URBAN AGENDA FOR THE EU



Orientation Paper

July 2025







This publication is supported by the European Urban Initiative, which receives EU funding to provide support to the Urban Agenda for the EU on behalf of the European Commission for the period 2021-2027.

Disclaimer:

Authors: WSC Thematic Partnership

Prepared: July, 2025

The information and views set out in this document are those of the authors and do not necessarily reflect the official opinion of the European Commission. The Commission does not guarantee the accuracy of the data included in this document. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein.

© European Union, 2025

Re-use is authorised provided the source is acknowledged. The re-use policy of the European Commission documents is regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

European Commission documents are regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

The photos and graphics in this publication are under the copyright of the EU and other parties. For any use or reproduction of photos or graphics that is not under the EU copyright, permission must be sought directly from the copyright holders.

Contact: <u>urbanagenda@urban-initiative.eu</u>

Table of Acronyms

Acronym	Full Name in English
AI	Artificial Intelligence
CAPs	Positive Water Credits (Credit Aqua Positive)
CEMR	Council of European Municipalities and Regions
CIM-RC	Intermunicipal Community of Coimbra Region
DG ENER	European Commission's Directorate General for Energy
DG ENVI	European Commission's Directorate General for Environment
DG EPL	European Commission's Directorate General for Employment
DG HOME	Directorate-General for Migration and Home Affairs
DG REGIO	European Commission's Directorate General for Regional and Urban Policy
DGUM	Directors General on Urban Matters
EAA	Ex-Ante assessment
EEA	European Environment Agency
EIB	European Investment Bank
EUI	European Urban Initiative
GDPR	General Data Protection Regulation
GIS	Geographical Information System
HGGI	Hybrid Grey-Green Infrastructures
ICT	Information and Communication Technology
IoT	Internet of Things
KPIs	Key Performance Indicators
NbS	Nature-Based Solutions
MFF	Multiannual Financial Framework
PES	Payments for Ecosystem Services
PPP	Public-Private Partnerships
PPCP	Public-Private-Community Partnerships
R&D	Research & Development
SDGs	Sustainable Development Goals
SG REFORM	Task Force for Reform and Investment:
SuDS	Sustainable Drainage Systems
TA	Thematic Area
TP	Thematic Partnership
TPO	Thematic Partnership Officer
UAEU	Urban Agenda for the EU
UDG	Urban Development Group
UATPG	Urban Agenda Technical Preparatory Group
UWWTD	Urban Wastewater Treatment Directive
WFD	Water Framework Directive
WG	Working Group

WSC	Water Sensitive City
WSUD	Water-Sensitive Urban Design

Definitions

An Orientation Paper is a document that narrows down the thematic scope of the Partnership and defines its objectives, taking into account the mandate (of the partner organisations), knowledge (available) and resources (available) of the members of the partnership.

General Definitions

Thematic focus is the scope of the Partnership, presenting the areas of focus and list of topics partners will work on.

Cross cutting issues represent key aspects to be considered in the overall work of the Urban Agenda for the EU and its Partnerships. Each Partnership shall therefore consider the relevance of the Cross-cutting Issues (Gijon Agreement clause 5).

The Cross-cutting issues are:

- a) Promoting urban policy for the common good, inclusiveness, accessibility, security and equality.
- b) Enhancing integrated and innovative approaches, notably through financing and in correlation to the green, digital and just transitions.
- c) Supporting effective urban governance, participation, and co-creation.
- d) Promoting multi-level governance and cooperation across administrative boundaries.
- e) Harmonising measures at different spatial levels and implementing place-based policies and strategies.
- f) Supporting sound and strategic sustainable urban planning, and balanced territorial development.
- g) Contributing to the acceleration of the implementation of the 2030 Agenda SDGs, the New Urban Agenda and Habitat III principles.

Synergies are thematic links and connections with other Thematic Partnerships and possible collaborations can be established with other Partnerships on common areas of interest/actions.

Working group leader is the coordinator of a specific working group with the responsibility of managing, coordinating, supervising the work of the other group members.

Capacity for implementation is the Partnership's ability to work on the selected topics of interest by having the skills/knowledge, the human and financial resources, and the political mandate needed to further explore and build actions on the identified areas of focus.

Definitions specific for the topic of the partnership

Water-sensitive city is a city that incorporates both built/technical aspects and management/behavioural considerations, viewing cities as catchments and aiming to restore the water balance within regions. This concept underscores the importance of ecological services derived from urban water systems, such as flood protection, groundwater recharge, and recreation. It emphasises collaborative efforts across governance levels for successful implementation.¹

Nature based solutions (NbS) refers to solutions that use or replicate natural processes to address environmental and social challenges, such as flood management or water purification. According to UNEP, nature-based solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits².

Sponge city refers to a city designed to absorb, store, treat and reuse water through permeable surfaces, vegetation, and water retention systems.

Water-sensitive urban design (WSUD) refers to urban design which focuses on the water sensitivity of the area. Regarding drought, floods and general water availability for water in the area in relation to water use.

Water-Energy-Food-Ecosystem Nexus refers to the balance of water use between the energy and food sector and for ecosystems to create a balance which benefits all available participants.

Blue Infrastructure refers to infrastructure related to water management.

Grey Infrastructure refers to non-natural solutions with regards to water management, made from concrete.

Equitable water allocation refers to a water allocation which considers all (vulnerable) participants within society and allocates water in a manner which benefits the vulnerable participants of society or in an area (endangered (plant)species, nature reserves).

Healthy soil refers to a soil which has an open airy structure which allows for a good feeding ground for plants and other organisms. This also allows the soil to store water.

Investments refers to infrastructures and other type of capital investments that need to be executed to support the implementation of Water Sensitive Cities.

Financing refers to the sources of funding and financial mechanisms that must be secured to support the investments in Water Sensitive Cities.

 $^{^1\ \}text{Water Sensitive Cities Theory. https://northsearegion.eu/catch/water sensitive-cities-theory/.}$

² https://www.unep.org/topics/nature-action/nature-based-solutions/overview-nature-based-solutions

Blueprint Water Sensitive City Plan refers to a strategic, integrated framework that guides cities in sustainably managing water through nature-based solutions, circular systems, and resilient infrastructure, while aligning with climate, biodiversity, and urban development goals.

Artificial Intelligence (AI) refers to computer systems capable of performing complex tasks through algorithms that mimic human intelligence. It allows for automation of decision making, detecting patterns in data, among other tasks.

Current operational status reflects the present condition and functioning state of a system or process. In water sensitive cities, it relates to the current status of infrastructure, water quality and quantity, rainfall, electrical consumption or pressure, among other concepts.

Cybersecurity is the managerial element responsible of implementing measures to protect systems and data from digital threats, guaranteeing service continuity and protection from sabotage or private information exposure.

Data analytics the process of examining data sets through mathematical and statistical techniques to extract meaningful insights and conclusions. It allows clusterisation, pattern and correlation identification, improving decision making.

Data protection is the branch of cybersecurity responsible of sensitive data, either private data or data that can be used against a correct water management, through hardware and software that limit unauthorized access or breaches.

Data set is the collection, storing and sorting of related data points from different data sources for their usage and analysis.

Data source is the origin of data that is incorporated to data sets. These data points can be generated by digital equipment (such as sensors), surveys, work orders, among others.

Data standardisation and harmonisation is the process put in place to facilitate interoperability among data sets, converting them into consistent formats, facilitating their integration and unified analysis.

Data validation is the process of verifying data accuracy and reliability of data points and sets. It can be carried out automatically or manually and ensures coherence, concordance and exactitude.

Data-driven is the system or process that bases decisions and operations on data analysis and insights

Data-sharing policies are guidelines governing how information is distributed and accessed, avoiding unappropriated profiles to access data that can be considered sensitive. At the same time, they assure transparency in management. The EU Data Act defines data sharing policies.

Digital Twin reflects a virtual representation of physical assets - pumps, drainage systems, sustainable urban drainage systems (SuDS), nature-based solutions (NbS), water treatment plants - that receives real data inputs and simulates behaviours for an improved planning and decision-making.

Digitalisation is the process of transforming traditional infrastructures into smart systems by integrating technology, sensors, data collection, and computerised management systems. It includes both digital conversion of data gathering - water meter readings or work order generation - and process automation and data analytics.

Geographical Information System (GIS) is a software tool that captures, stores and analyses spatial and geographical information of various geolocated elements, as orography, urbanised areas, buildings, infrastructure, networks, parks, NbS, rivers, ravines, among many others.

Innovation refers to the implementation of new ideas or methods to improve existing systems or processes.

IoT devices, acronym for Internet of Things. Connected devices that collect and transmit operational data (measurements, status, operational parameters) using internet connection, many times allowing for bidirectional communication for their remote operation. It encompasses, among others, water meters, sensors, leak detection devices or meteorological stations.

Key Performance Indicators (KPIs) are quantifiable metrics that, exposing synthesized information, measure system performance against specific objectives, allowing for an improved decision making and measurements of performance and effectiveness.

Machine Learning is the AI branch enabling systems to learn and improve from experience using data patterns.

Operational resources are the assets and tools - human resources, materials, energy, equipment and infrastructure - needed for the water system to properly reach a correct operational status, meeting the needs of the city and its citizens.

Optimal system performance refers to the most efficient and effective operational state of a system based on defined parameters.

Payment for ecosystem services refer to a variety of arrangements through which financial incentives are offered to actors to encourage them to not cause environmental harm (DG ENV, 2021).

Positive water credits, also known as CAPs (Credit Aqua Positive), represent the positive impact of projects that conserve and restore water resources.

Physics-informed model refers to a mathematical model that incorporates physical laws and principles into data analysis increasing the accuracy of simulations and predictions.

Predictive data model is one that uses historical data and real-time monitoring to make a forecast future outcome of many magnitudes: demand, resource availability, water levels, among others. These models can also be used to predict future failure of equipment, detecting variations of their operational parameters, allowing the generation of predictive maintenance tasks.

Preventive maintenance is the collection of tasks that are carried out to prevent failure, based on a maintenance programming or based on data generated by different sources.

Private data is confidential information restricted to authorized users. It is regulated, at the EU level, by the rules developed in the GDPR.

Real-time monitoring refers to the continuous data collection and visualisation system that provides immediate information as it is captured.

Research is the systematic investigation to establish facts and develop conclusions.

Smart Infrastructure are systems enhanced with data collection and transmission capabilities for informed decision-making, improving efficiency, reliability and sustainability.

Smart sensors are advanced monitoring devices that collect and transmit physical or operational data automatically.

Capacity-building refers to the process of developing and strengthening the knowledge, skills, tools, institutions, and resources that individuals, organizations, and communities need to effectively plan, implement, and sustain initiatives over time.

Multilevel governance is a system of policymaking and implementation in which responsibilities are shared and coordinated across different levels of government - local, regional, national, and supranational - often in collaboration with non-governmental stakeholders. As highlighted by the Common Provisions Regulation, 'interventions shall be coordinated and aligned between the different levels of governance concerned in the given territory, from programming to implementation and monitoring, with special attention to the involvement of relevant territorial authorities or bodies in project selection to ensure strategic consistency with local needs and challenges.'³

Public-private partnership (PPP) is a cooperative arrangement between public authorities and private sector entities designed to finance, build, and operate projects or services that serve the public interest, leveraging complementary resources, expertise, and risk-sharing mechanisms.

Public-private-community partnership (PPCPs) is a variation of PPP 'in which the local community is one of the partners involved.'⁴

Multiannual Financial Framework (MFF) is the EU's long-term budget, powering its policies both within and beyond its borders over a seven-year period.

Quintuple Helix Model is a collaborative innovation model involving five actors: academia, industry, government, civil society, and the natural environment.

³ Regulation (EU) 2021/1060, Art. 29

⁴ https://www.igi-global.com/dictionary/public-private-community-partnership-ppcp/41499

Table of Contents

1		Introduction	10
	1.1	Context	10
	1.2	Governance of the Partnership	12
2		Strategic goals and vision, general principles	18
3		Thematic focus	20
	3.1	Topic n.1 - Integrated Water Management & Resilience	22
	3.2	Topic n.2 - Water-Sensitive Urban Planning and Investments	26
	3.3	Topic n.3 - Smart Water Operation & Digital Innovation	32
	3.4	Topic n.4 - Governance, Awareness, Financing & Capacity Building	38
4		Synergies with other partnerships	44
	4.1	Describe the links with other partnerships	44
5		Cross-cutting issues	48
	5.1	How are the first ideas of the Orientation Paper taking in account the cross-cutting issues?	48
6	,	Working methods	51
	6.1	Working groups	51
	6.2	Responsibilities of coordinators/partners	52
	6.3	Main activities	53
	6.4	Process and timeline (Miro Board)	55
	6.5	Rules for a good Partnership cooperation	56
7		CAPACITY FOR IMPLEMENTATION	58
	7.1	Knowledge	58
	7.2	Mandate	59
	7.3	Available resources	60
	7 4	Ideation for Future Actions	63

1 INTRODUCTION

1.1 Context

The Urban Agenda for the EU (UAEU) provides an innovative framework for multi-level governance, enabling cities and urban stakeholders to actively contribute to shaping EU regulation, funding programs, and knowledge exchange. It brings together cities, EU Member States, city networks, the European Commission, other EU institutions, advisory bodies, and a wide range of stakeholders to work on key urban challenges and producing tangible results for the benefit of EU citizens.

From its establishment in 2016 through the **Pact of Amsterdam** agreed upon by the EU Ministers Responsible for Urban Matters, the UAEU has focused on concrete priority themes within 20 Thematic Partnerships (TPs)⁵. The 'Water Sensitive City' theme was prioritised under the **Gijon Agreement** (2023), along with 'Building Decarbonisation: Integrated Renovation Programmes and Local Heating and Cooling Plans', leading to the establishment of the two new Thematic Partnerships in 2024. Additionally, the theme 'Compact Cities – Sustainable Urban Planning and Sprawl Mitigation' was endorsed by the Directors-General for Urban Matters (DGUM) under the Belgian Presidency of the Council of the European Union in the first half of 2024 and will be launched in 2025.

While each Partnership has a specific thematic focus, synergies are actively encouraged through the UAEU framework and governance meetings, such as yearly Coordinators and Action Leaders Meetings. In this sense, the Water Sensitive City TP has identified strong connections with the thematic areas of other UAEU Partnerships, in particular Greening Cities, Sustainable Use of Land and Nature-Based Solutions (NbS), Circular Economy, Energy Transition, Climate Adaptation, Public Procurement, Food, and Building Decarbonisation, as well as ongoing worked developed by key stakeholders in the field, such as Water Europe. The Orientation Paper builds on an **Ex-Ante Assessment** of the Water Sensitive City theme⁶, which analyses its relevance based on five criteria: trends and evidence about EU cities, multi-level governance, policy environment, regulatory environment, existing gaps and recommendations.

Why this Partnership?

The new Partnership was established in a context in which **cities of all sizes face increasing water-related challenges**, with the urgency of addressing these challenges underscored by recent findings. According to the European Environment Agency (EEA), Europe's water is under significant pressure, resulting in risks related to efficiency, scarcity, pollution and water events, such as flooding and droughts: 30% of the population in the EU is affected by water scarcity, posing risks to sectors such as agriculture, industry, and energy production. While the deadline set by the Water Framework Directive was 2015, only 37% of surface water bodies achieved a good or high ecological status in 2021, with reduced improvements since 2010⁷. Moreover, according to an Eurobarometer survey, 78% of citizens believe the EU should propose more measures to address water-related issues⁸.

⁵ <u>https://www.urbanagenda.urban-initiative.eu/partnerships</u>

⁶ https://www.urbanagenda.urban-initiative.eu/sites/default/files/2024-06/EAA Water%20Sensitive%20City FINAL DGUM.pdf

⁷ European Environment Agency. Europe's state of water 2024. The need for improved water resilience, July 2024

⁸ Eurobarometer. Attitudes of Europeans towards the environment, 2024 available at: https://europa.eu/eurobarometer/surveys/detail/3173

A number of **factors impacting water quality and quantity** (including both excess and scarcity) have been identified in the Ex-Ante Assessment on the topic. Firstly, climate change is disrupting the water cycle, leading to more frequent and severe droughts, floods, and extreme weather events, with negative impacts on both the quantity and quality of water. Secondly, urbanisation and changing lifestyles are increasing the demand for water and straining the existing infrastructure, while expanding impervious surfaces reduce natural water infiltration. Thirdly, the status of urban water infrastructure further adds to these pressures. In many cities, water supply, wastewater, and stormwater networks are ageing and inefficient.

At the same time, **competing demands** from other sectors, such as agriculture, industry, and tourism, put additional pressure on limited water resources, especially in regions already affected by water stress. Finally, the lack of integrated water management approaches results in siloed decision-making, inefficiencies, and missed opportunities for cross-sectoral synergies.

Without coordinated planning that considers the entire water cycle and puts water efficiency first, cities are struggling to ensure sustainable water management.

In this context, the WSC Thematic Partnership aims to make water sensitive design the new standard for urban water management, shifting the perspective from seeing water as a challenge to seeing it as a resource that needs to be retained, used as efficiently as possible and prepared for reuse. This approach is expected to have a transformative impact on urban water management, as well as urban planning and design, while ensuring inter-generational equality and resilience to climate change.

Importantly, the Partnership also aims to promote the relevance of water sensitivity in unlikely places, beyond traditional water management, by promoting its integration into broader policy areas, infrastructure and urban planning. By adopting a holistic perspective, the partnership will seek to support the mainstreaming of water into sectoral policies.

Reflecting the urgency of water-related challenges, the policy landscape is highly dynamic, with 'water resilience' identified as a strategic priority following the mid-term review of Cohesion Policy⁹. The Water Sensitive City TP is also closely aligned with the EU-level policy development process, with a comprehensive **Water Resilience Strategy** launched in June 2025. The strategy builds on three objectives: restoring and protecting the water cycle from source to sea (by implementing existing EU laws for freshwater, adopting water-smart practices and green infrastructure to improve water retention and prevent pollution), building a water-smart economy together with citizens and economic actors (based on the water efficiency first principle), and ensuring access to clean and affordable water for all (by raising public awareness on saving water and promoting sound water pricing policies). In particular, the WSC Partnership will pay close attention to the upcoming *EU Sponge Facility* aimed to create a coherent framework for new and existing initiatives to increase water retention on land, and affirms the need to involve local governments in its development.

1.2 Governance of the Partnership

The **Water Sensitive City Partnership** includes partners representing 2 national authorities, 8 urban authorities, 1 regional authority (Coordinator), 2 European umbrella organisations, 5 other stakeholders, and the European Commission (represented by 3 DGs, and the Joint Research Centre). For detailed information regarding the partners, see Table n.1.

The **Coordinator of the Partnership** (Intermunicipal Community of Coimbra Region) is responsible for the overall coordination of activities and are the main contact for internal and external communication and outreach. They organise and chair Partnership meetings, organise and coordinate the work in between meetings, represent the Partnership in conferences, monitor and report on the Partnership's activities.

Partners are the key actors of the WSC Partnership and are fully engaged in the works on the agreed thematic areas and subtopics and contribute to the work needed for the definition of the Action Plan and its implementation, by bringing inputs, by making the link to relevant activities or resources and by taking part in meetings.

The partnership established **4 Working Groups**, each linked to one of the thematic areas relevant to the Partnership:

- Working Group 1: Integrated Water Management & Resilience
- Working Group 2: Water-Sensitive Urban Planning and Investments
- Working Group 3: Smart Water Operation & Digital Innovation
- Working Group 4: Governance, Awareness, Financing & Capacity Building

Working groups will research, analyse, discuss and prepare solutions that can be transposed into draft Actions for the Action Plan for their specific working area. Each working group has a WG Leader, and two of them also have a Co-Leader. The process of identifying Co-leaders for the remaining two WGs is still in progress at the time of publication of this Orientation Paper.

The Partnership composition may be expanded to include other partners and external stakeholders (experts, NGOs, economic and social partners, private sector representatives), interested in the process and outcome of the Partnership's works, following a formal procedure.

The Partnership receives administrative and technical support from the **Thematic Partnership Officer** (TPO) and the **European Urban Initiative Secretariat**, which will work closely with the Partnership's Coordinator, Working Groups Leaders and Co-leaders and members of the Partnership. The activities of the Urban Agenda for the EU are coordinated through the **Directors General on Urban Matters (DGUM)** meetings, which will also provide feedback to the Partnership's Orientation Paper and Action Plan. The DGUM is composed of all EU Member States, the European Commission and city representatives and associations (European Committee of the Regions (CoR), Eurocities, Council of the European Municipalities and Regions (CEMR) and is co-chaired by the country holding the EU Presidency and the Commission. Therefore, the work of the UAEU Partnership is followed, monitored and connected with the action of the 27 EU Member States and EU Institutions. The **Urban Development Group (UDG)** is an informal advisory body to the DGUM, where the deliverables and progress will be discussed before being presented to the DGUM.

_

⁹ https://ec.europa.eu/regional_policy/sources/communication/mid-term-review-2025/communication-mid-term-review-2025_en.pdf

1.2.1 Coordinator(-s) of the Partnership

The UAEU Water Sensitive City Partnership is coordinated by the **Intermunicipal Community of Coimbra Region (CIM-RC)**.

1.2.2 Members of the Partnership

The UAEU Water Sensitive City Partnership includes **23 partners** representing 2 national authorities, 8 urban authorities, 1 regional authority, 2 European umbrella organisations, 5 other stakeholders, and the European Commission represented by 3 DGs (DG REGIO, DG ENER, DG ENV), SG REFORM, and the Joint Research Centre. The full list of partners is presented below.

Table 1: List of WSC Thematic Partnership members

National authorities	Regional authorities	Urban authorities	Umbrella	Other stakeholders	EU institutions
Ministry of Regional Development (CZ)	Intermunicipal Community of Coimbra Region (PT)	The Hague Municipality (NL)	Council of European Municipalities and Regions - CEMR	Cetaqua, Centro Tecnológico del Agua (ES)	European Commission Directorate- General for Regional and Urban Policy (DG REGIO)
Ministry of Climate (EE)		Turin Municipality (IT)	Resilient Cities Network	Águas e Energia do Porto (PT)	European Commission Directorate- General for Energy (DG ENER)
		Enschede Municipality (NL)		Acondicionamien to Tarrasense Associación - LEITAT (ES)	European Commission Directorate- General for Environment (DG ENV)
		Elche Municipality (ES)		Major Development Agency Thessaloniki - Local Government Organisation (EL)	European Commission Joint Research Centre (JRC)
		Roman Municipality (RO)		Commonspace Co-op (EL)	European Commission's Reform and Investment Task Force (SG REFORM)
		Halandri Municipality (EL) Viimsi			
		Municipality (EE) Kalocsa			
		Municipality (HU)			

1.2.3 Process and timeline of the Partnership in defining the Orientation Paper

From January to June 2025, the WSC Partnership focused on the preparation of the Orientation Paper. This phase consisted in focused sessions for brainstorming and narrowing down the topics of interest, starting with the analysis and potential focus themes identified in the Ex-Ante Assessment. During the process of refining the thematic focus and developing the Orientation Paper, members of the Partnership met several times, both online and in-person:

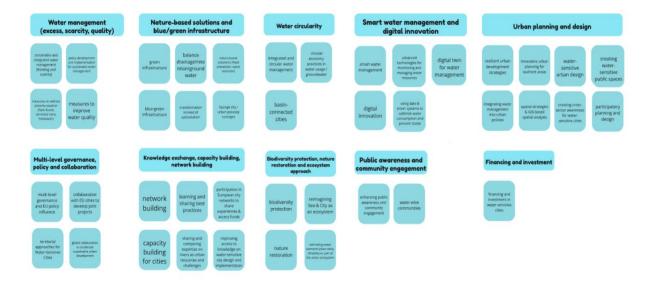
- 1st Partnership meeting, online (January 30 2025)
- 2nd Partnership meeting, online (February 26 2025)
- 3rd Partnership meeting, online (March 26 2025)
- Coordinators and Action Leaders Meeting, in-person, Brussels (April 1 2025)
- 4th Partnership meeting, online (April 30 2025)
- 1st In-person Partnership meeting, Coimbra (May 13-14 2025)
- 5th Partnership meeting, online (May 28 2025)
- 6th Partnership meeting, online (June 2025)

Step 1: Mapping the topics of interest

During the Kick-off meeting on January 30 2025, partners presented the topics of interest related to the Water Sensitive City, which were synthetised into **10 topics and 47 sub-topics** (see Figure 1 below).

Figure 1: Topics of interest identified by WSC Thematic Partnership members

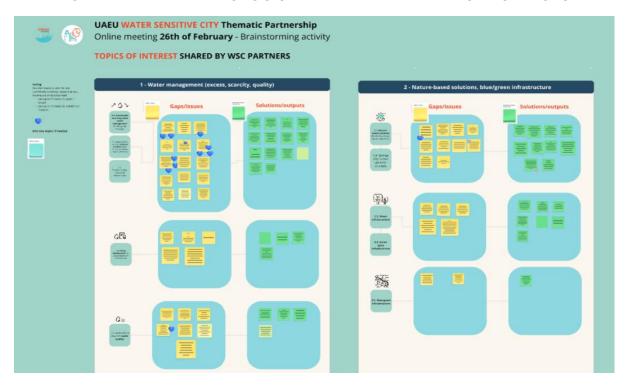
TOPICS OF INTEREST SHARED BY WSC PARTNERS (KICK-OFF MEETING, 30th of January)



Step 2: Narrowing down the thematic focus

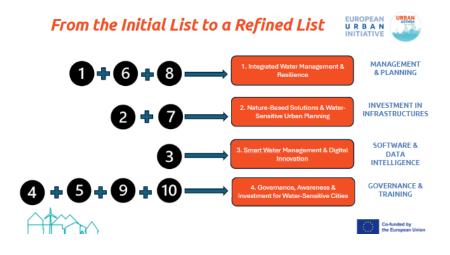
Following the identification of topics of interest, the next sessions were dedicated to narrowing down the focus to ensure efficient implementation of future Actions. Partners were involved in an online exercise to identify the main gaps / issues, as well as solutions / potential outputs for the long list of topics, and to vote for the most relevant.

Figure 2: Exercise: identifying gaps/issues and solutions/outputs (example)



Based on this input, the Coordinator (CIM-RC) worked on refining the initial list into 4 thematic areas and 14 sub-topics, which will also form the basis for the Thematic Working Groups. Within a working session, partners discussed and validated the new list, rating their importance and providing feedback.

Figure 3: Refining the initial list of topics of interest



Step 3: Establishing Working Groups, choosing WG Leaders and Co-leaders

Based on the new list, partners were invited to participate in a minimum of 2 and maximum of 4 Working Groups, and a call for expressions of interest for WG Leaders and Co-leaders was launched.

Figure 4: Proposed Working Groups (Topics and sub-topics)



Step 4: Development of Orientation Paper within Working Groups

Following the selection of WG Leaders and Co-leaders, as well as the distribution of partners across Working Groups, internal working sessions were organised within Working Groups, with all partners meeting in plenary format, once a month, based on the timeline presented below:

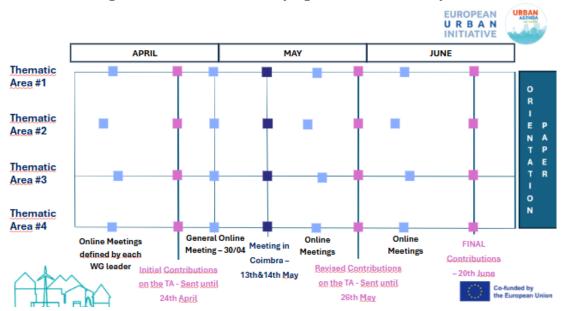


Figure 5: Timeline of developing the Orientation Paper

Hosted by the Coordinator (CIM-RC), the Water Sensitive City Partnership held its first inperson meeting in Coimbra (May 13-14 2025). The meeting aimed to advance the work of the partners on the Orientation Paper and pave the way for future actions. During working sessions, partners split into working groups to refine the thematic focus of the Orientation Paper, starting with the TP's contribution to the three Urban Agenda for the EU pillars: better knowledge, better regulation, and better funding. Through targeted exercises, they identified the expected impacts and outputs, assessed their capacity for implementation, and explored potential future Actions.

Step 5: Finalising the Orientation Paper

Following the in-person meeting, WG Leaders and Co-leaders organised meetings to provide an update on the progress made in the meeting to all partners, ask for additional input and finalise the draft of the Orientation Paper. After the monthly plenary meeting of the Partnership, Coordinators provided a clear timeline for final inputs and shared the draft with European Commission representatives (DG REGIO, DG ENV, SG REFORM). With the support of the Thematic Partnership Officer, the Coordinators also ensured the overall coherence and final refinement of the Orientation Paper, to enable the endorsement in the **UDG Meeting on September 17 2025**.

2 STRATEGIC GOALS AND VISION, GENERAL PRINCIPLES

Vision

The Water Sensitive City Partnership envisions a future where European cities become more resilient, sustainable, and climate-adapted by placing water management at the heart of urban policies.

Through integrated and innovative approaches, the Partnership seeks to transform urban landscapes into healthier, more biodiverse, and liveable ecosystems. This transformation will be driven by the principles of water sensitivity, where urban water management not only addresses functional needs but also enhances the overall urban environment, making cities more capable of adapting to climate challenges.

Strategic Goals

The strategic goals of the Water Sensitive City Partnership **focus on embedding sustainable water management into urban planning frameworks**. This includes addressing all aspects of water (stormwater, wastewater, groundwater, and surface water), within spatial and urban planning instruments to ensure holistic solutions.

The Partnership aims to:

- Strengthen cities' **climate resilience** to extreme events such as droughts and floods, to mitigate the socio-economic impacts of these challenges, through water-sensitive planning
- Enhance **water resilience** through Nature-based Solutions (NbS) and Hybrid Grey-Green Infrastructures (HGGI) in cities (going beyond small-scale interventions, to large-scale infrastructure), by increasing water retention, while boosting urban biodiversity and improving climate comfort.
- Develop data-driven methodologies to enhance water management processes.
- Promote innovative governance models, encouraging cross-sectoral collaboration, participative decision-making
- Explore **innovative financing mechanisms**, such as monetising ecosystem services related to water, to ensure the long-term sustainability of water-sensitive interventions.

The WSC Partnership also aspires to contribute to international cooperation on water-sensitive urban transformation, in line with the EU's Global Gateway Strategy and the United Nations Sustainable Development Goal 17 (Partnerships for the Goals). Leveraging the EU's leadership in sustainable urban water management, the Partnership will explore opportunities for collaboration with international initiatives and stakeholders in vulnerable urban areas through peer-to-peer learning, twinning schemes, and technical assistance mechanisms.

General Principles

The Water Sensitive City Partnership is grounded in a set of principles that guide its approach to transforming urban water management.

- The **water efficiency first** principle is essential to ensure sustainable water management. Inspired by the experience of *energy efficiency first*. As highlighted in the *Water Resilience Strategy*, priority should be given to reducing demand and preventing over-abstraction. This should be complemented by promoting efficiency through design and encouraging water reuse, with increasing supply considered only as a last resort.
 - A systemic approach is essential, recognising that water issues must be addressed in
 conjunction with other key urban systems such as energy, mobility, land use, and
 biodiversity. By respecting natural cycles, the Partnership advocates for adapting urban water
 cycles to mirror the logic of natural ecosystems, ensuring that water management is
 sustainable and resilient.
 - The principle of inclusive participation emphasises the need to engage a wide range of stakeholders — local communities, the private sector, academia, and public administration — at every stage of decision-making.
 - Multi-level governance is also essential, as it ensures alignment between local, national, and European policies, fostering a cohesive approach to water management across all levels of governance.

The policy environment for the Water Sensitive City is highly dynamic, with a major policy milestone being the publication of the **Water Resilience Strategy** in June 2025. The Partnership's work is firmly aligned with the European Green Deal and the United Nations Sustainable Development Goals (SDGs), among others, contributing actively to Europe's environmental, climate, and sustainable development commitments.

The main policies and strategies relevant to the WSC Partnership are:

- European Water Resilience Strategy
- EU Green Deal¹⁰ (overarching EU policy to facilitate the EU's transition to climate neutrality by 2050).
- EU's Nature Restoration Regulation (with specific targets on the restoration of Urban ecosystems)
- Biodiversity Strategy
- Cohesion Policy
- EU Strategy for the Danube Region (EUSDR)
- EU Missions: Mission Restore our Ocean and Waters by 2030, Mission on Adaptation to Climate Change, Mission: Climate-Neutral and Smart Cities.
- European Oceans Pact
- European Climate Law
- New European Bauhaus
- Common Agricultural Policy (simplification package)
- Vision for Agriculture and Food.

Key directives:

• Water Framework Directive (2000)

- Floods Directive (2007)
- Marine Strategy Framework Directive (2008)
- Energy Efficiency Directive (recast) (2023)
- Urban Wastewater Treatment Directive (recast) (2024).

¹⁰ The European Economic and Social Committee also called for a more strategic approach to water under the concept of an EU 'Blue Deal'

3 THEMATIC FOCUS

From January to June 2025, the Partnership undertook an intensive collaborative process to define the thematic focus of this Orientation Paper. Building on the findings of the Ex-Ante Assessment, a series of focused sessions and working meetings, both online and in-person, enabled the identification and consolidation of key areas where coordinated urban action can generate tangible impact. This process has laid a solid foundation for the next phase: the design of the Action Plan.

As a result of this collective effort, four thematic priorities are proposed:

- 1. Integrated Water Management & Resilience
- 2. Water-Sensitive Urban Planning and Investments
- 3. Smart Water Operation & Digital Innovation
- 4. Governance, Awareness, Financing & Capacity building

Water loss
Contentante
Content

Figure 6: Thematic Focus of the WSC Partnership

These themes reflect the shared ambition of the Partnership to support European cities in accelerating the transition toward water-sensitive, climate-resilient, and inclusive urban environments.

Table 2: List of WSC Topics and Sub-Topics

Nº	Topic	Short Description	Indicated
	134		in the EAA
1	Integrated	The topic focuses on developing a systemic,	Strongly
	Water	integrated approach to urban water	
	Management &	management , focusing on efficiency and circularity, climate adaptation and s trengthen	
	Resilience	urban resilience through strategic planning	
		and inclusive governance.	
		Management – Improve water efficiency, reduce losse	•
	implement circular wa	ter economy principles to prevent water scarcity and po	ollution.
	weather events, include	Management – Develop adaptive measures to address ding flood control and drought mitigation, enhancing lo	
	resilience.		
	1.3 Strategic Water Pl	anning – Create integrated water management plans a	t the city level,
	incorporating water-se	ensitive urban design and aligning with EU policy goals.	Promote
		ting processes to ensure equal access to water resource	es and involve
	diverse stakeholders.		
2	Water-Sensitive	Evaluate the adoption of different types of water-	Strongly
	Urban Planning	sensitive investments, based on Urban	
	and	Planning decisions taken in a local/regional	
	Investments	context . Evaluate the interconnection between water and energy systems.	
	water bodies to enhand 2.2 Sponge City & Urb	astructure – Invest in and expand urban green spaces, nce resilience, biodiversity, and water management. In water Retention – Implement urban designs that in Infaces and natural reservoirs, to improve water retention	crease porosity,
		system Restoration – Protect and restore natural water , and wetlands, to maintain ecological balance.	ecosystems,
		rus – Address the interconnections between water and use and reduce environmental impact.	energy systems
3	Smart Water Operation & Digital Innovation	Support the adoption of Data-Driven, AI and Digital tools in Water Management and Operation, based on Innovation and Applied Research	Strongly
		ı ems – Utilize AI, IoT, and digital platforms for real-time	monitoring and
	-	water consumption and distribution.	
	_	nology – Develop virtual models of urban water networl ecision-making, and improve infrastructure managemen	
	3.3 Data-Driven Water Governance – Apply predictive analytics, data harmonization, and interoperability techniques to optimize water management.		ization, and

3.4 Innovation & Applied Research – Support living labs (e.g. Water Orientated Living Labs
established under the EU Partnership Water4All), eco-design for sustainable products, and
new technological developments for sustainable water use.

4	Governance, Awareness, Financing & Capacity Building	Create an enabling environment for water as a valuable resource for a prosperous and sustainable future by strengthening multi-level governance, fostering public awareness and engagement, developing innovative financing models, and building local capacity through knowledge exchange.	Strongly

- 4.1 Multi-Level Governance Strengthen cooperation among EU, national, and local governments, and engage private sector and community stakeholders in water policy.
- 4.2 Public Awareness & Community Engagement Foster a culture of water resilience through education, participatory decision-making, and community-led initiatives.
- 4.3 Financing & Investment Strategies Develop and implement innovative financial models, including water pricing policies and compensation mechanisms, to fund water-sensitive projects.
- 4.4 Knowledge Exchange & Capacity Building Enhance learning opportunities and technical training for stakeholders, promoting best practices in water governance.

3.1 Topic n.1 - Integrated Water Management & Resilience

Cities are under a growing pressure to use water more efficiently, reduce pollution, and adapt to climate risks. This topic addresses the urgent need to **rethink how water is managed in urban contexts**, recognising the need to support cities to:

- improve efficiency throughout the water cycle
- prevent pollution at the source
- implement adaptive measures to increase resilience
- develop cross-sectoral, supra-local planning to embed water considerations into urban development from the outset (local water resilience plans and/or urban water management plans).

The topic encompasses a holistic approach to water governance, recognising the interconnections between water supply, wastewater, stormwater, and natural water systems.

It seeks to align urban water management with environmental, social, and climate goals, addressing both current inefficiencies and emerging threats such as water scarcity, pollution, extreme weather events and sea-level rise.

While the EAA highlights many of these issues, this topic brings a more operational and governance-focused perspective, emphasising integration across sectors and planning levels, and the need for adaptive, forward-looking strategies that engage a broad range of stakeholders.

Table 3: List of sub-topics related to the Topic 1

Topic 1: Sub-Topics

Sustainable Water Management – Improve water efficiency, reduce losses, and implement circular water economy principles to prevent scarcity and pollution

This sub-topic focuses on enhancing the sustainability of urban water systems **by improving efficiency throughout the water cycle**. Urban water systems must reduce losses, and become better equipped to reuse and store water. This includes reducing physical and administrative losses in supply networks, along with improving the reuse and recycling of treated wastewater. Managed aquifer recharge and other storage methods are increasingly necessary to prepare for shortages.

Cities also need to drastically **reduce pollution at the source** through nature-based and low-impact solutions or through the combination of centralised and decentralised systems.

A shift toward **a circular water economy** will help cities meet rising demands without increasing environmental pressure. It also contributes to decoupling water consumption from urban growth, making cities more resource-efficient and less vulnerable to future constraints.

Lastly, to manage water sustainably, water-sensitive regulations must be integrated into urban planning.

2 Urban Water Risk Management – Develop adaptive measures to address extreme weather events, including flood control and drought mitigation, enhancing long-term urban resilience

This sub-topic highlights the **need for cities to anticipate and prepare for the increasing frequency and intensity of climate-related water risks**. Floods, droughts, and heatwaves place pressure on ageing infrastructure and can disproportionately impact vulnerable populations. Measures include investment in green-blue infrastructure, as well as smart monitoring systems, and early warning mechanisms. It also requires a paradigm shift from reactive to proactive planning, supported by scenario-based risk assessments and integrated governance frameworks that enable adaptive responses across time scales and institutional levels. (see also Topic n.3 - Smart Water Operations and Digital Innovation).

3 Strategic Water Planning – Create integrated water management plans, incorporating water-sensitive urban design and aligning with EU policy goals. Promote inclusive decision-making processes to ensure equal access to water resources and involve diverse stakeholders.

This sub-topic advocates for **long-term, cross-sectoral and inter-municipal planning** to embed water considerations into urban development from the outset (**water resilience plans and/or urban water management plans**), in alignment with EU strategic goals (such as those outlined in the Water Resilience Strategy).

It promotes the use of **Water-Sensitive Urban Design (WSUD) principles** to harmonise built and natural environments, enhance biodiversity, and improve quality of life.

Importantly, this sub-topic also emphasises the need for **inclusive water governance**, ensuring that decisions reflect the needs of all residents, particularly marginalised communities, and involve a wide range of stakeholders, from utilities and planners to civil society (see also Topic n.4 - Governance, Awareness, Financing & Capacity Building).

3.1.1 What are the specific problems to be addressed?

- 1. **High water losses and inefficiency** in supply systems, often due to ageing infrastructure, lack of monitoring, and insufficient investment in maintenance or innovation, resulting in significant waste of resources and higher operational costs.
- 2. **Low uptake of circular water economy practices**, including water reuse, rainwater harvesting, and nutrient recovery. Existing policies and financial mechanisms often do not support or incentivise circular approaches and water conscious behaviour.
- 3. **Urban vulnerability to climate extremes**, such as floods and droughts, which are increasing in frequency and severity due to climate change. On top of this, sea-level rise is a challenge for coastal cities and cities in and near river deltas. Many cities lack the adaptive capacity and planning tools to manage these risks effectively.
- 4. **Social inequalities in access to water-related services**, with vulnerable populations more exposed to water-related risks or facing barriers to affordable, safe, and reliable water and sanitation services.
- 5. Insufficient integration of water into urban planning, where water is often treated as a technical or infrastructure issue rather than a core element of spatial planning, urban design, and long-term resilience strategies. Moreover, water availability and forecasting are not included in decision making and development of new infrastructure, limiting the integration of long-term water resilience into urban planning frameworks.
- 6. **Lack of robust indicators to evaluate water scarcity or water excess** at regional and city levels hinders evidence-based decision-making, leading to reactive rather than preventive urban planning and limiting the ability to design adaptive infrastructure and land-use strategies.
- 7. **Fragmented governance and lack of coordination** among institutions and jurisdictions managing different parts of the urban water cycle, which leads to inefficiencies, conflicting objectives, and missed opportunities for synergies.

3.1.2 What is the relevance to the three pillars?

Table 4: Relevance of the Topic 1 to the three pillars

	Topic 1: Integrated water management and resilience
Better regulation	There is a strong need to harmonise and strengthen EU and national legislation to promote multi-level governance in addressing water-related challenges. Furthermore, water management needs to become cross-sectoral and more integrated. In this respect, the topic builds on relevant EU policy documents, such as the Urban Wastewater Treatment Directive, the Water Framework Directive, and in particular, the Water Resilience Strategy.
Better funding	Funding should prioritise long-term resilience and focus on cross-sectoral projects. With the new Multiannual Financial Framework coming up, it is expected the structure of funds will be restructured. This is an opportunity to advocate for streamlining all city initiatives, focusing on public-private partnerships and bankable projects.
Better knowledge	Many water challenges are similar across European countries, with municipalities, regions and water authorities dealing with the same issues. Therefore, there is a need to exchange knowledge and share best practice across the EU . The work of the Partnership is highly relevant to the Better Knowledge pillar, since it will contribute to increasing the resilience of cities and regions by providing a blueprint for implementing water sensitive planning.

3.1.3 Expected impacts and outputs

Expected impacts and outputs were explored by each of the four Working Groups, and will be connected and refined in the Action Plan (see section 7.4 Ideation for future Actions).

Table 5: Expected Impact and Outputs from Topic 1

Topic :	1: Integrated Water Management & Resilience
Expected Impact	. Adoption of policy recommendations in water-related EU policies More direct access to funding. The funding itself is expected to be more integrated and cross-sectoral. Specifically for smaller administrations we will advocate for easier funding that requires less capacity on administrative tasks Increased number of cities and regions in the EU with resilience plan/urban water management plan.
Potential outputs	. Policy briefs with regulatory recommendations (in relation to the Water Resilience Strategy, Water Framework Directive and/or the Urban Wastewater Treatment Directive) (Analysis) of Multiannual Financial Framework and/or position paper or policy brief with recommendations advocating for better funding A model, template or blueprint for local water resilience plans and/or urban water management plans, including a set of indicators/KPIs. Under Topic no. 2 – Water Sensitive Urban Planning and Investments, a blueprint for a Water Sensitive City Plan is also considered Distributing knowledge, exchanging best practices and enhancing cross-border cooperation.

3.1.4 Relevance for EU policy goals

The topic of Integrated Water Management & Resilience is closely aligned with several key EU policy goals and strategic frameworks. It directly supports the objectives of the **European Green Deal**, particularly in relation to climate adaptation, pollution prevention, and the promotion of a circular economy. Water is recognised as a critical resource for sustainable development, and its efficient, equitable, and resilient management is central to the EU's long-term environmental and climate ambitions. Furthermore, the **Water Resilience Strategy** published in June 2025, reinforces the strategic importance of water as a cross-cutting element of urban resilience and social cohesion. This topic also links with the **Digital Decade policy programme**, with concrete targets and objectives for 2030 for digital transition (e.g., through smart water monitoring systems).

The topic contributes to the implementation of the **EU Climate Adaptation Strategy, which emphasises the importance of building climate-resilient cities**, including through better water better planning, regulations and risk management, early warning systems, and nature-based solutions. It is also relevant to the **Zero Pollution Action Plan**, by promoting the reduction of pollution through improved water efficiency and the use of closed-loop systems.

In addition, this thematic area supports the goals of the **Urban Wastewater Treatment Directive** (UWWTD) revision and the **Water Framework Directive** (WFD), both of which aim to improve water quality, foster integrated planning, and ensure sustainable use of water bodies.

At the urban level, the topic is fully aligned with the principles of the **New Leipzig Charter and the Urban Agenda for the EU**, by encouraging integrated, place-based, and participatory approaches to urban water governance.

3.2 Topic n.2 - Water-Sensitive Urban Planning and Investments

The Ex-Ante Assessment (EAA) identifies the **integration of water-sensitive design into building regulations and urban planning as a largely untapped opportunity**. Implementing infrastructure that increases a city's water sensitivity brings wide-ranging benefits across multiple disciplines, including climate resilience, public health, and environmental quality. For example, using urban green spaces to retain, filter, and reuse water enhances the city's ability to manage climate extremes by drawing on the inherent resilience of natural ecosystems.

To be effective, water-sensitive urban planning must adopt a truly integrated and bottom-up approach. This integrated approach needs to build resilience to risks on both extremes - flooding caused by intense precipitation and drought conditions caused by water scarcity. It requires coordination between urban planning, water management, landscape design, and climate adaptation measures. Such planning must also pursue synergies with broader sustainability goals, including biodiversity conservation, increased urban greenery, and improved energy efficiency.

Given the spatial limitations in dense urban environments, the WSC approach also demands **adaptive design and multifunctionality.** Combining green, blue, and grey infrastructure within compact urban settings calls for cross-sectoral collaboration and long-term planning, supported by **clear guidelines.**

Moreover, challenges identified at district and local level should be addressed at the **optimal spatial scale, requiring new forms of collaboration** both within and beyond city boundaries (as in the case of water retention measures or prevention of pollution). The Ex-Ante Assessment on the WSC Thematic Partnership highlights the fact that urban water systems are intertwined with the broader catchment area (consisting of peri-urban and rural areas), in two directions: intensive urban development negatively impacts natural water systems, affecting the surrounding region, and among others, upstream land use practices can contribute to flooding in urban areas or water scarcity.

Table 6: List of sub-topics related to the topic 2

Topic 2: Sub-Topics

Green & Blue Infrastructure – Invest in and expand urban green spaces, wetlands, and water bodies to enhance resilience, biodiversity, and water management.

Green & Blue Infrastructure refers to strategically planned and managed networks of natural, semi-natural, and engineered features, such as parks, urban forests, green roofs, rain gardens, wetlands, rivers, lakes, bioswales, and stormwater retention ponds, that are integrated into the urban environment. These green (vegetated) and blue (water-related) elements work in harmony to mimic natural water cycles, enhance urban biodiversity, and contribute to more sustainable and resilient cities.

In the context of water-sensitive urban planning, green and blue infrastructure plays a critical role in addressing the challenges posed by climate change and urbanisation. It supports the management of stormwater through **natural infiltration**, **retention**, **and evapotranspiration processes**, **which help reduce the burden on conventional grey infrastructure**. It also contributes to flood risk reduction, improvement of water quality, groundwater recharge.

Beyond functional water management, these infrastructures offer **wide-ranging co-benefits**. They help mitigate urban heat island effects, enhance air quality, provide spaces for recreation and mental well-being, and increase property and social value, contribute to carbon

sequestration and create ecological corridors that sustain urban wildlife. By incorporating green and blue elements into public spaces and new developments, cities can foster more liveable, healthy, and climate-adaptive environments, increasing ecosystem services provision. Reflecting these co-benefits, there is a growing trend of developing "hybrid systems", which "can deliver multiple social, economic and ecological benefits across scales and sectors". Therefore, investment in green and blue infrastructure is not just an environmental necessity but also an economically and socially beneficial approach for sustainable urban development.

2 Sponge City & Urban Water Retention – Implement urban designs that increase porosity, such as permeable surfaces and natural reservoirs, to improve water retention and reduce runoff.

A sponge city is designed to absorb, store, and gradually release water, enhancing urban resilience to both heavy rainfall and drought. This approach relies on a combination of grey infrastructure and nature-based solutions (NbS), which strengthen and complement each other to manage water more sustainably. The sponge effect has a dual function: during intense rainfall, it stores excess water; during dry periods, it releases moisture slowly to vegetation and wildlife. However, this capacity is often compromised by urban densification, soil sealing, and degradation – problems exacerbated by climate change and unsustainable water use.

Nature-based Solutions, such as green roofs, rain gardens, and revitalised soils, **play a key role by restoring the natural capacity of ecosystems to retain water**. Healthy soils are key, since when they are rich in organic matter and well-structured, increase permeability, reduce runoff and erosion, supports biodiversity, and help recharge aquifers and groundwater reserves.

Restoring the sponge function of cities demands long-term investment and planning, tailored to local conditions. In many regions, declining precipitation and overextraction have caused groundwater levels to fall dramatically, in some cases beyond six meters. These conditions contribute to desertification, reduced agricultural productivity, and increased vulnerability to extreme weather events. In response, there is a growing need for interdisciplinary, integrated solutions that combine urban planning and design, soil science, hydrology, ecological restoration, and adaptive water management.

Finally, measures to increase water retention require planning beyond administrative borders. While sponge city interventions are essential within urban areas, the most effective water retention opportunities are often found outside city borders (in upstream rural land and peri-urban zones, natural floodplains). Therefore, effective water retention (through wetlands restoration, floodplain management, upstream reforestation) requires coordinated spatial planning, involving multiple municipalities.

Moreover, it is essential to include the urban perspective and ensure **alignment between local and broader regional plans**, such as River Basin Management Plans (Water Framework Directive), and Flood Risk Management Plans (Floods Directive), or regional climate adaptation strategies.

Biodiversity & Ecosystem Restoration — Protect and restore natural water ecosystems, including rivers, deltas, and wetlands, to maintain ecological balance.

_

¹¹ https://www.researchgate.net/publication/346387656 Transforming Cities through Water-Sensitive Principles and Practices

This subtopic focuses on the ability to plan and execute comprehensive water-focused strategies that can **create a balance between human and natural ecosystems**, not only for the survival of all species in times of climate change, but as the only way to support human wellbeing and development. A transformative approach in biodiversity & ecosystem restoration strategies is one that builds up resilient and healthy territories, protecting and restoring natural water ecosystems embedded in urban environments, and provide a natural balance water management to those ecosystems.

In terms of governance, the above must be translated into a **shared vision at local, regional and national level**, where water measures are well integrated into infrastructural, economic and social development plans, to enhance sustainable innovation and just socio-economic development. It also demands synergies with surrounding territories and along water pathways. This requires technical expertise to put into practice ambitious yet sustainable NbS and circular interventions, and closely monitoring impacts.

In terms of participatory processes, this means **applying a quintuple helix model and active multi-level governance** for co-designing and co-implementing water-focused strategies, recognising our shared responsibility for the stewardship of water resources (see also Topic n.4 - Governance, Awareness, Financing & Capacity Building).

As mentioned before, **healthy soils are fundamental to ecosystems**, as they offer several crucial ecosystem services such as water regulation and a habitat for biodiversity. Increasing biodiversity both above and below ground is essential, as these systems are inextricably linked. Below-ground biodiversity supports water retention, and improved water retention, in turn, benefits both soil and surface ecosystems.

4 Water-Energy Nexus — Address the interconnections between water and energy systems to optimise resource use and reduce environmental impact.

Addressing the interconnections between water and energy systems is essential to optimising resource use, enhancing urban resilience, and minimising environmental impact. Integrating **Water-Sensitive Urban Design (WSUD)** into urban planning also plays a key role in advancing the **Water-Energy-Food-Ecosystems (WEFE)** Nexus.

By promoting decentralised and energy-efficient solutions, such as stormwater harvesting, greywater reuse, and local infiltration, **WSUD reduces dependence on energy-intensive centralised water systems** and lowers the carbon footprint of urban water management. Furthermore, WSUD supports the availability and quality of water for other essential uses, such as urban agriculture and green infrastructure, contributing to food security and enhancing local ecosystems. The integration of green and blue infrastructure also restores hydrological cycles, improves microclimates, and boosts urban biodiversity – demonstrating the **multi-functional benefits** of a WEFE-informed approach.

A key principle in this context is **responsible and equitable water allocation**, which ensures that water resources are shared among all critical uses (domestic, ecological, agricultural, and industrial) according to local availability and future needs. Tools that incorporate water forecasting and integrated infrastructure planning can support better decision-making, helping cities avoid unsustainable development and reduce systemic frictions within the WEFE Nexus.

Special attention must be given to **industries with high energy and water demands** – such as data centres – when promoting sustainable water management and urban development. Data centres, particularly those powering AI technologies, are rapidly emerging as some of the most resource-intensive infrastructures worldwide. For example, a single 100-megawatt data centre can consume more electricity than 75,000 homes and require up to 2 million litres of water per

day for cooling. Such developments, especially when located in water-stressed regions, can significantly intensify local water scarcity. Therefore, it is essential to ensure that the location and operation of data centres align with long-term goals for sustainable water use, urban resilience, and equitable resource distribution, through **local planning and regulatory tools.** In this sense, the Water Resilience Strategy includes measures to support Member States in identifying the best areas through data visualisation tools, and will propose minimum water performance standards for data centres.

3.2.1 What are the specific problems to be addressed?

- **1. Limited cross-sectoral awareness on Nature-based Solutions (NbS)**. NbS are a well-established topic in academia, and urban planners are generally familiar with their concepts and potential. However, the benefits of NbS are often less understood by other municipal departments that work alongside urban planning. These departments may still rely on outdated practices, methodologies, and data, limiting their engagement with NbS. Raising awareness and understanding of the practical applications and advantages of NbS across all relevant sectors is crucial to fostering wider adoption. This is particularly important for teams involved in urban development, mobility, housing, and public works, where cross-sectoral collaboration can amplify impact.
- **2.** The need for clear and actionable implementation guidelines for NbS. In dense urban environments, implementing NbS demands flexible and adaptable solutions capable of responding to an increasingly unpredictable climate. Challenges such as drought, intense rainfall, and water quality issues require integrated approaches that combine grey, green, and blue infrastructure. To guide the adoption of NbS, clear and actionable implementation guidelines are needed, grounded in a holistic understanding of urban systems and environmental interdependencies.
- **3. Unlocking the benefits of NbS require long-term commitment.** The increasing densification of urban areas poses significant threats to urban soils through soil sealing, compaction, and contamination. These pressures compromise the soil's natural capacity to absorb, retain, and slowly release water, commonly known as the 'sponge effect', which is vital for managing stormwater, supporting vegetation, and regulating the urban microclimate. Nature-based Solutions (NbS), which can help restore these functions, require time to mature and become effective. Their long-term benefits (such as increased biodiversity and improved water retention) depend on consistent protection, minimal disturbance, and consideration of future urban developments. However, short-term planning cycles and competing land-use priorities often fail to accommodate this need for long-term commitment.
- **4.** A major barrier to the widespread adoption of NbS is the lack of knowledge and awareness about the ecosystem services they provide. Policymakers, urban planners, and the public frequently underestimate or overlook the full range of benefits NbS offer including carbon sequestration, water purification, flood mitigation, and habitat creation. This knowledge gap impedes both the quantification of their value and the communication of their benefits, ultimately resulting in underinvestment and missed opportunities for more sustainable, resilient urban development. To overcome these challenges, it is essential to promote interdisciplinary research, enhance data collection, and integrate ecosystem service valuation into urban planning and decision-making processes. Bridging this gap will be key to mainstreaming NbS and unlocking their full potential in cities.
- **5. Lack of policy/regulations regarding water sensitivity.** Policy on water-sensitivity is often lacking or non-existent while it could be a driving factor for providing building permits or issuing regulations. Large parts of cities are owned by private parties, and not by the local governmental entity. This results in complications for urban planning to effectively satisfy all the needs of the urban environment. Mobilisation of the private sector through policy and building regulation, can be an

important tool to improve water-sensitivity in a dense urban environment (including water-saving design and equipment, provisions for water retention, storage and reuse at building level).

- **6. Regulatory inconsistencies and fragmented governance.** From an interregional perspective, the implementation of water-related NbS faces several challenges due to fragmented governance, inconsistent regulatory frameworks, and varying levels of institutional capacity across regions. Policies often lack coordination and alignment between upstream and downstream jurisdictions, making it difficult to manage shared water resources effectively. Differences in priorities, funding mechanisms, and technical standards further complicate collaboration on large-scale NbS projects beyond municipal, regional or national boundaries. Additionally, the absence of integrated water management policies that explicitly incorporate NbS limits the scalability and long-term success of these solutions. Overcoming these issues requires harmonised policy frameworks, enhanced inter-municipal and cross-regional cooperation, and the establishment of joint planning and financing mechanisms. At the same time, too much regulation and policy may actively hamper the effectiveness of water sensitive city solutions. Regulations should encourage a flexible approach, for if they become too rigid, adoption and implementation of policies may be shunned to not hamper future urban developments.
- **7. Insufficient awareness on long-term cost savings associated with WSC measures.** Water-Sensitive urban planning requires front loaded investments, while the monetary benefit is long term and not directly clear. Existing funding does not take into account the long-term benefits of these investments while they are an important justification for investment.
- **8.** Limited integration in planning and implementation of green and blue infrastructure. Green and blue infrastructure can benefit greatly by combining their uses, but fragmented planning and silo approaches result in lost opportunities. This further extends to the usage / maintenance phases of exploitation, where silo approaches prevent correct exploitation.

3.2.2 What is the relevance to the three pillars?

Table 7: Relevance of the topic 2 to the three pillars

To	opic 2: Water-sensitive urban planning and investments
Better regulation	To mainstream water-sensitive urban planning and maximize its co-benefits, regulatory frameworks must provide long-term direction and mandatory requirements. This includes: • Establishing a long-term urban vision that integrates NbS as essential infrastructure. • Introducing regulatory obligations for water storage at the building and district levels. • Developing and enforcing water storage and green infrastructure standards. • Ensuring nature-based solutions are embedded in urban plans through binding planning policies. • Mandating the inclusion of water-sensitive planning principles in land use, housing, and infrastructure development.
Better funding	 EU Financial mechanisms should recognise the long-term economic and societal value of water-sensitive investments: Prioritising long-term cost savings and resilience benefits of NbS in public investment strategies. Strengthening the economic case for NbS by promoting better valuation of their long-term benefits across sectors.

	 Mobilising support from national governments and EU-level funding to de-risk and scale implementation of NbS (including EIB funding streams) Establishing revolving funds to reinvest savings from reduced water-related damages and maintenance costs into new projects.
Better	Effective planning and investment require a stronger evidence base and
knowledge	knowledge transfer among relevant stakeholders. The Thematic Partnership
	contributes to this Pillar as it aims to:
	 Map and quantify existing green and blue infrastructure and assess current and future needs.
	 Consolidate and communicate the long-term advantages of NbS, including co-benefits for climate, biodiversity, and quality of life.
	 Support upscaling of sponge city approaches and water-sensitive design to build technical expertise and practical know-how.
	 Target capacity building towards policymakers, urban planners, housing and mobility professionals, beyond the already engaged water and green space specialists.
	 Provide design-oriented guidance and case studies to support the integration of NbS in urban development projects.

3.2.3 Expected impacts and outputs

Expected impacts and outputs were explored by each of the four Working Groups, and will be connected and refined in the Action Plan (see section 7.4 Ideation for future Actions).

Table 8: List of the expected impacts and outputs from Topic 2

	Topic 2: Water-Sensitive urban planning and investments
Expected impacts	 Support Cities in developing a 'Water Sensitive City' plan in cocreation with local stakeholders and community Increase number of certified professionals with knowledge of WSC topics (architects, planners, maintenance workers, politicians, others).
Potential outputs	 Set of indicators related to water sensitive cities (% of permeable soil or mm of water storage in relation to tax reduction). Development of a Blueprint 'Water Sensitive City' plan. Handbook of best practices by region or type of infrastructure [Green & Blue infrastructure / Sponge city & Urban water retention/ Biodiversity & Eco-system restoration]. Training Needs Guidelines to support the WSC overall objectives (see also Topic n.4 - Governance, Awareness, Financing & Capacity Building).

3.2.4 Relevance for EU policy goals

Apart from the main policies and strategies that are of utmost relevance for the WSC Partnership (EU Green Deal, Water Resilience Strategy, Biodiversity Strategy, New European Bauhaus and the EU Missions: Mission Restore our Ocean and Waters by 2030, Mission on Adaptation to Climate Change, Mission: Climate-Neutral and Smart Cities, and Cohesion Policy objectives), recent key Regulations and Directives for Topic n.2 are:

- Nature Restoration Regulation that sets binding targets for urban ecosystems with no net loss of urban space and tree cover by 2030 and steadily increasing green space, including buildings and infrastructure, from then onwards. Green & Blue Infrastructure helps complying with these targets, in accordance with the Water Resilience Strategy which also stresses the opportunity of nature-based solutions for improved water resilience. Adopted in August 2024, this regulation mandates EU Member States to restore at least 30% of degraded habitats by 2030, scaling up to 90% by 2050. It is a central component of the European Green Deal and the EU Biodiversity Strategy, emphasising the restoration of ecosystems to bolster climate resilience and biodiversity.
- Revised Urban Wastewater Treatment Directive, which promotes the reuse of treated water and resource recovery in urban wastewater treatment plants, where appropriate and especially in water-stressed areas. Additionally, it foresees the establishment of Integrated urban wastewater management plans for agglomerations of ≥ 100.000 person equivalents (p.e.) at local level by 2033, and for agglomerations of between 10 000 p.e. and 100 000 p.e. where storm water overflows or urban runoff pose a risk for the environment or public health by 2039, while prioritising Green & Blue Infrastructure where possible.

This working group will strive towards combining water sensitive urban planning and investment aspects with the different plans required by the abovementioned directives and laws, as well as upcoming initiatives, such as the **Circular Economy Act**, and ensure a systemic approach to the challenges of climate mitigation and adaptation, circularity and resource efficiency, biodiversity and the energy transition in urban and peri-urban contexts.

3.3 Topic n.3 - Smart Water Operation & Digital Innovation

The rapid digitalisation of the water sector is enabling smarter, data-driven management at the urban level, offering a critical advantage as extreme weather events linked to climate change become more frequent. This digitalisation relies on IoT devices that **enable real-time monitoring of collected data**, which is then managed through digital twins of urban water systems. The systems can then compare optimal system performance with current operational status and simulate different scenarios. This also allows for a correct assessment of the status and risks of a water system and the availability of real-time monitoring of key performance indicators.

Water sensitive cities can take great advantage of real-time data technologies, AI, machine learning and physics-informed AI models (which combine data with physical laws) to optimise operations, reduce pollution in water bodies, and improve energy efficiency. This combined technological approach enables accurate assessment of water-sensitive cities, optimised system operation, greater transparency (including open science), and data-driven water governance.

Smart water operation and digital innovation support greater system resilience, a rapid assessment of policy needs, outcomes, and regulatory compliance. The relevance of the topic is fully recognised at EU level, with the Water Resilience Strategy identifying digitalisation as one of its five action areas.

Table 9: List of sub-topics related to the Topic 3

Topic 3: Sub-Topics

Smart Water Systems – Utilise AI, IoT, and digital platforms for real-time monitoring and optimisation of urban water consumption and distribution.

This sub-topic focuses on supporting the uptake of a set of **basic digital requirements that any water system must meet**, particularly in small and medium-sized municipalities, which often lack the necessary resources to achieve real-time monitoring and optimisation of water systems.

The goal is to enable urban water managers to detect deviations and act on them as quickly as possible, thus saving water and other operational resources and ensuring regulatory compliance. The focus will be on **bridging the gap between the current status of urban water systems and the minimal and optimal digitalisation requirements** that it must have to run a data-based operation and correctly assess its status. Key actions include deploying smart sensors (e.g. for metering and leak detection), optimising operation, data standardisation, and component integration.

2 Digital Twin Technology — Develop virtual models of urban water networks to simulate scenarios, enhance decision-making, and improve infrastructure management

This sub-topic aims to **advance digital twin development**, as digital replicas of physical water systems - which can include NbS and Sustainable urban drainage systems (SuDS) used for both operational and planning purposes,

It focuses on exploring current solutions available to water managers, identifying their implementation requirements, and highlighting their benefits. These include not only real-time monitoring and scenario simulation, but also **preventive maintenance**, **assessment of service disruptions**, **and evaluation of pollutant behaviour**, making digital twins a powerful tool for complex water system management.

Data-Driven Water Governance — Apply predictive analytics, data harmonisation, and interoperability techniques to optimise water management

This sub-topic focuses on building the **data foundations needed for effective governance in water-sensitive cities**. It explores the need for using new data technology and data standardisation, harmonisation and transparency, starting with comprehensive data collection and analysis frameworks that support policy development and implementation. It also considers aspects like data protection, validation, access protocols, and data-sharing policies.

The aim of this sub-topic is to shed light on current lines of research in this matter, with a specific focus on predictive data models applied at the urban level, and on assessing how these align with current EU data policies and regulations.

4 Innovation & Applied Research – Support living labs, eco-design for sustainable products, and new technological developments for sustainable water use

This sub-topic focuses on understanding the **collaborative mechanisms for place-based problem solving**, as well as innovation and research on water sensitive cities (involving universities, research institutions, or open science) and **collect good practices from municipalities** across the EU. This is a data-intensive sub-topic, closely linked to and interrelated with digital twin development, as this is one of the major innovations under development for the field.

3.3.1 What are the specific problems to be addressed?

- 1. Unbalanced levels of digitalisation among urban entities; lack of data and sensor standardisation. While IoT devices, sensors, GIS and hydraulic models for water systems are commonplace, the level of implementation differs greatly throughout the EU, where a number of municipalities or government bodies responsible for water management have already implemented digital solutions and are reaching state-of-the-art water governance and, on the opposite side, small municipalities that have little to no digitalisation, reaching only automation of processes. There is also a disparity in the technological approaches both to the implementation of digital solutions and data management. This translates into the impossibility to establish balanced and robust KPIs and an incomplete or incomparable assessment of different water bodies and urban water systems. There is a lack of data standardisation and harmonisation at the EU level as identified in the Rolling Plan for ICT standardisation that can translate into specific digitalisation needs to be addressed at the municipal level to solve specific problems or attend specific issues and robust EU-level KPIs for water systems' assessment and further regulation development.
- 2. Lack of funding mechanisms specifically developed for water management digitalisation; high complexity of financing mechanisms. While there are some funding mechanisms in place that allow for development and implementation of water digitalisation solutions, as Horizon Europe or the Cohesion Funds, among others, these mechanisms are either not specifically designed to improve the digitalisation of urban water systems or too complex to be accessed by small and medium size municipalities, as they lack the human and economic resources to prepare and manage the requirements placed by the Commission. There is a lack of easy-to-access and specific funding towards urban water system digitalisation.
- **3. Complex data governance.** Data governance constitutes the optimal combination of different data sources of water management, achieving an efficient use of water including energy requirements and allowing for better regulation to be put in place as decisions are data-based. However, the combination of each data set and data source poses a challenge. At the EU-level, it is affected by regulations regarding private data protection, cybersecurity, among others. At the municipal level, it entails managing diverse data sources, their validation and their compliance with supra-municipal regulations. There is a **lack of knowledge in state-of-the-art data-driven governance and its related regulations**.
- **4. Need for improvement in collaboration between universities and research and development institutions.** Collaboration between research institutions, both public and private, with urban authorities is an adequate mechanism to develop and implement place-based solutions that can be shared with other stakeholders. However, achieving this collaboration poses a challenge, as it requires both parties to reach a common goal, which may be hindered by financial constraints or the risks management associated with R&D investments. There is a **need for an improved strategic and funding framework that helps bridge the gap between research and development institutions and urban administrations**.
- **5. Lack of knowledge and capacity at local level.** Small- and medium-sized municipalities often lack the resources to implement smart water systems or to achieve optimal data-driven water systems' management. There is a need to build capacity among local staff on digitalisation requirements and different approaches being adopted across the EU.

3.3.2 What is the relevance to the three pillars?

Table 10: Relevance of the topic 3 to the three pillars

	Topic 3: Smart Water Operation & Digital Innovation
Better	The activities carried out under Topic 3 will support both regulatory
regulation	assessment and compliance as well as the development and
	enforcement of relevant regulations by:
	 Making use of implemented KPIs, defined at the EU level,
	alongside the use of digital twins, as core assessment tools,
	generating relevant data.
	Enabling rapid evaluation of the level of digitalisation across
	EU municipalities by leveraging data generated and governed from
	multiple sources. This data will also support the monitoring of
	compliance with EU policies and contribute to the identification of
	regulatory gaps, by measuring current status compared to EU
	objectives, monitoring progress in almost real-time, and allowing for
	an EU-wide assessment that can drive future policies.
	Ultimately, this will empower the European Commission to develop or refine key
	policies related to water governance and will promote the transition toward
	Water-Sensitive Cities, tailored to the evolving regulatory needs of urban areas
	and fitting digitalisation goals established by the Commission in the Water
	Resilience Strategy.
Better funding	Establishing a scalable water digitalisation standard allows for
J	rationalised result-oriented funding through the real-time measurement of
	indicators:
	The standard will allow for better funding, as dedicated funding
	packages can be developed for each digitalisation level.
	Funding and expertise from the European Commission can then focus
	on municipalities that most need digitalisation - because of low
	digitalisation levels or because of water-associated risks assessed via
	indicators - while allocating funding for research projects at the
	highest digitalisation levels, such as data governance implementation
	and AI use and development, thus promoting both innovation and
	improvement of technologies and cohesion.
	Resulting funding will be place-based and can focus on specific
	system components or on a wider level, depending on assessment
	results. The use of the standard also eases access to financing and
	increases control over investments as applications are placed to
	reach a specific level of digitalisation, with a specific set of indicators.
Better	The Thematic Partnership will improve knowledge in two main aspects:
knowledge	Data-driven decision making and governance, as the
	development, implementation and dissemination of KPIs can help
	municipalities understand what are the most impactful
	measures being carried out, understand the final use and users of
	water to trace the source of variations in water quality and quantity.
	Additionally, data analytics through data science and AI can point to
	previously undetected patterns and correlations, facilitating
	decision-making.
	Capacity building, knowledge sharing and self-assessment: A
	digitalisation standard allows municipalities to carry out self-
	assessments, identify training and infrastructure needs, and detect

gaps. Use cases and best practices sharing allows smaller
municipalities to access technological, regulatory or research
solutions to bridge the gap between lower and higher levels of
digitalisation and water governance.

3.3.3 Expected impacts and outputs

Expected impacts and outputs were explored by each of the four Working Groups, and will be connected and refined in the Action Plan (see section 7.4 Ideation for future Actions).

Table 11: Expected Impact and Outputs from Topic 3

Topic 3: Smart Water Operations & Digital Innovation		
Expected Impacts	The expected impact is the enhancement of knowledge and understanding in the concepts of Smart Water Operations and Digital Innovation. This will lead to: a) a more efficient water management based on indicators and data analysis including digital twins AI analysis; b) an increased implementation capacity, as over or under ambitious projects are clearly framed into specific levels with specific funding, and c) building an ecosystem of different stakeholders working together supported by clear benefits measured through KPIs.	
Potential outputs	 Step-wise digitalisation strategy: This output proposes the creation of a scalable digitalisation strategy (from A1 to C2 levels). Based on three main milestones (digitalised infrastructure; digital twins; and data-driven water governance), it will reflect the necessary steps towards the achievement of each level, propose specific capacity building training and materials, funding opportunities, and indicators to measure the success of its implementation. The monitoring of the related indicators for each level will allow municipalities to better assess their digitalisation status and needs, while also enabling the EU to ease funding processes and ensure adequate compliance control and planning. Indicators should be clear and tangible (e.g. water reuse, energy saved, water body quality, service cut impact on citizens). Cybersecurity and data regulations should be present throughout all levels. Mapping of private funding opportunities and public-private collaboration: To bridge the gap between ideas and implementation, and to involve the private sector in research projects, existing opportunities and good practices should be mapped. Mapping of data-based approaches engaging civil society: This output supports multi-level governance by mapping data-based approaches engaging civil society, including open science and behaviour-based approaches. It will focus on measurable indicators, such as water consumption reduction through behavioural change, and provide quantitative indicators and visual data (in connection with Topic n.4 - Governance, Awareness, Financing & Capacity Building). 	

3.3.4 Relevance for EU policy goals

The topic of Smart Water Operations and Digital Innovation is relevant to EU policy goals in three main aspects:

Firstly, it is directly aligned with the Water Resilience Strategy (WRS), as Digitalisation is one of its five areas of action. The relevance of the topic to the WRS is outlined below:

- Digitalisation serves as a tool to measure changes in water bodies and quality, assessing
 the balance of water systems (from abstraction and distribution and collection losses to
 discharge). Digital devices and digital twins enable scenario simulations that support better
 decision-making, whether for planning investments to improve water body health or for
 assessing risks and setting alert thresholds.
- Following the principle of water efficiency first, digital tools can support leakage reduction, infrastructure modernisation and deep data assessment: data from smart metering, leakage detection sensors that is fed into digital twins enables water managers to compare real-time data with zero-leakage scenarios, revealing areas of low-efficiency. This supports targeted investment in both infrastructure and digital tools.
- Digitalisation enables accurate monitoring of the impact on water and energy consumption resulting from implemented measures, by providing real-time data for both sectors.
- Data standardisation and harmonisation could allow for better data quality and better data analysis, with data sets correctly interoperating at the EU level, thus improving decision making through standardised KPIs and simplifying their interpretation and implementation. As already pointed out in the Ex-Ante Assessment, the lack of comparable data sets limits the correct assessment of water bodies and infrastructure. This is also exposed in the WRS, with a direct mention to data fragmentation.
- Support the development of an EU-wide Action Plan on digitalisation in the water sector. A step-wise digitalisation strategy will help identify the current digital maturity of water systems. It will give the EU direct insight into where support is most needed and allow more efficient prioritisation of investments and policies across member states.
- The **establishment of digitalisation levels can ease access to funding,** by developing funding packages for each level, tackling the needs of the less digitalised municipalities and establishing grants for innovation for the most digitalised municipalities.
- Promote best practices on public awareness and the role of water pricing to increase
 water efficiency and cost recovery, aligned with the polluter pays principle: as the indicators
 for each level together with collected data will show a picture of current water status for
 municipalities, both civil society and public administrations will have access to a direct
 comparison on costs, investment return and impact of consumption reduction
 measures, thus allowing for a more result-oriented and visible impact on investment and
 greater water governance transparency and public awareness.
- The WRS Flagship Actions related to 'Research and innovation, water industry and skills'
 (including the development of the Smart Industrial Alliance) will benefit from mapping public
 funding opportunities and identifying effective public-private cooperation models.
 This effort should be reinforced through accessible public funding and accelerated investment
 in the water sector.

Secondly, the topic supports compliance with regulations and directives in the water sector.

The mainstream use of IoT devices and digital twins, together with standard data models and
water governance at the EU level allows for a real-time assessment on policy compliance
– across flood management, water management, and wastewater systems. KPI monitorisation
through smart water systems would enable the European Commission to have an overview of
different compliance levels and bottlenecks, feeding into future regulation. It will also enable a
transparent management of water at the urban level.

The envisioned standardisation would fit with EU policy regarding data and AI technology implementation: The AI Act assesses risks and establishes ethical guidance for AI implementation; The Open Data Directive facilitates interoperability, data access and sharing of public data; The Data Act and the Data Governance Act ensure the correct use and sharing of data between stakeholders.

Thirdly, the topic proposed promotes cohesion, by enabling the channelling investments where they are most needed.

 A standardisation of data and digitalisation that establishes the requirements to be met by municipalities, from basic to advanced digitalisation levels, and a related scalable financing standard can help the EU rationalise investments, reinforcing cohesion, while facilitating compliance and interoperability.

Lastly, advancing digitalisation in the water sector requires improvements related to jobs and skills, which is also consistent with the Commission's **Quality Jobs Roadmap.** The need for more specialised personnel also links with the proposal presented in the Water Resilience Strategy to establish a **European Water Academy**, raising the possibility to implement in its curricula the learning from this Partnership and securing the necessary water-related skills and reducing the skills gap between different workforce generations.

3.4 Topic n.4 - Governance, Awareness, Financing & Capacity Building

The Ex-Ante Assessment (EEA) identifies **effective multi-level governance, innovative financing and capacity building** as essential pillars for advancing Water Sensitive Cities. Strong governance frameworks should facilitate coordination across all levels of government and sectors, enabling integrated and coherent policymaking. At the same time, innovative financing mechanisms are needed to fund the development, implementation, and maintenance of water-sensitive infrastructure and practices. The Thematic Partnership aims at advocating for blended finance mechanisms, green bonds, and public-private investment platforms and promote the development of integrated financial roadmaps rather than fragmented project-based funding, as it can support the shift from one-off investments to long-term, scalable funding strategies.

Although not explicitly listed among the sub-topics suggested in the EEA assessment, **public awareness and community engagement** are highlighted in ongoing projects as key to fostering a culture of water stewardship. Public participation can encourage behavioural change and strengthen democratic legitimacy. For this reason, the partnership recommends including this fourth dimension to build societal support and empower citizens to take an active role in sustainable water management.

Table 12: List of sub-topics related to Topic 4

Topic 4: Sub-topics

Multi-Level Governance – Strengthen cooperation among EU, national, and local governments, and engage private sector and community stakeholders in water policy. Foster vertical and horizontal collaboration among EU, national, regional, and local authorities, ensuring clear allocation of roles and responsibilities.

The WSC Partnership will promote multi-level governance to approach to water management across all levels of governance.

Public Awareness & Community Engagement – Foster a culture of water resilience through education, participatory decision-making, and community-led initiatives

Promoting water conservation and sustainable practices requires more than technical solutions—it calls for long-term behavioural change rooted in awareness, inclusion, and shared responsibility. This should start from an early age, encouraging water and more generally climate-conscious habits through education and youth engagement. Inclusive participation can strengthen community ownership and action, and particular attention should be paid to engaging underrepresented and vulnerable groups to ensure equity in decision-making processes.

Moreover, the Quintuple Helix Model can be applied to acknowledge natural environments as drivers of innovation, highlighting the inherent need for transdisciplinary, social ecology mindset to achieve sustainable development (i.e. Carayannis and Campbell, 2010).

Financing & Investment Strategies – Develop and implement innovative financial models, including water pricing policies and compensation mechanisms, leveraging of local / endogenous assets to develop and fund water-sensitive projects

Financing and investment strategies are crucial for funding water-sensitive projects. This includes developing innovative financial models, such as water pricing policies, incentives, and compensation and/or offsetting mechanisms, to attract private investment. Additionally, encouraging the blending of public, private and community funds and resources to support water-sensitive projects and attract investment will help ensure equitable financing and support local implementation. This may benefit especially small and medium-sized municipalities, which may also opt for regional / collaborative water management and to create economies of scale and sustainable management of common water resources (e.g. basins).

4 **Knowledge Exchange & Capacity Buildin**g – Enhance learning opportunities and technical training for stakeholders, promoting best practices in water governance

A key barrier to Water-Sensitive Cities (WSC) is the limited understanding of the concept and its practical applications. Additionally, there is a gap in training and technical skills, making it difficult to implement integrated or nature-based solutions.

To overcome these challenges, enhancing learning opportunities and providing technical training are essential. Strengthening the capacity of local institutions, especially in small and medium-sized municipalities, through tailored programs and peer-to-peer training will help to promote best practices and ensure effective implementation of WSC measures. Online or physical knowledge-sharing events or platforms can further facilitate the transfer of successful models across regions and cities.

3.4.1 What are the specific problems to be addressed?

Based on the mapping of gaps carried out in the second WSC meeting, we identified six interconnected problems that span across governance, finance, planning, and implementation.

1. Fragmented governance hinders coherent and synergistic water governance across all scales. Institutional fragmentation remains a major barrier to integrated water management. Responsibilities are often split between different levels of government and across sectors (e.g. urban planning, health, environment), with limited horizontal coordination. Water planning is frequently not integrated with land use, health, energy or climate adaptation strategies. As a result, policies and initiatives risk being disjointed, inefficient, or even contradictory.

- **2. Lack of meaningful public and stakeholder engagement undermines the legitimacy, quality, and long-term ownership of water-sensitive solutions.** Public and stakeholder engagement in water-related decision-making is often limited, inconsistent, or symbolic. Participation processes tend to start too late in the planning cycle or lack continuity. In many cases, engagement is viewed as a one-way communication tool rather than an opportunity for co-creation and shared responsibility. Furthermore, there is a lack of incentives or institutional frameworks to support inclusive multi-actor collaboration.
- **3. Insufficient financing and economic incentives.** Investing in WSC should be better promoted not just as a cost, but as a smart, future-proof investment in sustainable innovation and development. Currently, the implementation and scaling of WSC solutions are constrained by insufficient funding and inadequate economic incentives. There is a lack of dedicated and sustained financing streams for nature-based solutions (NbS) and water-sensitive infrastructure. Market signals frequently fail to reward long-term sustainability, and current procurement procedures are often ill-suited for the cross-sectoral, adaptive, and innovative nature of WSC projects. Furthermore, public and private investment frameworks do not consistently recognise or promote WSC as a strategic lever for innovation, green job creation, and resilient economic development. However, innovative mechanisms such as Payment for Ecosystem Services (PES) and Positive Water Credits (CAPs) must be explored to mobilise public and private finance by rewarding measurable water-related environmental benefits, such as improved water quality or aquifer recharge.
- **4. Limited knowledge and evidence sharing on the 'Water Sensitive City' concept.** Without a clear and shared understanding of WSC, supported by accessible knowledge and practical tools, the concept risks remaining abstract. A fundamental barrier to the development of Water Sensitive Cities is the limited understanding of what the concept truly means in practice. Many local authorities, planners, and stakeholders are not fully familiar with the principles of WSC, nor with the types of actions that can translate challenges (such as urban flooding, pollution, or scarcity) into opportunities for innovation and resilience. This conceptual gap contributes to a lack of political traction and prioritisation of WSC measures. Moreover, many professionals lack the necessary training, technical skills, and cross-sectoral experience to implement integrated or nature-based solutions effectively. Research on water-sensitive approaches remains fragmented, and dissemination of findings is limited, resulting in poor transfer of knowledge across regions and cities. Mechanisms to share best practices, build peer-to-peer learning networks, and scale up successful models are underdeveloped.
- **5. Urban environments continue to be developed in ways that increase water-related risks rather than mitigate them.** Urban planning practices often fail to incorporate water-sensitive design principles. In many countries, there is no legal obligation to integrate NbS in new developments, and urban densification further limits the space available for green and blue infrastructure. Furthermore, some technical standards, such as those for fire safety or mobility, can conflict with the implementation of NbS.
- **6. Regulatory and legal barriers.** Reforming legal and regulatory systems to align with the objectives of water resilience and sustainability is essential to drive systemic change. Existing regulatory frameworks can hinder the uptake of WSC solutions. This includes incoherent or conflicting regulations across different departments, weak enforcement of rules that support sustainable water management, and legal and technical uncertainties that discourage public procurement of innovative solutions.

3.4.2 What is the relevance to the three pillars?

Table 13: Relevance of the topic 4 to the three pillars

Topi	c 4: Governance, Awareness, Financing & Capacity Building
Better regulation	Strengthening multi-level governance frameworks contributes to clearer and more coherent regulatory environments. It ensures better alignment between EU, national, and local policies, reducing overlaps and legal ambiguities.
Better funding	Developing innovative financing approaches, such as blending EU, national, and private funds, directly addresses funding gaps. It notably enables small and medium-sized municipalities to access resources and enhance investments.
Better knowledge	Development of knowledge and capacity on awareness-raising campaigns, codesign processes, and inclusive communication tools increase understanding of water challenges and solutions. They foster learning both at community and institutional levels, enabling more sustainable water practices. Contribution to the creation, transfer, and operationalisation of knowledge. Through training programmes, peer-learning, and access to best practices, stakeholders are better equipped to deliver on the goals of Water Sensitive Cities.

3.4.3 Expected impacts and outputs

Expected impacts and outputs were explored by each of the four Working Groups, and will be connected and refined in the Action Plan (see section 7.4 Ideation for future Actions).

Table 14: Expected Impacts and Outputs from Topic 4

Expected Impacts • Enhance the capacity of cities to effectively implement mult governance models through the provision of practical tools, experiences, and collaborative methodologies.	
 Public Awareness & Community Engagement: Strengthen the capacity of cities to promote and communicate approaches in ways that can inspire citizen engagement stakeholder participation. Achieve behavioural change towards sustainable water us increased citizen participation in water management. Financing & Investment Strategies: Strengthen the financial capabilities of cities to implement projects by enhancing access to diverse funding source innovative financial mechanisms. Foster collaboration with key stakeholders to secure funding for initiatives and ensure the inclusion of WSC priorities in EU budget policies. 	ate WSC ent and use and ent WSC ces and for WSC

Knowledge Exchange & Capacity Building:

- Develop and spread knowledge on WSC and its practical applications
- Foster capacity building and tailored support to implement effective WSC interventions
- Fostering **collaboration with relevant EU initiatives** (e.g. EIT Water) and international ones.

Potential outputs

Multi-level governance:

 Comprehensive framework of resources for cities to implement multi-level governance models effectively including: a toolkit with best practices, methodologies, and a set of guiding principles for multi-level governance, tailored support for setting up local actions and initiatives.

Public Awareness & Community Engagement:

- Development of a **joint campaign**, such as an 'EU WSC Week', to highlight best practices and raise awareness with promotion of best practices. The campaign, targeting the general public, should aim to shift behaviours, increase visibility of local initiatives, and support inclusive engagement by making water resilience a shared civic goal.
- Compilation of case studies on engagement formats that have successfully increased public participation in water governance across European cities, including enablers, barriers, and lessons learned (such as visuals, games, and challenges, targeting young audiences and vulnerable groups).

Financing & Investment Strategies:

- Compilation of good practices on innovative financing models and solutions to address fragmentation in the funding landscape, including Payments for Ecosystem Services (PES) schemes and Positive Water Credits (CAPs), blended finance, taxes, public-private partnerships (PPPs), public-private-community partnerships (PPCPs), and incentives for WSC projects
- **Stakeholder dialogue,** including engagement with insurance companies, to explore innovative funding mechanisms.
- Tools and recommendations for **capitalising on EU resources** and tapping into a broader range of funding sources.
- A **pilot project with the European Investment Bank (EIB)** to foster collaboration among cities along river basins.
- Advocacy for the inclusion of funding for water-sensitive city investments in EU cohesion policy and the next Multiannual Financial Framework (MFF).

Knowledge Exchange & Capacity Building:

- Development of a widespread WSC Academy, both online and across relevant river centres, to promote peer-to-peer learning and knowledge exchange.
- Tailored support for local authorities to enhance their understanding of WSC principles and implementation methods through (existing?) match-making platforms.
- **Series of webinars** to disseminate best practices and practical tools across regions and cities.

3.4.4 Relevance for EU policy goals

- **Water Resilience Strategy** Recognises governance, financing, and community empowerment as key to building climate-resilient urban water systems.
- **European Green Deal** Encourages behavioural change, participatory policy, and sustainable investment strategies.
- **EU Climate Adaptation Strategy** Highlights inclusive governance, awareness raising, and inter-municipal coordination for climate-resilient planning.
- EU's ongoing work on biodiversity certification and the development of nature and
 ecosystem credits as tools to channel public and private finance into nature restoration.
 As highlighted in the Water Resilience Strategy, 'the Commission will adopt a Roadmap for
 Nature Credits to tap the potential of these instruments and incentivise the scale-up of
 these markets.'
- **EU sustainable finance framework -** Currently undergoing a process of simplification, seeking to align competitiveness with the EU's climate goals.
- **Savings and Investment Union** Aims to link savings with investment needs for EU's strategic goals and to increase the funding opportunities for EU businesses, including in the water sector.
- **Cohesion Policy** Aims to reduce disparities in access to financing, technical capacity, and environmental resilience across EU regions.
- **New Leipzig Charter** Emphasises integrated, participatory, and place-based governance in urban transformation.
- **SDGs (particularly SDG 6, 11, and 13)** Promote clean water and sanitation, sustainable cities, and climate action.

This topic also complements and enables the other WSC topics by providing the necessary **institutional, societal, and financial foundations** for their effective implementation.

4 SYNERGIES WITH OTHER PARTNERSHIPS

4.1 Describe the links with other partnerships

The Water Sensitive City (WSC) Thematic Area (TA) is deeply interconnected with several other Thematic Areas under the Urban Agenda for the EU, as water management is closely linked to environmental, social, territorial, and economic dimensions of urban development.

Addressing the challenges related to water resilience requires a comprehensive understanding of these interconnections and the promotion of integrated solutions that simultaneously support multiple urban sustainability goals.

Several other thematic areas must be considered in relation to the WSC TA:

- **Greening Cities:** better planning and financing for Greening cities will support a holistic approach on urban planning and promote the creation of urban wetlands and green corridors for water retention.
- Sustainable Use of Land and Nature-Based Solutions (NbS): Sustainable land management and the promotion of permeable, nature-based urban spaces directly enhance water infiltration, quality, and biodiversity.
- **Circular Economy**: Closing the water loop through reuse, recycling, and resource-efficient practices reduces pressure on drinking water sources and energy systems.
- **Energy Transition**: Water and energy systems are interdependent; improving the energy efficiency of water services and integrating renewable energy contribute to climate neutrality goals.
- **Climate Adaptation**: Effective water management is essential for building urban resilience to climate change impacts such as floods and droughts.
- **Public Procurement**: Leveraging innovative procurement practices can stimulate investment in water-sensitive infrastructure and technologies.
- **Food Systems**: Sustainable agri-food systems that prioritise water-efficient crops and irrigation practices strengthen peri-urban resilience and urban food security.
- Building Decarbonisation: Integrated Renovation Programmes and Local Heating and Cooling Plans: The built environment offers extensive opportunities for advancing water resilience, by including stormwater collection and water reuse infrastructure, as well as promoting water-saving equipment, as part of integrated decarbonisation efforts at the neighbourhood scale.

Many of these topics are already the focus of dedicated UAEU Thematic Partnerships. The Water Sensitive City Partnership can benefit greatly by building on the outputs of these partnerships, fostering synergies, and advancing joint solutions towards water-resilient urban environments.

In particular, the following synergies with other Thematic Partnerships have been identified and are detailed in the table below. On the left column of the table, the Strength of Contribution to the WSC TA is measured based on the following scale:

Score	re Description	
5	Very Strong	
4	Strong	
3	Moderate	
2	Weak	
1	Verv Weak	

Table 15: Synergies between the WSC TP Thematic Areas and other UAEU Thematic Partnerships

UAEU Thematic Partnership	WSC Thematic Partnership — Possible synergies with Actions / Topics of other Partnerships
GREENING CITIES VERY STRONG	Synergies with actions: Action Nº 01 – Need for Green: Methodology for quantifying the demand for green infrastructure at local level The methodology is meant to serve as an evidence-based substantiation tool in deploying green infrastructure, in an integrated manner, to be used in the urban planning process in existing urban areas/neighbourhoods or new urban developments. An effective implementation of this methodology will allow the definition of Green and Blue IE at local level that highly contribute to the WSC TA goals. Action N° 02 – Indicator system for Urban Nature Plans Cities have a fundamental role in relation to urban planning and implementation and, thus, in the restoration of urban ecosystems. Creating Urban Nature Plans can contribute to the Water Sensitive City Plans that will allow urban authorities to measure and monitor their progress in favour of biodiversity, urban nature restoration and water resilience. Action N° 04 – Strengthening structural funding for urban green infrastructure After planning and defining the monitoring methodologies, it is crucial to provide access for funding. Investments made in the "Greening Cities" will promote, among others, the creation of urban wetlands and green corridors for water retention.
Sustainable Use of Land and NbS VERY STRONG	Synergies with actions: ACTION N° 1 — INCLUDING LAND TAKE AND SOIL PROPERTIES IN IMPACT ASSESSMENT PROCEDURES The Partnership identified the need for a mechanism that evaluates the impact of different urban planning alternatives on land take. Such a mechanism would guide decision-makers in selecting approaches that minimize negative territorial and environmental effects. By promoting more careful consideration of soil properties and land use in planning processes, this action directly supports one of the key objectives of the Water Sensitive City TA: fostering more permeable urban environments, enhancing natural water infiltration, reducing surface runoff, and strengthening overall urban water resilience. ACTION N° 6 — BETTER REGULATION TO BOOST NBS AT EUROPEAN, NATIONAL AND LOCAL LEVELS Based on the review of EU instruments and legislation available, the partnership believes that there is a need to integrate NbS

in existing directives. The Partnership will have a closer look at Flood Directive, which hardly mentions green infrastructure. This action will highly contribute to the objectives of the WSC TA.

Circular Economy | VERY STRONG

Synergies with actions:

2.1.2 Help make water legislation support the circular economy in cities

| The Partnership calls for a robust and comprehensive EU legislation to create an environment where cities, as water operators, will develop and implement solutions for water re-use as a part of a strategy for better water management and a transition towards a circular economy. There is an important potential to reduce the use of drinking water in the first place by re-using wastewater and harvested rainwater for purposes such as street cleaning, watering city parks and gardens, and industrial activities. Increasing the available volume of re-used water for such applications would reduce the demand for (scarce) drinking water. The Partnership shall develop a general position (paper) which can be used as input into the ongoing and upcoming revisions of EU strategies on water and wastewater. This action strongly aligned with the WSC TA goals.

2.3.1 Prepare a blueprint for a Circular City Portal | The Circular City Portal should focus on providing practical implementation oriented "do-it yourself" guidance, based on case studies of best practices from across the EU, on various aspects of circular city developments covering e.g. policy/strategy development, project preparation and implementation, monitoring and evaluation, public awareness raising and stakeholder involvement, access to funding/financing, and so on. The portal [link] can be a useful tool to present case studies of best practices related with the Water Sensitive City TA from across the EU.

Energy Transition | STRONG

Synergies with actions:

Action 3: GUIDANCE ON ENERGY MASTERPLANNING FOR CITIES |

Energy master-planning is a spatial, and sometimes also temporal, approach to determining the energy needs of a municipality. It explores how those needs will be met through a variety of power and heat sources. This approach needs to consider future development and changes in the locality, dynamic demand, new technologies, and new energy production. In the Water Sensitive City approach, reducing the energy footprint of the water cycle is fundamental to achieving: (1) Climate neutrality (link with Green Deal targets); (2) Resilient infrastructures that are cost-efficient and sustainable; (3) Smarter urban metabolism, where resources like water, energy, and waste are managed holistically. Therefore, Energy master-planning can be very important in the WSC TA.

Climate Adaptation | MODERATE

Synergies with actions:

- **K1 Improving EU Municipalities knowledge in the framework of Copernicus Climate Change Service** | This action aims at improving the abilities of local authorities to better exploit the knowledge value resulting from the Copernicus Climate Change Service (C3S) to better plan climate adaptation strategies. Better Climate Adaption Plans and better knowledge about Water Resources and foreseen scenarios can be valuable within the WSC TA.
- **K4 Enhancing stakeholder involvement at regional and local levels** | Stakeholder engagement is key in municipal policymaking and climate change adaptation planning. This implies encouraging stakeholder consultation and

Public Procurement MODERATE	participation as common practices at the municipal level when planning climate adaptation actions. This co-creation process, if applied successfully, can facilitate the needed stakeholder engagement and multi-level governance required at the WSC TA. Synergies with actions: Action 1: Develop a reflection board supported by a sustainable platform where cities, regions, Member States and the European
	Commission/institutions exchange ideas and experiences on strategic public procurement Among other objectives it aims at helping authorities to identify the use of a public procurement as a tool to stimulate SMEs through innovative procurement. Therefore, it will support strategic public procurement on WSC innovative investments.
Food (Draft Action Plan) STRONG	Synergies with Actions: Action 4 - FOOD POLICY - Urban Food Policy Training the methodology developed to implement this action that aims at creating an online and in-person training on how to set up and implement Local Food Policies for partner cities, can be good example, for the design of a WSC Training Program. Action 5 - LAND USE - Public Land for Local Food Policies an Interest Group on public land and use of such land for food sovereignty, health of soils and agriculture will be created to develop knowledge sharing, advocacy and capacity building activities. The participation of WSC TP members in this Interest Group can be of strategic interest. Action 6 - INDICATORS - Selecting indicators for urban food systems The action aims to identify common indicators to monitor urban food systems that can be widely used to track progress and compare conditions and trends across European cities. The final goal is to introduce those indicators at the EU level-EUROSTAT. There is a clear opportunity for collaboration, to discuss and define common indicators that are relevant within the context of both Thematic Partnerships.
Building Decarbonisati on STRONG	Synergies with topics/sub-topics: Sub-topic 4: Implementing projects at district/collective level The subtopic focuses on the advantages of integrated district-level decarbonisation approaches (as opposed to building-by-building efforts). In particular, potential synergies could be developed to connect water resilience to decarbonisation, by including stormwater collection, water storage and reuse infrastructure, as well as water-saving equipment, as part of integrated decarbonisation efforts at the neighbourhood scale. There is also an opportunity to mainstream water sensitivity into mandatory local Heating and Cooling Plans.

In addition, the Water Sensitive City Thematic Partnership will, in the short term, analyse the potential synergies with the newly launched **Thematic Partnership on Compact Cities**. The compact city model promotes high-density, mixed-use urban development with a focus on urban regeneration, efficient land use, and reduced environmental impact. These principles are highly relevant to the Water Sensitive City approach, particularly in areas such as land-use efficiency, minimisation of urban sprawl, and the regeneration of underutilised urban spaces to integrate blue-green infrastructure. Exploring these synergies may offer new opportunities for joint actions related to spatial planning, integrated infrastructure, and governance mechanisms that align water sensitivity with the compact city model.

Finally, we would like to emphasize that the Partnership will seek to identify complementary actions, shared tools, and potential areas for collaboration with other relevant European and international initiatives, in order to ensure added value and a coherent, synergistic approach to the design and implementation of our Action Plan.

5 CROSS-CUTTING ISSUES

5.1 How are the first ideas of the Orientation Paper taking in account the cross-cutting issues?

The complexity of urban challenges requires integrating different policy aspects to avoid contradictory consequences and make interventions in Urban Areas more effective (Pact of Amsterdam clause 12). Cross-cutting Issues represent key aspects to be considered in the overall work of the Urban Agenda for the EU and its Partnerships. Each Partnership shall therefore consider the relevance of the Cross-cutting Issues (Gijon Agreement clause 5).

The Cross-cutting issues are:

- Promoting urban policy for the common good, inclusiveness, accessibility, security and equality.
- Enhancing integrated and innovative approaches, notably through financing and in correlation to the green, digital and just transitions.
- Supporting effective urban governance, participation, and co-creation.
- Promoting multi-level governance and cooperation across administrative boundaries.
- Harmonising measures at different spatial levels and implementing place-based policies and strategies.
- Supporting sound and strategic sustainable urban planning, and balanced territorial development.
- Contributing to the acceleration of the implementation of the 2030 Agenda SDGs, the New Urban Agenda and Habitat III principles.

Table 16: Relevance of cross-cutting issues to the thematic areas of the WSC Partnership

	WSC Partnership — Thematic Areas			
	Integrated Water Management & Resilience	Water-Sensitive Urban Planning and Investments	Smart Water Operation & Digital Innovation	Governance, Awareness, Financing & Capacity Building
Promoting urban policy for the common good, inclusiveness, accessibility, security and equality.		Water Sensitive City Plan aims at integrating Sustainable Urban Development Plans and therefore promote innovative urban policies.	Indicators generated and managed in the thematic will both assess current status and regulation compliance and allow for multi-level dissemination, resulting in needed measures to establish urban policies towards satisfying water related basic needs.	
Enhancing integrated and		Green-blue structures combine green, grey and		Developing policy recommendations and tools to align

innovative approaches, notably through financing and in correlation to the green, digital and just transitions		blue infrastructure to enhance integrated WSC approaches.		future EU funding instruments with WSC needs, will contribute to enhance an integrated approach to support green, digital and just transitions.
Supporting effective urban governance, participation, and co-creation	WSC Plans will be developed, mandatorily, based on participatory and co-creation methodologies.		Data will support more effective governance and better decisionmaking process.	Raising awareness of WSC topics aims at different targeted audiences, including politicians, citizens, public sector employees and others, contributing for a better and more effective urban governance.
Promoting multi-level governance and cooperation across administrativ e boundaries	Water is a cross-boundary issue by design. Policy brief will address multi-level governance and the issue of implementing EU policies at a local level. MFF recommendations are expected to support cooperation between different governmental organisations. Recommendation s for transferring knowledge from EU level to municipalities.	Integration of water-sensitive measures on a river basin level.	Digitalisation promotes collaboration among different government entities and stakeholders. Standardised data sets and indicators allow for monitoring and comparison, even at the basin level, and drive the achievement of data-driven governance based on transparency and collaboration.	
Harmonising measures at different spatial levels and implementing place-based policies and strategies.	The proposed WSC Plan blueprint will contribute to assist lower levels over government (municipalities) to implement strategic measures.	Green-blue structure plans are tailored to each district and divided into main structure and side structure.	A digitalisation standard allows for rationalised, result-oriented funding that can help municipalities across the EU achieve a common digitalisation level and enable the private sector to	

				<u> </u>
			better understand EU	
			goals, thus improving	
			their participation.	
Supporting	The WSC Plan	Creation of green-	Data standardisation,	
sound and	blueprint will	blue structure plans	harmonisation and	
strategic	support	on a district level	transparency will	
sustainable	sustainable	for every district in	ease data	
urban	planning and	a city/region to	accessibility and use	
planning, and	balance territorial	address green and	and will promote	
balanced	development.	blue infrastructure	sound and strategic	
territorial	development	needs.	urban planning, by	
development		riccus.	adding value as an	
development			assessment tool (for	
			risks, unbalances and	
			present and future	
			scenarios and	
			simulations), allowing	
			for the right decisions	
			to be taken, both in	
			the short and long	
			term.	
Contributing	The outcomes	The foreseen	Although the	
to the	from this	outcomes related to	proposed outcomes	
acceleration	Thematic Area	Water-Sensitive	have a direct impact	
of the	have a strong	Urban Planning and	on some SDGs	
implementati	impact in the	Investments will	(3,6,8,9,11,13,17),	
on of the	following SGDs: 6	strongly contribute	the main contribution	
2030 Agenda	[as it will support	to the acceleration	is the use of data and	
SDGs, the	the Sustainable	of implementation	indicators as a	
New Urban	Management of	of the following	measure of the	
Agenda and	Water]; 11 [as it	SDGs: 9 [as it can	accomplishment of	
Habitat III	will support the	support the	SDGs. Indicators also	
principles	development of	investment in	help achieve the	
	safer and more	resilient IE to	Habitat III principle	
	resilient Cities].	support water	related to	
		management]; 11	environmental	
		[as it will support	sustainability, by	
		safer and resilient	driving the more	
		Cities with disaster	efficient use of	
		risk reduction]	resources.	

6 WORKING METHODS

6.1 Working groups

The WSC Partnership has defined 4 Working Groups (WG), focusing on the thematic areas identified for advancing water-sensitive cities. These areas also consider the expertise, institutional roles, and available human and financial resources of the partners involved. The four themes are: Integrated Water Management & Resilience, Water-Sensitive Urban Planning and Investments, Smart Water Operation & Digital Innovation, and Governance, Awareness, Financing & Capacity Building.

Each working group will carry out research, conduct analyses, engage in dialogue, and co-develop solutions that can be translated into concrete draft Actions for the Action Plan. To support effective collaboration and ensure continuity, each working group has a WG Leader. Two of the WGs also have a Co-Leader, while the other two are currently in the process of identifying Co-leaders.

The table below illustrates the structure of the WSC Partnership and its four thematic WGs:

Table 17: Structure of the WSC Thematic Partnership

Working Group 1 Integrated Water Management & Resilience	Working Group 2 Water-Sensitive Urban Planning and Investments	Working Group 3 Smart Water Operation & Digital Innovation	Working Group 4 Governance, Awareness, Financing & Capacity Building
Águas e Energia do Porto	Enschede Municipality	Elche Municipality	Council of European Municipalities and Regions - CEMR
The Hague Municipality	Turin Municipality	Cetaqua, Centro Tecnológico del Agua, Fundación Privada	To be determined
Council of European Municipalities and Regions - CEMR	Municipality of The Hague	Ministry of Regional Development (CZ)	Ministry of Regional Development (CZ)
Cetaqua, Centro Tecnológico del Agua, Fundación Privada	Cetaqua, Centro Tecnológico del Agua, Fundación Privada	Viimsi Municipality	Cetaqua, Centro Tecnológico del Agua, Fundación Privada
Chalandri Municipality	Viimsi Municipality	Kalocsa City Council	Chalandri Municipality
Intermunicipal Community of Coimbra Region (CIM-RC)	Kalocsa Municipality		Intermunicipal Community of Coimbra Region (CIM-RC)
Elche Municipality	Acondicionamiento Tarrasense Associación - LEITAT		Turin Municipality
Acondicionamiento Tarrasense Associación - LEITAT	Roman Municipality		Enschede Municipality
Major Development Agency Thessaloniki -	Commonspace Co-op		Commonspace Co-op

Local Government Organization (MDAT		
S.A.)		
	Major Development Agency Thessaloniki - Local Government Organization (MDAT S.A.)	
	Resilient Cities Network	

6.2 Responsibilities of coordinators/partners

The Water Sensitive City Partnership is coordinated by the **Intermunicipal Community of Coimbra Region (CIM-RC)**, a legal public association of 19 municipalities. CIM-RC has extensive experience in cross-sectoral approaches to urban water management, as well as in UAEU Partnerships, having been involved as a Partner in the Culture and Cultural Heritage and Sustainable Tourism Thematic Partnerships.

According with the Multiannual Working Programme, the **coordinators of the Partnership have the following responsibilities**:

- Chairing all Partnership meetings;
- Organising the work in-between Partnership meetings, including but not limited to written consultation, asking for contributions, preparing documents and drafting a concise annual report;
- Ensuring the link between the partnership and urban authorities, Member States and the Commission, including the UDG and DGUM meetings, as well as other stakeholders not directly involved in the Partnership;
- Cooperating with other Partnerships, when deemed to add value;
- Participating and contributing to other working groups/ networks;
- Coordinating and drafting the Action Plan;
- Monitoring and reporting on progress;
- Coordinating the work by ensuring the quality and timeliness of contributions, mediating different positions with the purpose of finding common ground and an agreeable position;
- Ensuring visibility by coordinating the communication on actions and results;
- Relaying results from the partnership to the DGUM meetings.

The responsibilities of the **Working Groups leaders** include:

- Organising, preparing and chairing working group meetings;
- Defining and allocating the work among working group members;
- Reporting on progress towards coordinator and the Secretariat to prepare upcoming partnership meetings;
- Report on progress on the specific working group in the Partnership meetings;
 Delivering work results according to the partnership's timetable;
- Delivering information for communication on the work of the Partnership;
- Communicating and exchanging information with other WGs leaders and Urban Agenda for the EU partnerships on relevant topics.

The results of the working groups will be shared and discussed with all partners at the Partnership's meetings. The partners are the foundation of the Food Partnership and are fully engaged in the work on the agreed topics and subtopics, as well as in the process of developing content.

All partners are encouraged to:

- · Contribute to the thematic working groups;
- Actively participate in Partnership meetings, engage experts and expertise from external networks, when available and relevant, and promote the activities of the Partnership;
- Share knowledge and experience and generate ideas for the partnership works;
- Make available the necessary resources needed to guarantee these commitments to the partnership.

The partners have the following specific roles and responsibilities:

- Participate in the technical work of the Partnership with their own resources;
- Contribute to the implementation of different actions of the Action Plan;
- Contribute to the Partnership through their own individual expertise, but also the wider knowledge of the organisation they represent;
- Assist in the debate about the Partnership within their territory;
- Contribute to the implementation/dissemination of the Partnership Action Plan at the national/regional level.

6.3 Main activities

Phase 1 Orientation Phase

During this phase, partners work on identifying the key focus areas of the Partnership, and refining the sub-topics to match the knowledge, mandate and resources available. As the key deliverable, the Orientation Paper narrows down the thematic scope of the Partnership and defines its specific objectives, taking into account the political/institutional mandate of the Partnership members, their available knowledge on the selected topics and their willingness to commit resources. This is an exploratory phase, aimed not only at defining the thematic focus, but also at establishing the optimal working processes.

Key deliverable: Orientation Paper

Phase 2 Stocktaking

The Stocktaking phase offers the opportunity to review what has already been done on the selected topics at the EU level to avoid duplication and ensure coordination (strategies, actions and working groups/networks covering these issues). Through this, partners map existing initiatives, policies, networks, and expertise, with "Scoping Fiches" as optional means to analyse topics and guide the development of the future Action Plan.

Key deliverable: Scoping fiches (optional)

Phase 3 Selection of Actions and Drafting the Action Plan

This phase is aimed at reaching an agreement on a series of actions based on the final list of priorities. The main outcome of this phase is the Draft Action Plan, which outlines the key actions the Thematic Partnership plans to implement. It also includes a roadmap detailing the steps, activities, timeline, and required resources.

Key deliverable: **Draft Action Plan**

Phase 4: Collection of feedback

The public consultation seeks to gather feedback, suggestions, and recommendations on both the overall goals and objectives of the Draft Action Plan, as well as the specific proposed Actions. It is open to all interested stakeholders, including public authorities, academic and research bodies, businesses,

NGOs, experts, and citizens. As part of this phase, a public consultation survey is developed, enabling all who wish to contribute their insights and ideas to support the refinement of the Partnership's proposed Actions.

Key deliverable: Public Consultation (survey)

Phase 5: Final Action Plan Development

The feedback and suggestions collected during the public consultation is integrated in the final version of the Action Plan.

Key deliverable: Final Action Plan

Phase 6: Implementation of Actions, Monitoring and Evaluation

The coordinators, in collaboration with the Action Leaders, oversee and monitor the implementation of the actions. During this phase, it is essential for the Partnership to establish connections with relevant authorities, organizations, enterprises, and stakeholders, while ensuring full transparency throughout the process. The Monitoring Table of Actions provides a comprehensive overview of the initiatives undertaken by the various Thematic Partnerships.

Key deliverable: **Monitoring Table of Actions**

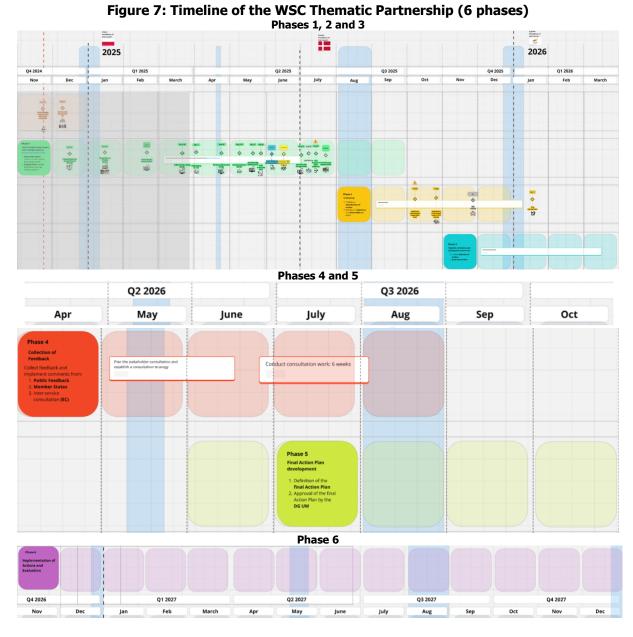
Table 18: Main Deliverables, timing and milestones of the WSC Thematic Partnership

Deliverable	Timing	Milestones
Final Orientation Paper	November 2024 - July 15 2025	Presentation of the Orientation Paper (UDG meeting – September 17)
Scoping fiches (optional)	July 2025 – December 2025	-
Draft Action Plan	September 2025 - March 30 2026	Delivery of the Draft Action Plan (UDG meeting – TBD)
Public Consultation	March - July 2026	-
Final Action Plan	June - October 2026	Delivery of the Final Action Plan (UDG meeting - TBD) Presentation of the Final Action Plan (DGUM ministerial meeting - TBD)
Monitoring Table of Actions	November 2026 -	-
	December 2027	

6.4 Process and timeline (Miro Board)

According to the Pact of Amsterdam, a Partnership typically delivers results within approximately **three years**, although partners may choose to extend their collaboration. The Partnership starts by drafting an Orientation Paper focused on potential sub-topics. This phase is streamlined as a result of prior contributions from the EAA, which provide a solid foundation.

Following a stocktaking phase, a draft Action Plan is developed and shared for public consultation and refined based on input from the European Commission, members of the Urban Development Group, and other relevant stakeholders. Final approval is given at the Directors General Meeting on Urban Matters, after which implementation begins. Throughout the process, the Partnership will engage in regular meetings and collaborative work, based on a multi-level governance model. The figure below offers a visual representation of the main phases of the WSC Partnership.



55

6.5 Rules for a good Partnership cooperation

Plenary meetings

Plenary meetings of the WSC Thematic Partnership are held monthly to facilitate decision-making on key matters, ensure alignment with the Partnership's overarching objectives, and periodically review and adjust goals and strategies as needed. These meetings also provide a space to share updates, exchange feedback, and monitor progress across the working groups in the development of the Action Plan.

The plenary meetings will be coordinated by the WSC Coordinators, with support from the Thematic Partnership Officer (TPO). Further meetings will be organised, as needed, within each Working Group, under the coordination of WG Leaders and Co-leaders. Depending on the context and opportunities, inperson meetings will also be organised. Whenever possible, in-person meetings will be organized in connection with relevant conferences, workshops, or water-related events to maximize synergies and engagement.

To promote strong collaboration and shared commitment, partners are expected to stay actively involved in the development of key documents and participate in plenary meetings. If a partner is unable to attend a plenary meeting, whether online or in person, they will be expected to share their input within 10 days after receiving the meeting minutes.

Working Group meetings

Each thematic Working Group will meet regularly to establish its work plan, define working arrangements, and schedule meetings. The groups will provide updates on their progress during plenary Partnership meetings. The WG Leaders and Co-leaders will be responsible for assigning tasks, coordinating activities, and monitoring the contributions of group members. In the stocktaking phase action leaders and coleaders might be defined and replace the working groups structures as it will require a more transversal approach.

Bilateral meetings

Bilateral meetings between the WSC TP Coordinators, the Thematic Partnership Officer, and individual Partnership members can be arranged as needed to address specific issues and challenges. These meetings support effective problem-solving and help strengthen a collaborative and constructive working relationship within the Partnership.

Internal communication tools

Partnership members will use SharePoint as the primary online platform for file sharing, accessible to all members of the WSC Thematic Partnership. It will function as the central repository for key documents, including materials from plenary meetings and both draft and final versions of main deliverables. In addition, Miro boards and surveys will be used as complementary tools to gather information on specific topics or issues.

External Communication and Visibility – WSC Partnership

The EUI Permanent Secretariat will provide support for communication and dissemination activities, in line with the EUI Communication & Dissemination Strategy 2021–2027. The Water Sensitive City (WSC) Thematic Partnership will have opportunities to promote its work through various channels, including news articles on the UAEU website, the EUI Knowledge and Exchange Platform Portico, EUI newsletters, events, and UAEU social media platforms.

A Communication Package, containing templates and visual identity elements is available on SharePoint. Additional support for drafting, editing, and proofreading materials such as news articles or blog posts will be offered by the Thematic Partnership Officer (TPO).

During the plenary meetings, WSC partners will jointly define a general communication and dissemination strategy, which will outline:

- Key dissemination outputs and target audiences
- Representation of the Partnership at external events (e.g., EU Week of Regions and Cities) Public relations tools (press releases, articles, promotional materials, etc.)
- Use of social media channels.

7 CAPACITY FOR IMPLEMENTATION

This section provides an opportunity for Partnership members to reflect on the capacity of their respective organisations to effectively contribute to the implementation of the selected topics. It encourages a realistic assessment of available resources, expertise, and institutional support, helping to identify strengths, gaps, and potential needs for collaboration or external support to ensure successful delivery of the future Actions.

7.1 Knowledge

Table 19: Key knowledge areas within the WSC Partnership

WG1 Knowledge Areas:

- Urban planning and design
- Development and application of indicator sets
- Capacity building and knowledge exchange
- Sharing of best practices
- Integrated water management
- Policy brief development
- Community engagement and participatory approaches

Key Contributions:

This group builds on expertise in sustainable and resilient urban planning, participatory governance, and policy development. Partners contribute technical and strategic knowledge in water-sensitive planning, EU policy alignment, and access to national and European best practices. Specialised input includes operational experience in integrated water resource management, circular and digital water solutions, and active involvement in multi-level governance and stakeholder-driven processes.

WG2 Knowledge Areas:

- Planning and investment in nature-based solutions (NbS)
- Integration of water-sensitive principles in urban planning
- Development of indicator systems
- Regulatory support for the implementation of water-sensitive strategies

Key Contributions:

This group draws on advanced experience in the planning, implementation, and monitoring of NbS and ecosystem-based urban strategies. Participants bring strong competencies in indicator development, environmental and spatial planning, green-blue infrastructure, and the design of regulatory instruments. The group is informed by practical cases from metropolitan and municipal levels and also benefits from collaboration with expert organisations in resilience and policy integration.

WG3

Knowledge Areas:

- Planning and implementation of digital solutions
- GIS-based systems and spatial analysis
- Smart indicators for urban water systems
- Digital twins for infrastructure and operations

Kev Contributions:

This group brings together knowledge from both practical implementation and technological development of digital tools for urban water management. Contributors offer expertise in GIS platforms, digital infrastructure, and the design and application of smart indicators and digital twin technologies. Emphasis is placed on the demonstration of benefits, readiness levels, and pathways for public-private collaboration to accelerate innovation uptake.

WG4

Knowledge Areas:

- Participatory governance and stakeholder engagement
- Communication and dissemination strategies
- Access to EU funding and financing instruments
- Identification and promotion of best practices

Key Contributions:

This group centres on strengthening governance models and enhancing citizen and stakeholder engagement in water-sensitive urban development. It combines expertise in multi-level governance, co-creation methodologies, and communication strategies. In addition, partners provide insights into EU funding mechanisms and innovative finance models, including ecosystem services schemes and compensation mechanisms to support water-sensitive infrastructure.

7.2 Mandate

Table 20: Mandate from WSC Partnership Members

WG 1

The members of WG1 hold institutional mandates that are well aligned with the objectives and expected outputs of the group, covering strategic urban planning, policy development, water governance, and citizen engagement.

Of particular note is the **strong political commitment demonstrated by high-level representatives**, including a Deputy Mayor actively involved in European-level water and environmental policymaking. This political leadership reinforces the credibility and potential policy influence of the Partnership.

Municipal utilities participating in this group operate under public mandates that encompass the full water cycle (supply, wastewater, stormwater) and align their operations with broader climate resilience and sustainability goals. These organizations also have formal responsibilities in innovation, stakeholder engagement, and strategic alignment with both national and EU frameworks.

Other local authorities involved are mandated to enhance water resilience and protect vulnerable urban areas, including culturally significant and environmentally sensitive sites.

The mandate of WG2 members reflects a strong institutional commitment to nature-based and ecosystem-based urban development . Cities represented in this group are leading the design of strategic river and green infrastructure plans, recognizing the integration of blue-green assets as a central element of sustainable urban transformation. Municipalities are implementing stormwater and climate adaptation strategies at the local level, often in cooperation with research institutions and technical partners. Their mandates include the enhancement of territorial resilience through planning, regulatory innovation, and the application of nature-based solutions.
These public actors are also responsible for implementing long-term strategies to improve local water systems, reduce risks related to urban runoff, and increase the environmental quality and liveability of urban spaces.
WG3 members are mandated to pursue the modernization and digital transformation of water systems , with a focus on improving local water resilience, data-driven planning, and the development of smart infrastructure. Local authorities involved in this group are addressing specific challenges such as desertification, infrastructure adaptation, and the protection of cultural and environmental assets. Their mandates include delivering tangible results that strengthen both local and regional water systems through innovation and practical implementation. National-level actors and technical centres contribute by supporting knowledge dissemination, developing smart water management methodologies, and bridging public-sector needs with technological and research-driven solutions.
WG4 is composed of institutions that hold formal responsibilities in multi-level governance (MLG), stakeholder engagement , advocacy , dissemination , and financing mechanisms . Municipalities, associations of local authorities, and intermunicipal communities in this group are tasked with improving access to funding, promoting EU advocacy, and ensuring the inclusion of water resilience in broader governance frameworks. Their mandates support the exchange of good practices, the coordination of actors across governance levels, and the dissemination of results to wider networks. Technical partners contribute to the exploration of innovative financing instruments, including ecosystem service compensation models and

7.3 Available resources

Table 21: Key available resources within the WSC Partnership

WG 1	 WG1 benefits from a wide range of institutional resources, European networks, and technical expertise. Members are active in major EU water and innovation networks such as Water Europe and ZeroPollution4Water, bringing access to highlevel expert groups and EU policy dialogues. Partners contribute extensive experience in EU-funded research and innovation projects, offering applied knowledge in sustainability, circular water systems, and nature-based approaches. Regional and municipal authorities are engaged in multiple European initiatives, including Climate and Ocean Missions, thematic clusters, and interregional cooperation platforms. Key actors contribute demonstration sites, real-world monitoring infrastructures, and multidisciplinary teams capable of scaling up water-smart innovations. Several participants offer policy and advocacy roles, including active participation in EU institutions.
WG 2	 WG2 draws on strong resources and technical platforms to support planning, standardization, and implementation of nature-based solutions (NbS) and bluegreen infrastructure. Members bring methodologies and strategic frameworks for river plans, NbS indicators, and regulatory integration developed in partnership with academic institutions. Local governments provide good-practice repositories, planning documents, and online databases on green-blue infrastructure. Several institutions are deeply embedded in national and regional water networks and maintain collaborations with leading universities in environmental and spatial planning. Technical partners contribute vast EU project experience and leadership in relevant expert groups on NbS, groundwater, and resource recovery.
WG 3	 WG3 integrate partners with cutting-edge experience in digital transformation, smart infrastructure, and data governance for urban water systems. Participants provide direct access to digital water utilities, innovation hubs, and operational insights on infrastructure digitalisation, including digital twins and smart indicators. Several municipalities bring extensive stakeholder networks at local and regional levels, including water operators, citizens, and regional funding bodies. National authorities contribute mapping capacities and strategic frameworks for digital innovation at the national level, as well as dissemination pathways across public administrations. Technical organisations are members of key European digital and data networks, including BDVA, ICT4WATER, and CIDAI, ensuring access to emerging technologies and standardisation processes.
WG 4	WG4 is supported by organizations with mandates and tools for multilevel governance, stakeholder engagement, and access to innovative funding. • Local authorities provide hands-on experience in participatory governance and institution-building, particularly in integrated water management and culture change.

- European associations offer platforms for matchmaking, dissemination, and policy advocacy, as well as direct connections to hundreds of cities and regional governments.
- Partners contribute well-established networks across local, regional, and EU levels, facilitating the spread of good practices and alignment with funding opportunities.

The collective knowledge and expertise brought together by the members of the Thematic Partnership on Water-Sensitive Cities is both impressive and highly relevant for the work that lies ahead. The diversity of competencies already present within the Partnership forms a strong foundation for the development and implementation of impactful actions. Partners contribute a wide range of specialised knowledge in areas such as urban and spatial planning, nature-based solutions (NbS) design and investment, regulatory frameworks, digital solutions for water management, geospatial analysis (GIS), smart urban water indicators, and digital twin technologies. Furthermore, the Partnership benefits from valuable experience in participatory governance, community engagement, strategic communication, and advocacy for European funding instruments.

As the Partnership transitions to the next phase - Stocktaking - a more detailed assessment will be undertaken to identify potential gaps and determine the types of external expertise that may be required. This will ensure that any additional knowledge needs are met in a complementary manner, reinforcing the capacities already available through the mandates and competencies of the current Partners, to design and execute an ambitious and pragmatic Action Plan.

7.4 Ideation for Future Actions

The indicative proposed Actions presented below aim to establish a preliminary framework for the development of the Action Plan under the Urban Agenda for the EU – Water-Sensitive City Thematic Partnership. The journey is based on three interlinked phases, each one building on the previous one.

Phase 1: Understand and enable

Objective: Create the baseline conditions and governance environment for action

Action 1 – indicator set

Action 2 – enabling regulation

Phase 2: Design and finance transformation

Objective: Equip cities and regions with the planning, financial, and digital tools to deliver water-sensitive urban development

Action 3 – urban planning framework

Action 4 – innovative financing

Action 5 – digital innovation

Phase 3: Engage and build capacity

Objective: Foster the societal and institutional foundations to scale up and sustain the transition

Action 6 – capacity building

Action 7 – community engagement

Transversal/crosscutting activity: communication, good practices

Figure 8: Interlinked phases for the development of the Action Plan

