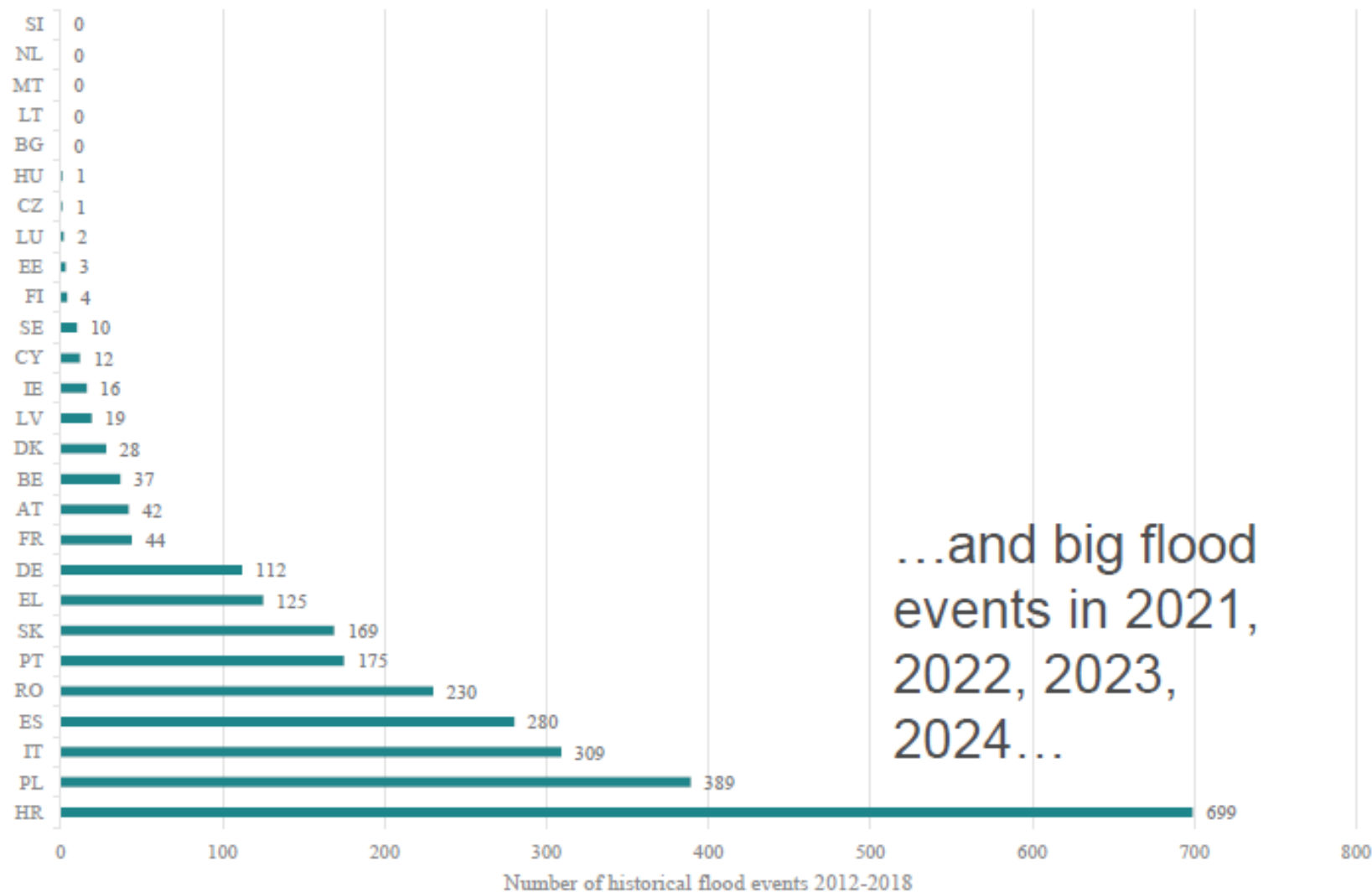
- First FD cycle 2009-2015*, second cycle 2016-2021
- Third cycle 2022-2027, etc. (there is no sunset clause)
 - 3rd PFRAs by December 2024 (reporting to the Commission by March 2025)
 - 3rd FHRMs by December 2025 (reporting by March 2026)
 - 3rd FRMPs by December 2027 (reporting by March 2028)

* For our reviews visit https://ec.europa.eu/environment/water/flood_risk/overview.htm and https://ec.europa.eu/environment/water/water-framework/impl_reports.htm

In practical (and simplified) terms

- Member States make a **flood risk assessment** and identify **areas of significant** risk (step 1)
- For the areas of significant risk the MS prepare **flood maps**, showing extent of flood, depth, etc. (step 2)
- MS set their flood risk reduction **objectives** for human health, the environment, the economy and cultural heritage
- MS take **measures** to achieve the objectives set
- Objectives and measures are spelled out in **Flood Risk Management Plans** (step 3)

+/- 2700 flood events in the EU, 2012 – 2018...



...and big flood events in 2021, 2022, 2023, 2024...

“In the past 30 years alone, floods in Europe have affected 5.5 million people, killing almost 3,000. Floods caused more than EUR 170 billion in economic damage in the same period”
[EUCRA, 2024]

The Floods Directive

Good practice

Good practice

- **Have a clear framework for flood risk management** in the country, which is known to all relevant actors
- **Assign responsibility** for managing flood risk unambiguously to **specific authorities**
- Keep flood-related **policy elevated** within decision-making spheres, not only during floods (for the benefit of politicians and citizens alike)
- **Adopt a river basin wide approach to risk, with local buy-in**
- If flood risk management is decentralised, **coordinate the plans of adjacent regions**
- Consolidate different flood related plans into **one coherent document**

Good practice, cont'd

- Pay attention to **awareness**, and **protection**, and **prevention**, and **preparedness**, and **response**
- Improve **awareness of flood risk** by citizens and stakeholders; **communicate clearly the risk to the public** (including the residual risk, e.g. behind levees), **train the public** from a young age
- Make **public consultation** about flood risk management (e.g. the FRMPs) the norm
- Strengthen the **coordination and collaboration** between different sectors, beyond water (e.g. civil protection, spatial planning, agriculture, insurance)
- Seek **ever closer international cooperation** in smaller and larger river basins alike

Good practice, cont'd

- Set clear objectives and sub-objectives for flood risk reduction
- Estimate the **distance to achieve the objectives** that have been set
- Select **measures that address the objectives**
- **Connect** measures to objectives
- **Be clear of the prioritisation of** measures to reduce the risk (carry out cost/benefit)
- Take a **long-term perspective for funding** flood risk management measures
- **Secure the funding** of measures
- **Keep track of the progress** in implementing the measures

Good practice, cont'd

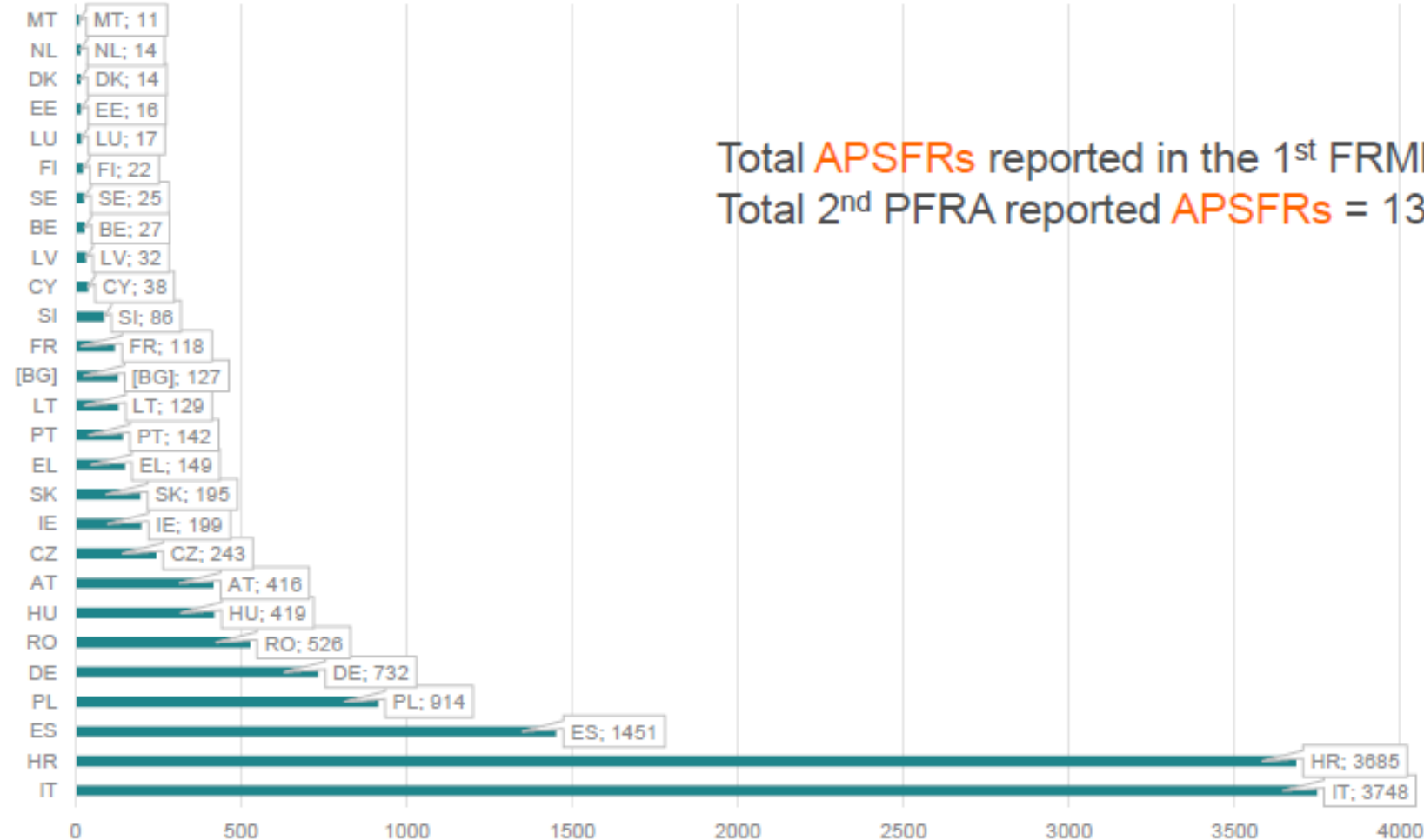
- **Adopt new approaches/technologies** (data handling, methodologies, models, satellites, sensors, digital terrain) for better assessing and mapping flood risk
- Better **understand exposure and vulnerability** (urbanization, wealth accumulation, building codes)
- Systematically take stock of **losses from flood events** and estimate potential future losses
- Manage the risk of **flashfloods** – urban/pluvial floods AND manage the risk of **coastal flooding**, especially the long term
- Understand the **impact of climate change** on flooding in your region and reflect it in the plans
- **Integrate nature based solutions from the start** (and cost/benefit thereof)

The “flood risk areas viewer”

A tool to aid awareness raising in the EU

Areas of Potential Significant Flood Risk in the EU

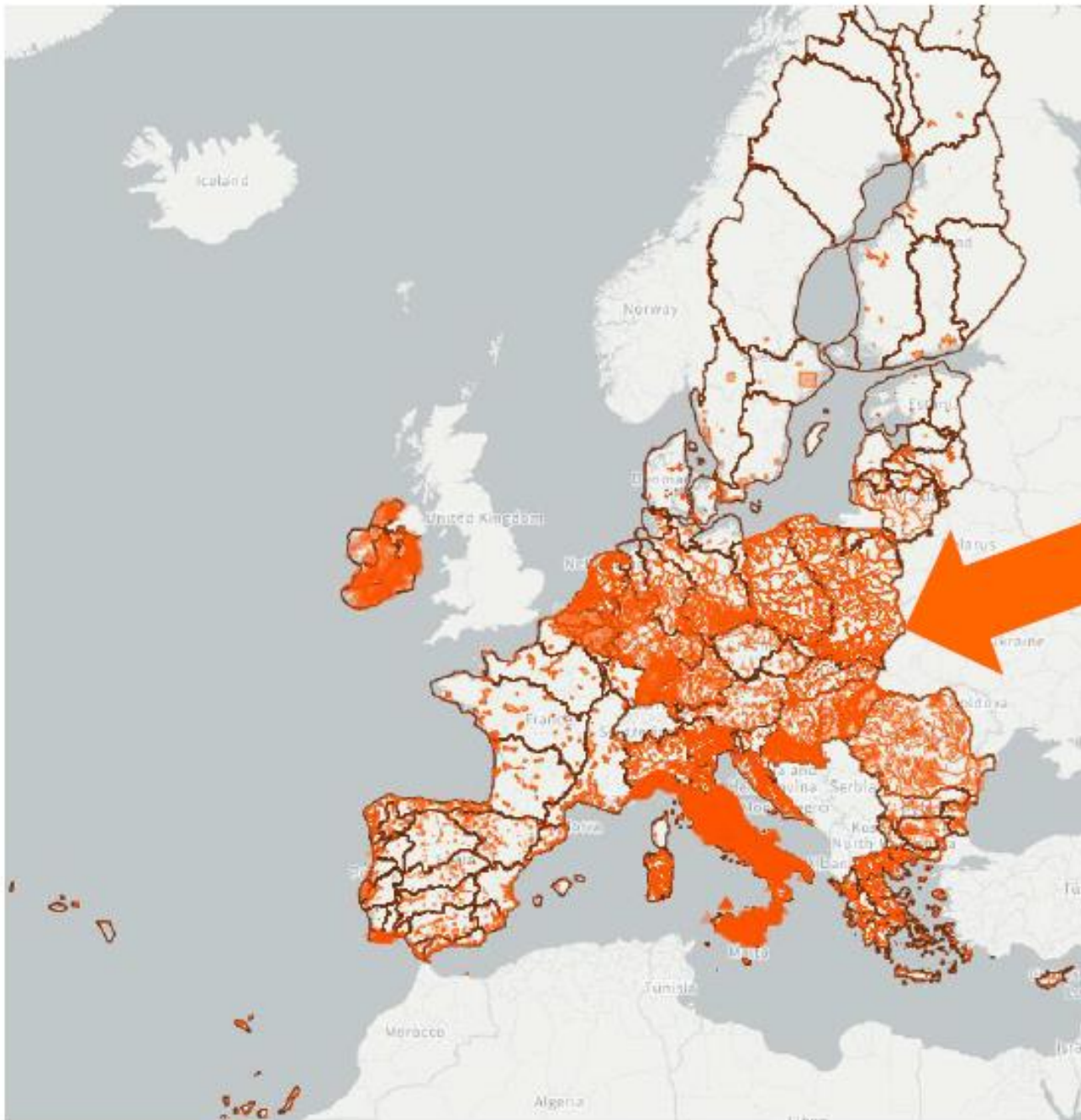
Number of APSFRs per MS (2nd cycle, 2016-2021)



Total APSFRs reported in the 1st FRMPs = 7 906
Total 2nd PFRA reported APSFRs = 13 495



Flood risk areas viewer



APSFRs

Flood risk areas viewer

- Aims to raise the public's awareness (but has considerable “depth” by providing access to MS' websites)
- Premiered in October 2023
- Hosted on the European Environment Agency's “WISE Freshwater” website, <https://discomap.eea.europa.eu/floodsvviewer/>
- Shows on a single map all nearly 14,000 **Areas of Potential Significant Flood Risk (APSFRs)** identified in the EU
- Reflects work carried out by the Member States under the [Floods Directive](https://eur-lex.europa.eu) [eur-lex.europa.eu]

Flood risk areas viewer

- Shows which areas of potentially significant flood risk have been identified by each Member State.
- Member States define what constitutes a potentially significant flood risk depending on their particular circumstances and flood risk management approaches. Direct comparisons between Member States are therefore not advisable
- Identifying areas of potentially significant flood risk is but one step in the flood risk management process. By clicking on the map the users have access to relevant information and links
- These include Member States' preliminary flood risk assessments, flood hazard and risk maps (which show the extent and depth of the floodwater), and flood risk management plans in the national language/s

Flood risk areas viewer, cont'd

- Flood risk may change over time, for various reasons. This is why Member States update periodically their flood risk assessments, flood hazard and risk maps, and flood risk management plans.
- For example, flood risk areas previously identified as potentially significant may cease to be considered as such, new ones may be added.
- The Floods Directive foresees updates every six years, the current flood risk management plans cover the period 2022-2027.
- The viewer also provides a contact to the national authority/ies tasked with implementing the Floods Directive

“Flood Risk Areas” viewer, three steps to awareness!



1. Zoom into the area of interest

2. Click, and read the information



Prévention des inondations

Accueil | Contact | Aide | À propos

Le 18/06/2023 10:00:00

Des outils adaptés de planification et de gestion des risques d'inondation, au fil de la décision de construction des bâtiments nouveaux des villes.

La stratégie nationale de gestion des risques d'inondation (SNGRI)

Une stratégie globale

La France est particulièrement exposée aux risques d'inondation. Selon les

estimations, plus de 10 millions de personnes sont exposées à un risque d'inondation.

Face à un constat alarmant, l'État a engagé une politique nationale de prévention et de gestion des risques d'inondation, à travers la mise en œuvre de la SNGRI, qui vise à réduire les dommages et à protéger les personnes et les biens.

La SNGRI est une stratégie globale qui vise à réduire les dommages et à protéger les personnes et les biens.

Elle est basée sur une approche globale qui prend en compte les aspects de prévention, de gestion et de réparation.

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3. Click, and explore the maps

Thank you



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Q&A session

Moderated by **Yara Shennan-Farpón**, ICATALIST

Supported by **Giovanni Roberti**, Ricardo



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Showcasing experiences



Showcasing Experiences

Modelling the cascading failure of critical infrastructure services

Mehdi Khoury

University of Exeter

m.khoury@exeter.ac.uk



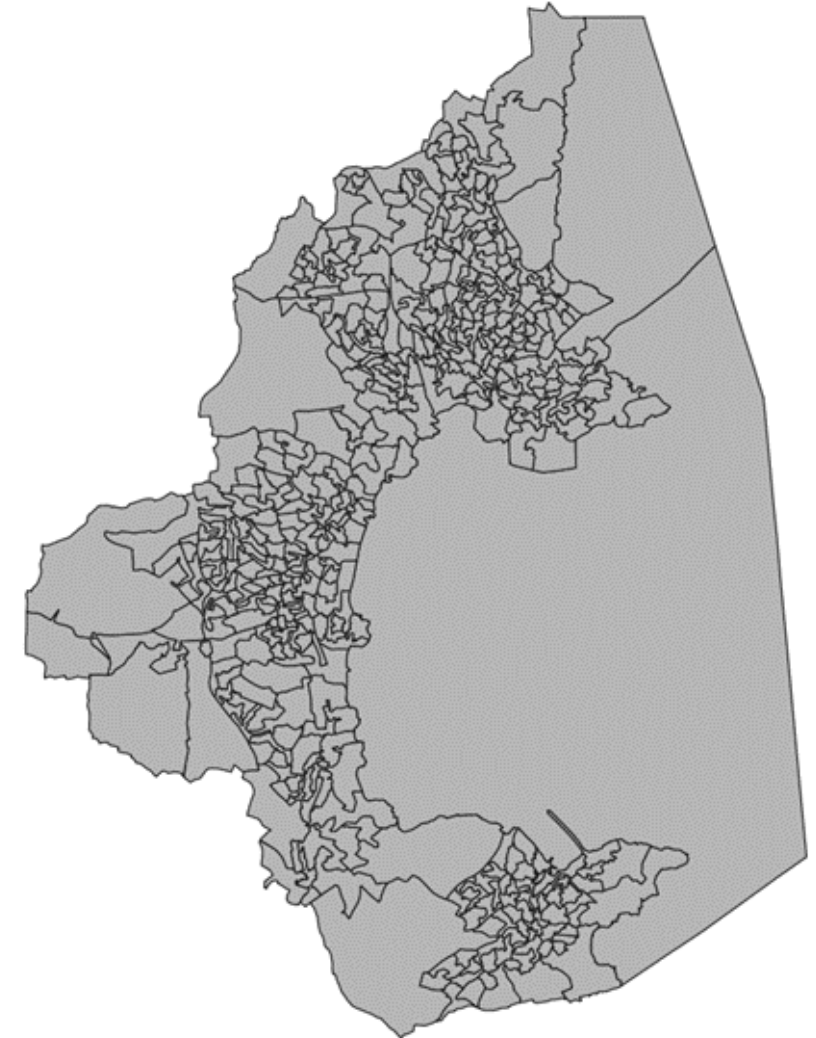
Agenda

1. Torbay case study
2. Building a network of critical infrastructure nodes
3. A looping model connecting services & human capital
4. Measuring impact of cascading failure on services after flood



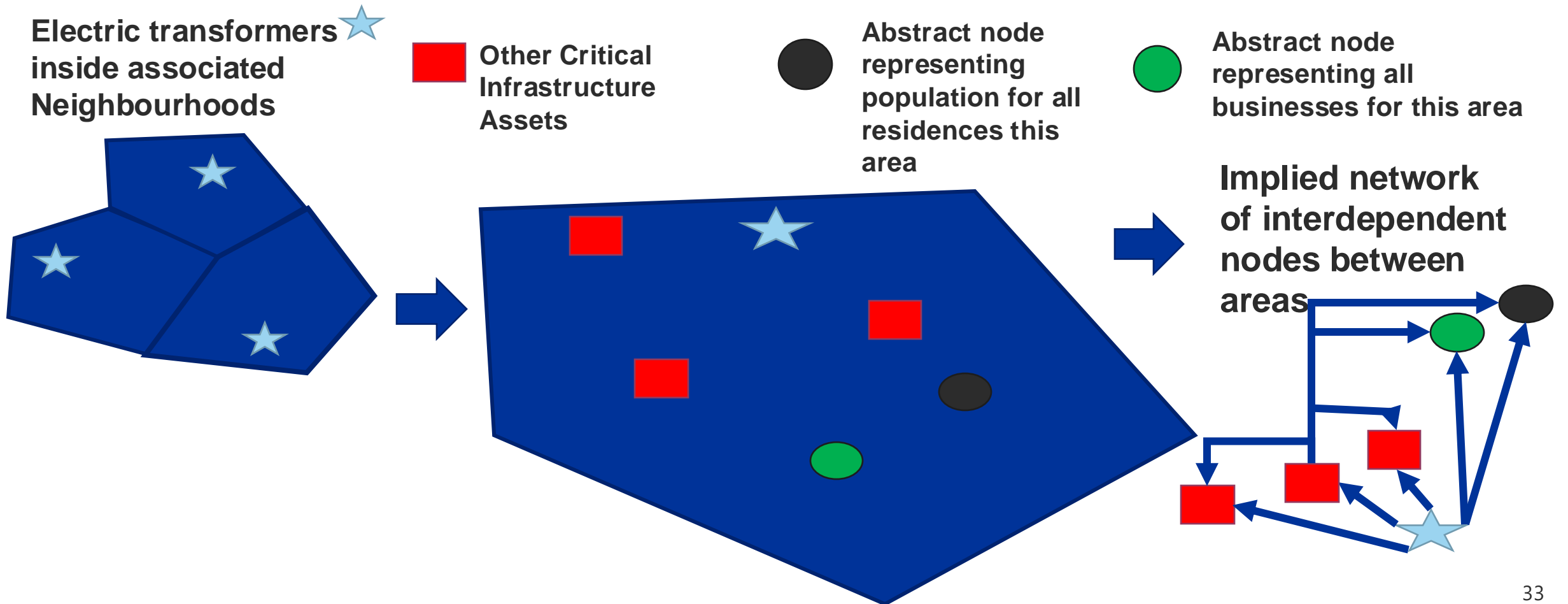
Torbay case study

- **Map divided into smallest statistical areas**
: 479 Census “Output areas” defined by *Ordnance Survey* (Each area between **100** and **625 persons**)
- **Typical census data** available:
 - employed residents that drive to work, residents with dependent children,
 - lone parents with dependent children ...
 - employment data per industry e.g. number of persons working in “*D: Electricity gas steam and air conditioning supply*”,





Building a network of critical infrastructure nodes





A looping model connecting services & human capital

INPUTS:

- Flood depth,
- Listed infrastructure assets (e.g. power grid transformers),
- Network of connections/dependencies between assets (e.g. water sewage pump need electricity to work),
- Sampled data (e.g. energy demand, water demand, road traffic data... etc),
- Human capital available (pool of workers/actors available for delivering services),
- Community integrity (availability and condition of population and workers/actors)

MODEL ENGINEERING PERFORMANCE
simulate cascading failure (with vs without permutation) of infrastructure services

OUTPUTS: Integrity of infrastructures services and businesses linked to infrastructure services delivery

MODEL IMPACT ON COMMUNITIES
curve or simplified inference associating integrity of infrastructure services with level of discomfort, health impact, socio-economic distress

OUTPUTS: human capital available (pool of workers/actors available for delivering services), community integrity



Measuring impact of cascading failure on services after flood

(Demo/video at:

https://youtu.be/IGXaXh82kao?si=rXH0Ts1y6C__ryAq)

- Indirect damages caused by cascading failure can be much greater than initial damage footprint directly caused by hazard
- Peripheral services can have a big impact e.g. *closing all primary schools could decrease hospitals workforce integrity by 16% and in turn reduce service output*
- *We can identify what are the most critical nodes to protect by measuring their direct and indirect impact on services and pop.*



Showcasing Experiences Creating a Decision Support System (DSS) for Adaptive Flood Risk Management in the Netherlands

Jasper van Lieshout

Flood Risk Management Consultant at Nelen & Schuurmans



Agenda

- Background
- Our solution
- Financing
- Stakeholder participation
- Impacts
- Conclusion



Background

- Zeeland province & Rijnmond
- Socio-economic importance
- High flood risk
- Historical vulnerability
- Climate change





LAYER 1
Flood prevention



LAYER 2
Spatial adaptation



LAYER 3
Emergency response



LAYER 4
Resilient recovery



FRAMES: Flood Resilience Areas by Multi-Layered Safety (2016)



LAYER 1

Flood prevention



LAYER 2

Spatial adaptation



LAYER 3

Emergency response



LAYER 4

Resilient recovery



FRAMES: Flood Resilience Areas by Multi-Layered Safety (2016)



Objectives

1. Quantify flood risks and evaluate adaptation measures
2. Translate flood risk impacts into easy-to-use information for decision makers and citizens

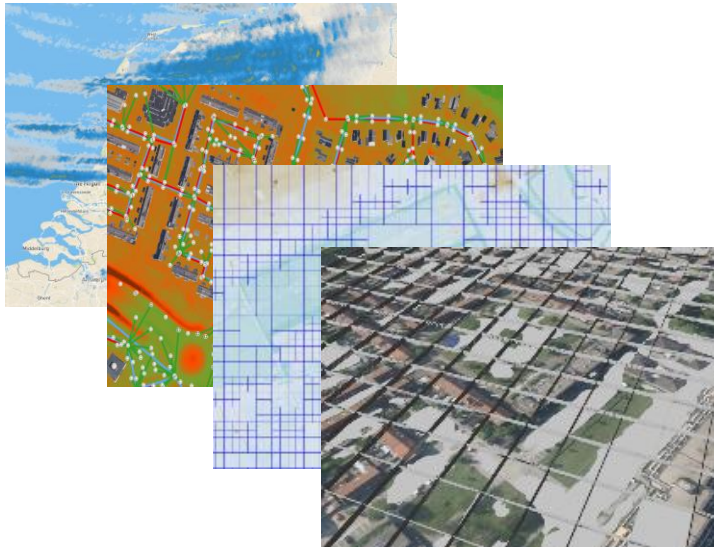




Our solution

Decision Support System (DSS)

Hydrodynamic Software Models



Digital Twins in 3D





Our solution

Hydrodynamic Software Models

- Rapid flood risk computations
- Current situation & future projections
- Highly detailed spatial resolution (up to 0.5 x 0.5 meter)

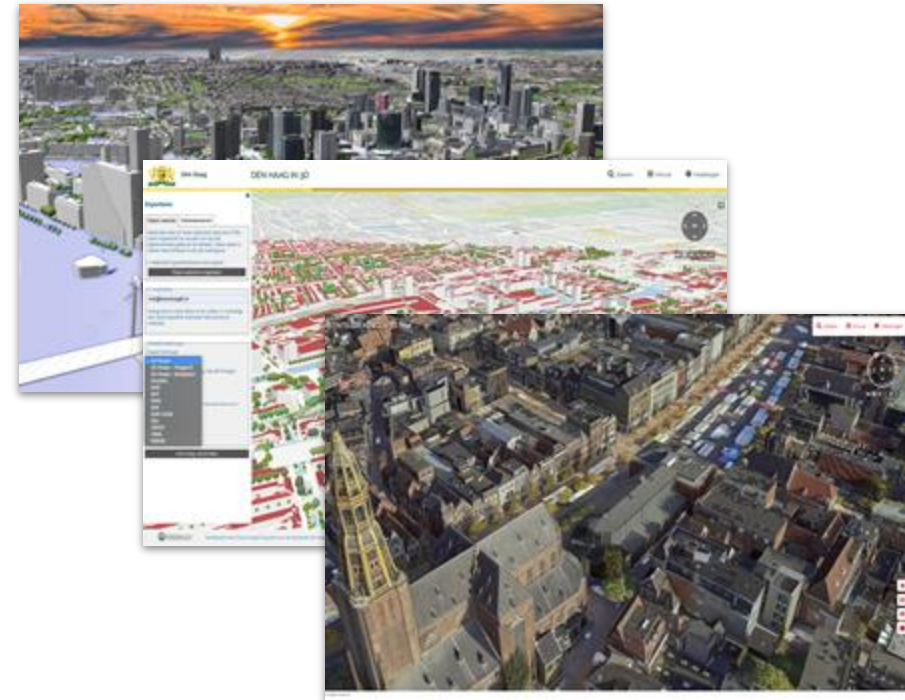




Our solution

3D Digital Twins

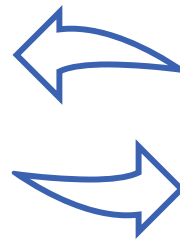
- Digital representation of the physical environment
- 3D visualization
- Gamification principles





Our solution

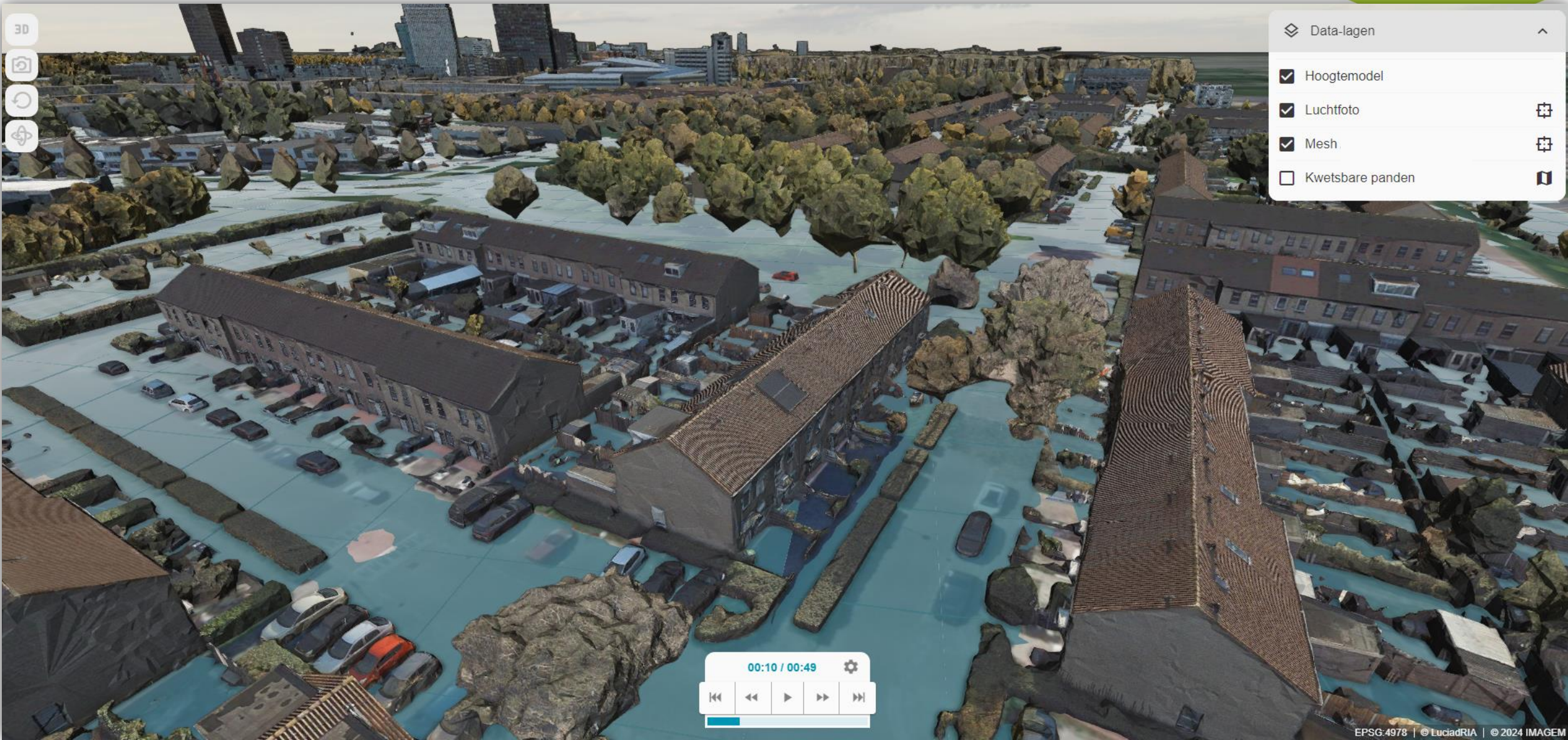
- OGC 3D Tiles (Open Geospatial Consortium)
- API Interactability & Transferability





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3D



Data-lagen

- Hoogtemodel
- Luchtfoto
- Mesh
- Kwetsbare panden

00:10 / 00:49

⏪ ⏩ ⏴ ⏵ ⏶ ⏷



Financing

- EU Horizon 2020: Research and Innovation Grant
- Project Climate IMPETUS
 - 32 Partners within 9 countries
 - 7 Demo regions
 - 15 million euro's
- Co-financed:
 - Nelen & Schuurmans Technology
 - 3Di Water Management



IMPETUS

Turning climate commitments into action



Nelen &
Schuurmans





Stakeholder participation

- Inventorisation of requirements
- Student researches (MSc)
- Co-design workshops:
 - National government
 - Municipalities
 - Academic institutions
 - Citizens
- Early adopters & pilot case studies





Impacts

Translating technical simulation data into accessible information for experts and non-experts

Citizen engagement



Flood risk management & spatial planning



Data-driven decision making





Impacts

Translating technical simulation data into accessible information for experts and non-experts

Citizen engagement



- ✓ Bridging knowledge gap by easy-to-understand information
- ✓ Supporting dialogue between inhabitants and policy makers.
- ✓ Increased awareness of the impacts of climate change.
- ✓ More citizen engagement in flood management.



Impacts

Translating technical simulation data into accessible information for experts and non-experts

Flood risk management & spatial planning



- ✓ Identify regions at risk of flooding
- ✓ Quantify the impact of climate change on local flood risks
- ✓ Evaluate potential adaptation measures for flood resilience
- ✓ Support informed decisions for adaptive urban planning



Impacts

Translating technical simulation data into accessible information for experts and non-experts

Data-driven decision making



- ✓ Quick understanding of flood risks for multi-disciplinary teams
- ✓ Faster and transparent actions
- ✓ Based on realistic and verified information
- ✓ Enhanced predictive insights for proactive flood management



Conclusion

- Decision Support System (DSS)
- Coupling Flood Models & 3D Digital Twins
- Easy-to-understand flood information
- Bridging the knowlegde gap
- Increase future flood resilience



Contact

- Name Jasper van Lieshout MSc
- Organisation Nelen & Schuurmans
- Email jasper.vanlieshout@nelen-schuurmans.nl

- Project Climate IMPETUS
<https://climate-impetus.eu/>



Showcasing Experiences Sustainable Urban Drainage System in Lappeenranta (Finland)

Sanna Varis

Design Engineer at City of Lappeenranta



Local conditions

- Lappeenranta is located in south-eastern Finland, on the shores of Lake Saimaa
- Total area 1 724 km²
- 73 000 inhabitants
- In TransformAr one of 6 demonstrators, developing urban stormwater management





Climate change impact

According to projections, **Lappeenranta** is likely to deal with



Milder winters

The increase of average temperatures will depend on emissions



Wetter Winters but with less snow

Overall precipitation increase



More winter floods, droughts in summer



Managing stormwater in urban areas

- Separate sewer systems for waste water and stormwater
- Stormwater is discharged untreated to water bodies
- Sewer system is not designed for the most intense rains -> flooding can and will happen





Challenge: Urban flooding



- July 2019

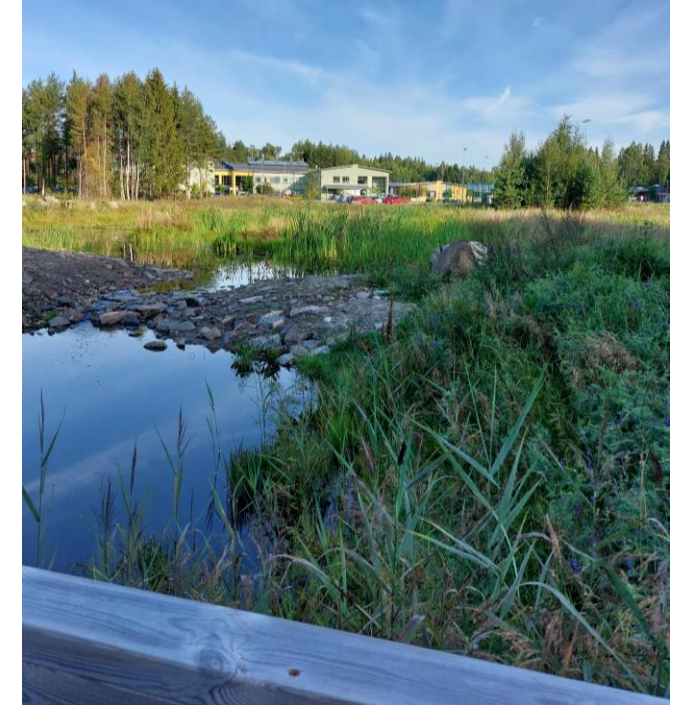


- August 2024



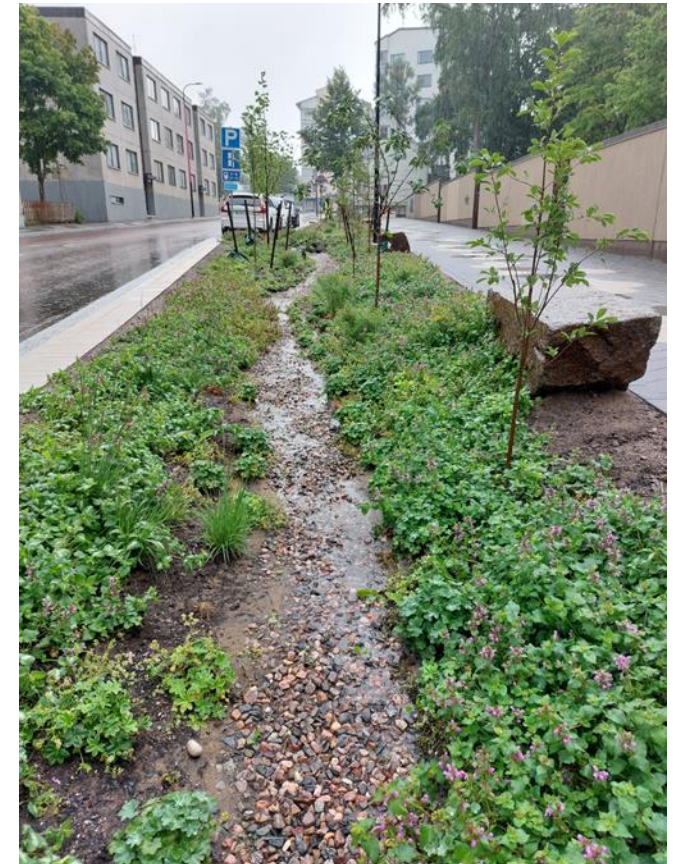
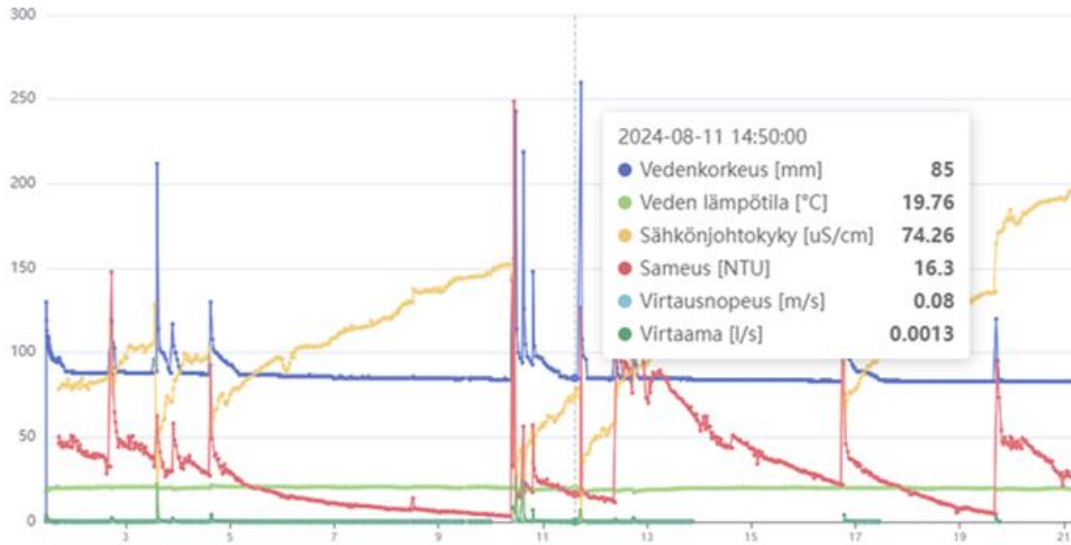
Solution: Nature-based solutions

- Stormwater Management Program
- Already in use: constructed wetlands, retention areas, infiltration
- TransformAr: bio-infiltration area in city centre





Solution: Bio-infiltration + monitoring





Citizen engagement

- CitySen.App
- Citizen science – cooperation with schools
- CEI: Survey for private plot owners, results will be utilized





Challenges (and lessons learnt)

- Slow process
- Cost
- Maintenance
- Collaboration & attitudes
- Challenges are common for all types of NBS
 - In TransformAr workshops the stakeholders highlighted: *Pilot sites are a good idea, but in practice the transition from pilot to normal operation is difficult*



Opportunities

Water4All ongoing projects and next calls

Ariane Blum

WATER4ALL

WATER4ALL
PARTNERSHIP

Water4All

Water security for the Planet

Ariane BLUM (Water4All Coordinator, French National Research Agency)



Flood Resilience: Strategies and Solutions for a Safer Future

25 September 2024

#WaterWiseEU



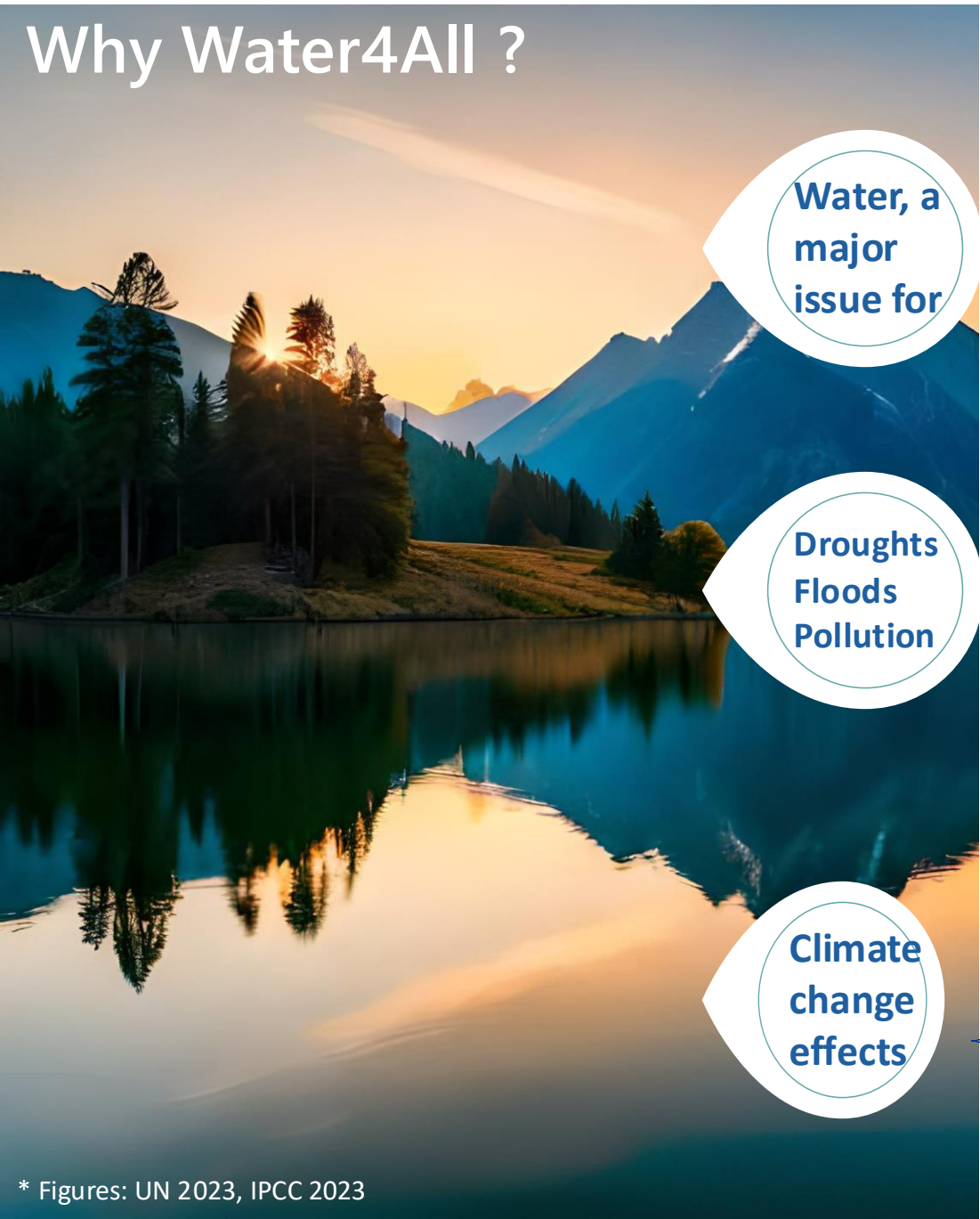
European Partnership

www.water4all-partnership.e  



Co-funded by
the European Union

Why Water4All ?

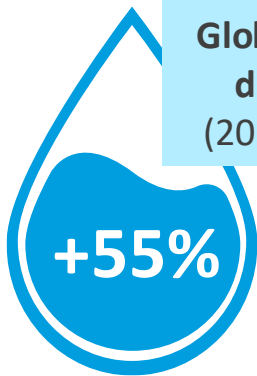


Water, a major issue for

Droughts
Floods
Pollution

Climate change effects

Life on Earth
Ecosystems
Human activities



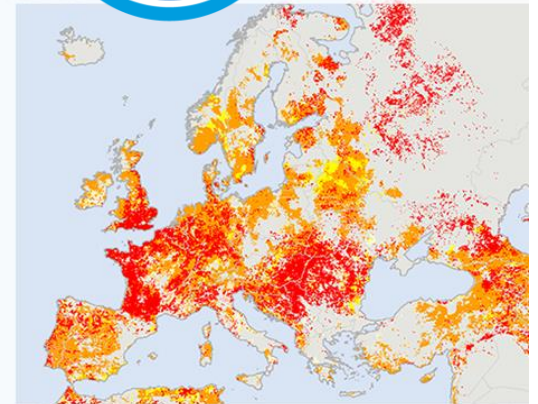
Global water demand (2015-2050)



Freshwater/EU inhab. (over 20 years)

Spain: - 65%
Malta: - 54%

Water Framework Directive 2000/60/EC
60% EU surface water bodies in poor status
30% EU groundwater bodies in poor status



Drought in Europe – August 2022
JRC Global Drought Observatory (GDO) of the Copernicus Emergency Management Service (CEMS) – 22/08/2022

Increase damage on water resource

- 90% disasters worldwide are water-related (IPCC)
- Drought in Europe 2022: 19% of normal annual rainfall on 50% of the territory (Europe) (impact on soil, ecosystems, biodiversity...)



* Figures: UN 2023, IPCC 2023

Water4All consortium

June 2022-June 2031

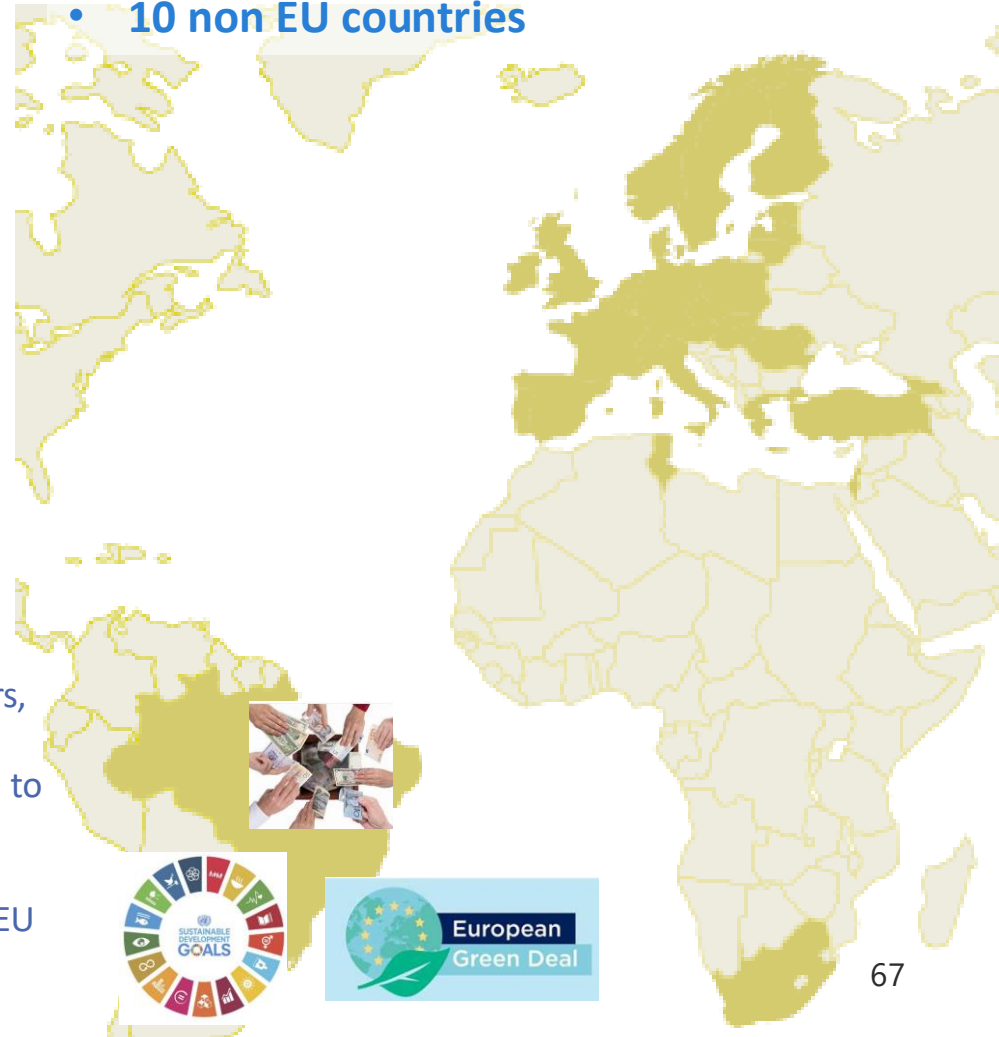


Partners



33 countries

- 23 EU Member States
- 10 non EU countries



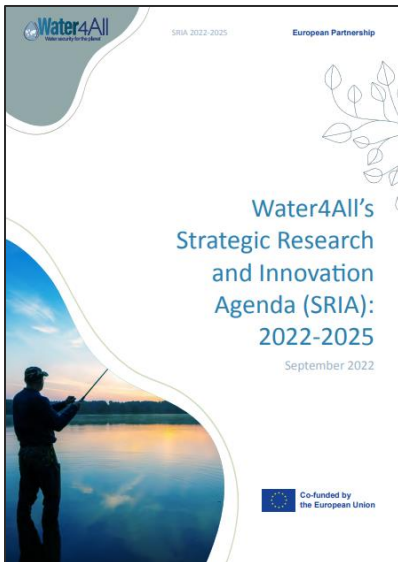
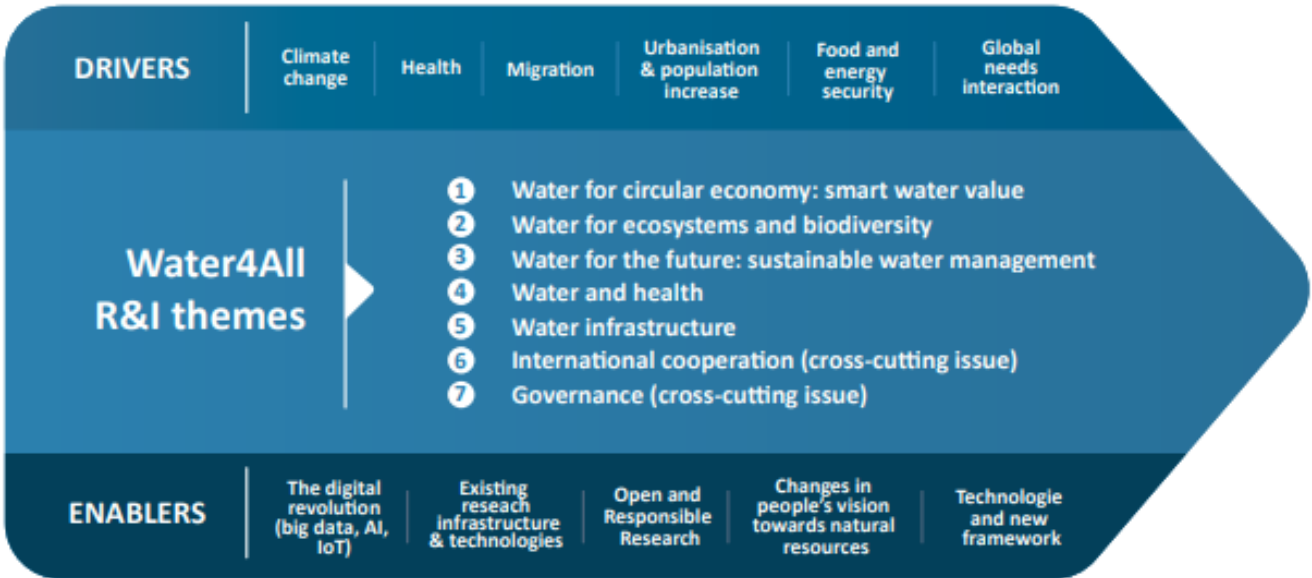
Budget

Phase 1: 86M€, 26M€ from the EC
Phase 2 : from June 2024: 103 M€, 31M€ from the EC
 For the decade : 420 M€ expected (126 M€ from EU)

A “new” way of supporting Research

- Gathering our funds
- Cross-sectoral approaches (researchers, policy makers, citizens, economic actors)
- Continuum development to the transfer and practice to the actors from knowledge
- Accelerating the impact of Research on water management (EU, SDGs objectives, WFD and others EU regulations and laws ...)

RDI themes & Strategic Research Innovation Agenda



Revision: 2025

2nd consultative workshop,
Digital tools and AI
Lisbon, 3-4 June 2024
Working groups
(.....)



After a large consultation process



7 core themes
25 sub-themes

- Research gaps
- Policy needs

II.II. Resilience, mitigation and adaptation of aquatic ecosystems and ecosystem services to global changes.

Developing improved tools for adaptation and mitigation to hydro-climatic extreme events, especially floods (including "flash-floods"), heat waves and droughts in a catchment to sea context.

III.II. River basin management

Developing innovative, low-cost and inclusive (e.g. citizen science) monitoring approaches, schemes and global strategies for the WFD implementation and the specific directives, e.g. Floods Directive.


Water4All activities

6 annual Joint Transnational Calls (2022-2028)

Min. of 3 countries, max 7 partners, public-private


1 **2022**
27 projects
27 M€

“Management of water resources: resilience, adaptation and mitigation to hydroclimatic extreme events and management tools”



2 **2023**
34 M€
(6 M€ EC)

“Aquatic Ecosystem Services”
(59 pre-proposals in step 2)
Knowledge Hub, early carrier researcher




3 **2024**
32 M€

“Water for Circular Economy”
(pre-announcement: July. Open: Sept.)



4 **2025**
32 M€

“Water and Health”
(pre-announcement: July. Open: Sept.)



.....

“Additional Activities”



- Identification of Research gaps, needs
- International Cooperation
- Training and capacity buildings, PhD Schemes
- Observatories and R&I infrastructures
- Support to SMEs (EU incubator, transfer..)
- Water Oriented Living Labs
- Platform of solutions for water management (including ecosystem restoration)
- Open data, open science (knowledge hub, open database) with a transdisciplinary approach

JTC1 “Management of water resources: resilience, adaptation and mitigation to hydroclimatic extreme events and management tools”

TOPIC

1

Resilience, adaptation and mitigation to hydroclimatic extreme events

- **27 funded project funded in JTC1 (2022):** “Management of water resources for increased resilience, adaptation and mitigation to hydroclimatic extreme events”

- **Budget 27M€**

- **Project period: 2024-2027**

- **Follow up**
- **Clustering workshops**
- **Policy briefs**



2

Tools for water management - in the context of hydroclimatic extreme events

FOR DOWNLOAD



3

Improved water governance in the context of hydroclimatic extreme events and international contexts

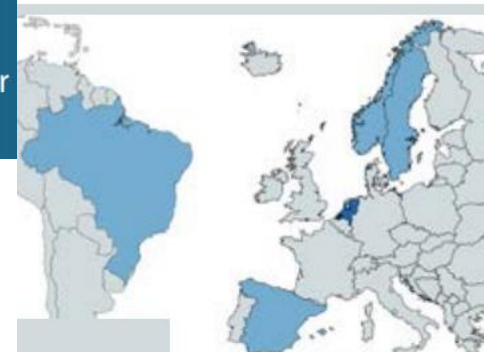
ECCO

Enhancing resilience in a changing climate through comprehensive urban flood design



GROUNDEXTREMES

Understanding and governing groundwater to reduce risk of hydrological extremes



2nd Joint Transnational Call "Aquatic Ecosystem Services"

TOPIC

1

Mapping, monitoring, & assessment for a better understanding of ecosystem services in a context of changes, from local to global change.

2

Understanding & predicting multiple pressures (including anthropogenic pressures) - impact – response relationships in ecosystem services through advanced methods & techniques.

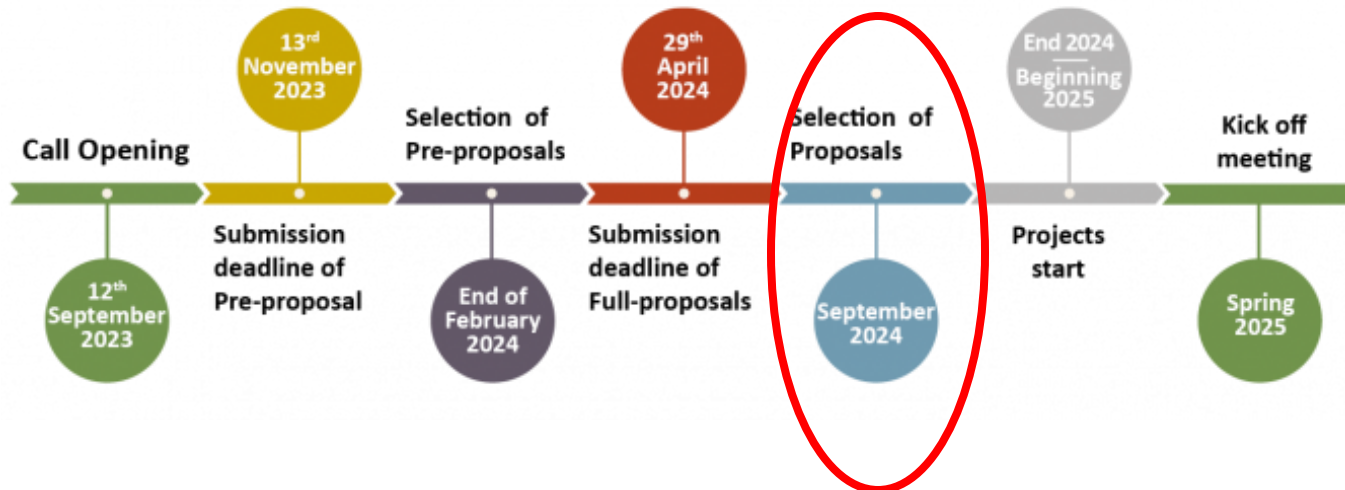
3

New tools & solutions for better integration of ecosystem services into the management of water resources.

- 36 funding partners, 30 countries
- Expected budget: ~ 36 M€
- Call secretariat: ANR
- 2 additional modalities
 - Early Career Researchers (PhD < 10 years)
 - Knowledge Hub



- 118 pre-proposals received (step 1)
- 59 invited in step 2



3rd and 4th Joint Transnational Calls

Deadline: 13 Nov. 2024



Call secretariat: PTKA (GE)

Potential budget 32M€

Webinar 2nd of October, 13h30 (CEST)

The 4 topics are

- **Topic 1:** Enhancement of water circularity in industries.
- **Topic 2:** Urban water circularity.
- **Topic 3:** Resource recovery and valorization.
- **Topic 4:** Economic, environmental and social implications of water reuse and recovered products

Main modalities

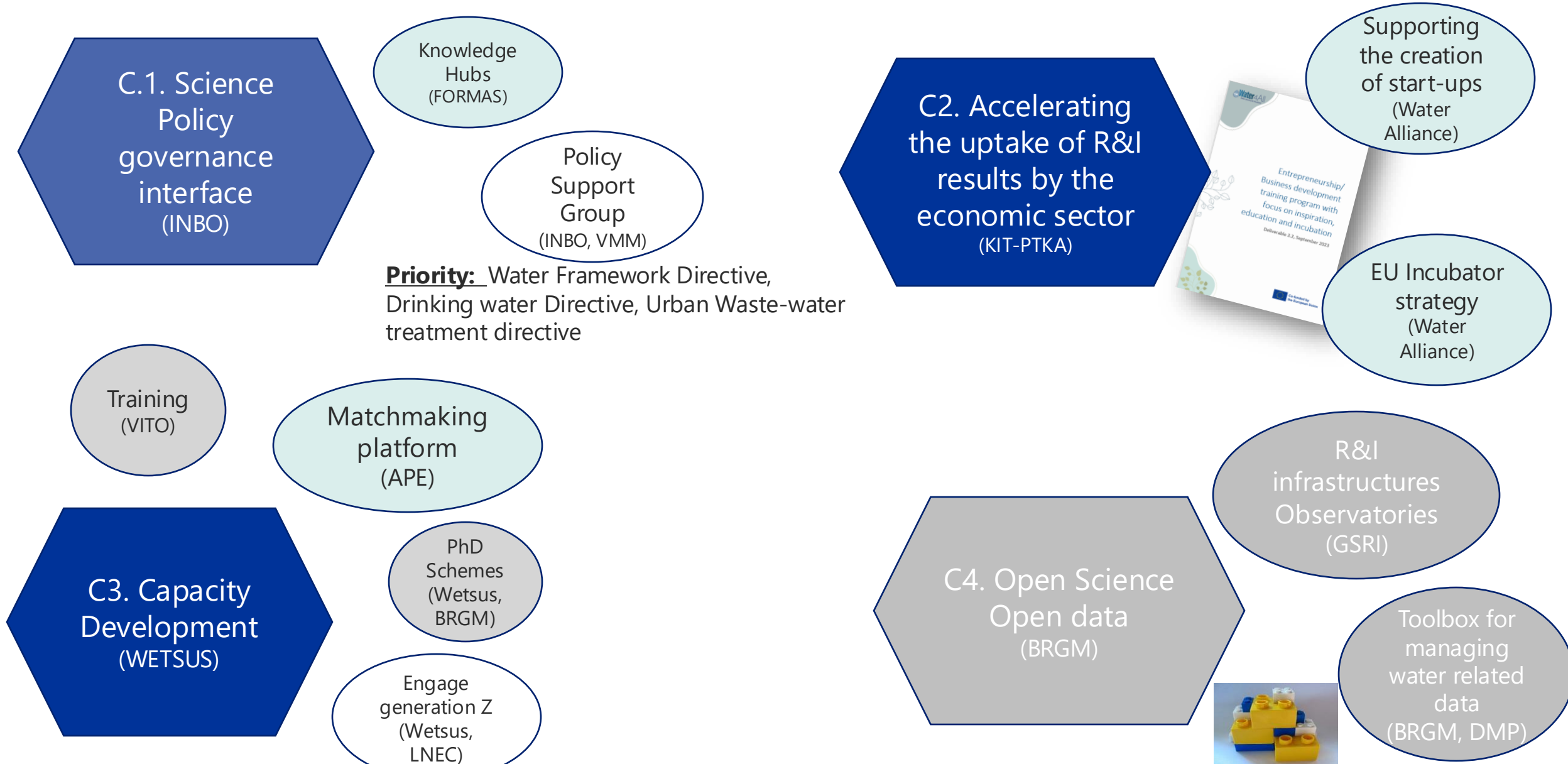
- 36 months projects
 - Minimum of 3 eligible partner from participating countries
 - Minimum of 2 independent legal entities for 2 different EU Member States or Horizon Europe associated countries
 - Maximum of 7 partners
 - Coordinator from an eligible country
 - No partner with more than 50% of the person-months
- *Compagnies are highly invited to join a consortium (according to your national rules)*



Up coming theme :

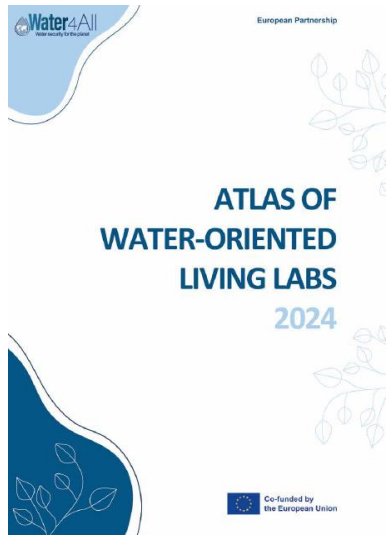
- 4th Joint Transnational Call (32M€), September 2025, **“Water and Health”** theme from the SRIA

Other Water4All activities: some examples



Other Water4All activities: some examples

25 WOLL and soon more!



Some examples of WOLL dealing with Floods management

ATLAS OF WATER-ORIENTED LIVING LABS 2024

HERK AND MOMBEEK LIVING LAB Limburg, Belgium

Geographical scale Regional
WOLL Type Rural
Year of establishment 2023

WOLL Introduction
 The Herk and Mombek Living Lab targets a river basin in the upper part of the larger Demer basin, a region facing climate-related challenges typical for intensively used agricultural catchments in northwest Europe, such as droughts, flooding, and water quality issues. These challenges impact both the natural ecosystem and economic activities, for instance affecting fruit yields due to droughts. Organised by the Architecture Workroom Brussels, the Regionaal Landschap Herk en Mombek and the river basin coordinator of the Demer basin (CIW/VMM), the Living Lab aims to transform the landscape into a 'sponge' by restoring the natural water system. It brings together regional stakeholders, including governments, farmers, citizens, the nature sector, NGOs, and researchers in a co-design process for measures to address flooding and drought. This social innovation process requires reaching a consensus on risks and societal trade-offs. Over a decade of innovative projects have experimented with different ways to contribute to a more robust water system, culminating in the formal establishment of the Living Lab in 2023. It is the ambition of the Living Lab to learn from these experiences and to combine local knowledge and hydrological and agricultural expertise, towards an impactful transformation of the river basin, enhancing water security, food production, and biodiversity within the river basin.

ATLAS OF WATER-ORIENTED LIVING LABS 2024

HYGLO Finland

Geographical scale Regional
WOLL Type Mixed
Year of establishment 2023

WOLL Introduction
 HYGLO, a Water Oriented Living Lab in Finland, explores the impact of global changes on groundwater resources across nine test sites in varied geological settings, particularly in subarctic and arctic regions. Managed by the Geological Survey of Finland (GTK), HYGLO is a nexus for research on water resource management, groundwater-surface water interaction, and the environmental effects of extreme weather phenomena. This initiative facilitates collaboration with local partners, including water companies, universities, municipalities, and citizen groups, to guide water resources governance.

Equipped with advanced monitoring technologies like observation wells and multiparameter sensors, HYGLO sites provide real-time data through LoRaWAN telemetry. This comprehensive approach supports the development of detailed hydrogeological models and aids in understanding phenomena such as flooding, droughts, and changes in groundwater recharge. As a platform for national and international research projects, HYGLO aims to become a leader in generating actionable insights for the sustainable management of groundwater resources, underscoring the importance of collaboration in addressing global environmental challenges.

ATLAS OF WATER-ORIENTED LIVING LABS 2024

CITY OF MECHELEN Mechelen, Belgium

Geographical scale Municipal
WOLL Type Urban
Year of establishment 2023

WOLL Introduction
 In Mechelen, the drive toward a climate-resilient future is a collaborative effort involving the city and its citizens. The initiative emphasises extensive public participation to not only transform the urban infrastructure but also to shift the residents' mindset towards sustainability. The approach includes participatory roadworks, which allow for the separation of rainwater from wastewater, depaving projects, and the reopening of old water channels. These efforts are aimed at making the city's public domain more adaptable to climate challenges while fostering a participatory and transparent process. Engagement with the citizens extends beyond infrastructure, probing into personal practices like rainwater management, the greening of gardens, and the consideration of green roofs. To make the process enjoyable and to encourage the adoption of nature-based solutions, the city organises citizen-centric



THANK YOU



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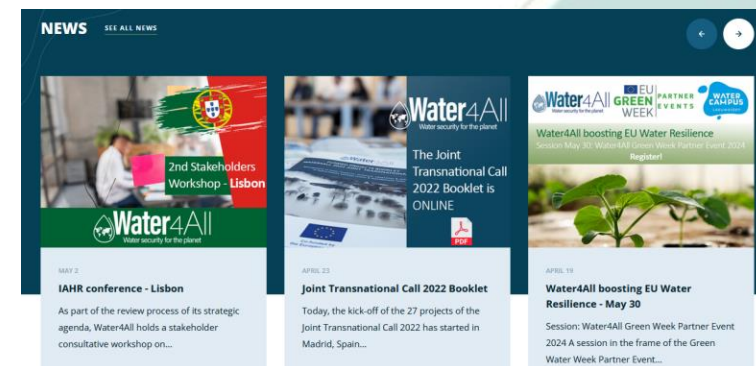
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Co-funded by the European Union



#WaterWiseEU



Q&A session

Moderated by **Yara Shennan-Farpón**, ICATALIST

Supported by **Giovanni Roberti**, RICARDO



Quick check-up questions



Please answer the 6 following questions to consolidate takeaways from the showcased experiences



Closing remarks

Giovanni Roberti

MIP4Adapt



Satisfaction Survey

Moderated by **Giovanni Roberti**, MIP4Adapt



Closing remarks

- Recording, presentation and a summary report of the event will be shared on the online community site.
- **Registration for the second cycle of the Peer Learning Programme has been extended until the 6th of October. Secure your spot now!**
- Upcoming September events:
 - **Joint Workshop Mission Adaptation and Mission Ocean and Waters: “Integrated Approaches to Build Coastal Resilience” (30.09)**
 - **RAST Step 3 & 4 - “Building Tomorrow Today: Selecting Adaptation Measures” (17.10)**
 - **Training Programme “Session 5: From Europe to local: building a local community of practice” (24.10)**
- The Community of Practice and associated services are now on Futurium! Make sure you have access



EUROPEAN UNION



Thank you !

#EUmissions

#HorizonEU

#MissionClimateAdaptation

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