

# Action Agenda *for* **Basin- Connected Cities**

Influencing and Activating  
Urban Stakeholders to be Water  
Stewards in their Basins

The “Action Agenda for Basin-Connected Cities” aims to inform, influence and activate urban stakeholders to protect and invest in water resources, together with basin and catchment organisations. The Agenda outlines the rationale for urban stakeholders to lead the way in realizing their role as water stewards and the different pathways and activities towards achieving sustainable water management. This includes the **Drivers for Action** such as extreme events, declining water quality, and water availability; followed by the **Pathways to Action** through assessment, planning and implementation; and the **Foundations for Action** from developing a vision to building capacity to improving governance.

In a world where population stands at **7.4 billion**



**2.1 billion**  
lack access to safe drinking water\*

\*on premises that water is available when needed and free from contaminants



**4.5 billion**  
lack access to safely managed sanitation

Source: High Level Political Forum 2018 – “Transformation towards sustainable and resilient societies”.  
<https://www.un.org/sustainabledevelopment/high-level-political-forum-2018/>

## Context

Protecting basins and restoring those that are already degraded is a priority to ensure a balanced approach to development that sustains cities and the ecosystems they rely on. The **Sustainable Development Goals** (SDGs) focus on this, specifically through SDG6 which aims to ensure availability and sustainable management of water and sanitation for all<sup>2</sup>.

Urban stakeholders of a water basin play a critical role in preserving the freshwater resources on which they depend. A disruption in the supply of freshwater resources to cities can have significant socio-economic, environmental and health consequences. The challenges are expected to grow in the future, as global projections show a continued increase in urban populations thus improving water security and protecting water resources on which cities rely must be an urgent priority.

By 2050 **70%** of population in urban areas

Extra 2.5 billion in cities



**Climate change**  
Irregular patterns of water availability



**Population growth**  
Growing demand for resources



**Water users**  
Competition for water resources

Continued socio-economic development for cities and industries within a catchment area requires water security which depends mainly on healthy basin ecosystems coupled with effective water governance. Challenges related to water quality, quantity and resilience to extreme events cannot be solved by individual entities alone, as the wider catchment is usually beyond their mandate. Utilities and city governments can play leading roles, but must also engage with basin stakeholders representing environmental, social, and economic interests.

It is critical to encourage urban leaders (e.g. cities, utilities and industries) to champion water resources protection in collaboration with basin and catchment organisations, the private sector and civil society, environmental groups as well as agricultural and business interests, to ensure participation of all relevant stakeholders. Cities have a responsibility to other basin stakeholders to ensure water quality and quantity, especially as the quest for water and related resources (e.g. food and energy), puts increasing pressure on river, lake and

aquifer basin. Cities are dependent on these basins for current water needs and to sustain future growth, as well as managing water-related risks. At the same time, the surrounding rural areas are reliant on cities as economic hubs. Consequently, the way a key resource such as water is collectively managed or influenced by basin stakeholders can make or break prosperity within a basin. Connecting the urban and rural context will ensure sustainable basin management for upstream and downstream users.

The Action Agenda for Basins-Connected Cities outlines the rationale for urban stakeholders to lead the way in realising their role as water stewards and the different pathways and activities towards achieving integrated water resources management. The structure of the Agenda reflects the current and potential issues between cities and their basins and how to deal with them by identifying the drivers for action (e.g. what are the risks?), and the possible solution pathways. It builds a framework of best practice to ensure that the foundations to implement those solutions are in place.

## Basin-Connected Cities

The Action Agenda for Basin-Connected Cities builds on **IWA's Principles for Water-Wise Cities<sup>2</sup>**, which aim to integrate water in planning across scales. The Principles support city leaders planning a future-proof access to safe water and sanitation for everyone in their cities, while delivering enhanced liveability for people and nature. The Principles include 4 levels of action:

### 1. REGENERATIVE WATER SERVICES

### 2. WATER SENSITIVE URBAN DESIGN

### 3. BASIN CONNECTED CITIES

### 4. BUILDING WATER-WISE COMMUNITIES

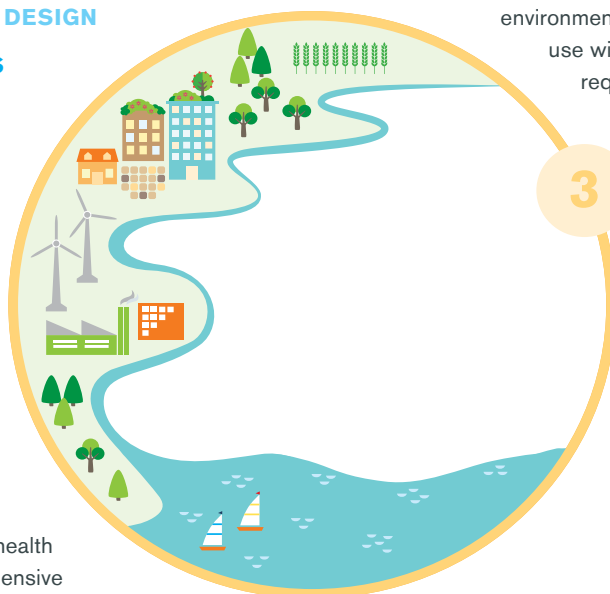
The Action Agenda for Basin-Connected Cities acknowledges that the city is intrinsically connected to - and dependent on its surrounding basin(s). Proactive engagement in managing water resources in the basin aims to secure water, food and energy resources, reduce flood and drought risk and enhance activities contributing to the economic and environmental health of the basin. Based on a comprehensive understanding of our water resources today, and the level of uncertainty resulting from climate change impacting our future resources, we need to:

**SECURE THE WATER RESOURCE** using an integrated water resource management (IWRM) framework by sharing water among users in the basin, namely ecosystems, agriculture, industry, energy, and other cities who all contribute to the basin's and city's economy.

**PROTECT WATER QUALITY** through sustaining the ecological health of source and receiving water bodies (rivers and streams, wetlands, groundwater, coastal marine environments) to ensure fit for purpose use with low energy and treatment requirements.

### PREPARE FOR AND RESPOND TO EXTREME EVENTS

such as floods and droughts, by managing flow regimes in rivers, storage, and adequate vegetation in the basin. Invest in coastal storm risks mitigation as well as flood and drought early warning systems.





# Drivers for Action

The **top three risks** for cities are extreme events such as flooding, declining water quality, and challenges to water availability due to increasing water stress and scarcity<sup>3</sup>. Solving the root problems of these top three risks can be supported by urban stakeholders, including city governments, utilities and industry, to actively engage and contribute to watershed management by working with basin level organisations, their networks and other basin stakeholders (e.g. agriculture, mining, environment, and indigenous and local communities). For each of these risks, a set of impacts on the urban area has been identified.

## EXTREME EVENTS



### Economic activities and supply chain disruption

Impacts of extreme events including flood and droughts can negatively affect economic activities within cities and also disrupt and limit access to resources that cities rely on, not only water, but also food and energy.



### Damage to infrastructure

Flooding and droughts can cause huge pressures on infrastructure requiring significant funds for repairs and replacement. Soil erosion can increase nutrient and sediment load that can damage water supply infrastructure and disrupt operations.



### Public health hazards

Floods and droughts can increase the transmission of water borne communicable diseases.

## DECLINING WATER QUALITY



### High operating costs

More investment may be required to treat water as sediment and pollutants are concentrated. There may also be the need to adopt new high cost water options for cities, such as tapping into deep aquifers and desalinization of sea water.



### Loss of credibility and trust

Water service providers are especially vulnerable to water contamination due to industrial activities and diffuse pollution. This can result in service providers not being able to supply sufficiently safe drinking water and consequently losing credibility and the trust of consumers.



### Environmental, cultural and health impacts

Water of poor quality can result in disease outbreaks and substantial environmental impacts such as declining fisheries productivity, loss of coral reefs and soil degradation. These impacts will require extensive investment in protection and conservation across the basin.

## WATER AVAILABILITY



### Water supply disruption

Inequitable allocation of available water resources between different users across different scales can disrupt water and related services (e.g. energy, food) which has environmental, health, social and economic impacts on cities.



### Constraints to growth

Water availability can constrain economic growth in urban areas and reduce investment in water supply infrastructure leaving people without access to safe and secure drinking water supply. Furthermore, this can lead to unregulated use of water resources, such as exploiting deep aquifers creating a vicious cycle which reduces affordability and access.



### Declining quality of life

Inefficient response to water shortages can lead to conflicts, harm production, and negatively affect health and education, and overall GDP.

# Pathways to Action

What actions need to be taken by cities today to address the drivers for action? How can cities play a role in achieving sustainable management of basins in the future? How can utilities participate more actively in water governance?

The Agenda is intended as a starting point for urban stakeholders to answer these questions and tailor the suggested approaches to their context (i.e. not just in developed countries but also developing countries; small and large basins, etc.) while identifying available resources. The following pathways for action through assessment, planning and implementation respond to the impacts outlined in the drivers for action to connect cities and their basins.



## ASSESSMENT

**Invest in values** that will motivate water decision-making within the basin. These values can be agreed and then systemised into a written set of principles. A negotiated set of value principles can clarify mutual objectives for using water within the city and the whole basin.

**Investment in data, information systems, research and expertise** within and beyond city limits. Scientifically sound data is needed for decision-making in order to understand the system and effectively implement a vision. Investing in data monitoring, Water Information Systems (WIS) and modelling can provide a common platform for cooperation. Such systems must be complemented with knowledge and expertise to interpret and apply the data in decision making.

**Linking traditional water management with science** in a way that builds and reflects on local knowledge and needs. This includes citizen science and use of available knowledge and practices that provide a sustainable and reliable monitoring system.



## PLANNING

**Risk-based approach to planning** such as water safety and security planning can actively link urban stakeholders (e.g. water utilities, industries) with the catchment they rely on for water sources.

**Water allocation mechanisms to share water resources** between different users based on IWRM principles and which considers the impacts of water used in one sector on another. For example, abstraction for energy and agriculture purposes can impact the available drinking water supply.

**Aligning urban development with basin management** is necessary as the implications of increased food, energy and water demand for cities needs to be included in planning. For example, the reuse of wastewater and nutrient capture included in city water management to reduce costs of water transport and capture economic potential of nutrient re-use. Circular economy approaches may be easier to design and implement through this multiscale vision.

## Stakeholder participation in planning and management

with those that impact and are impacted by the quality and availability of water supplies to cities and other users. Engaging all sectors in understanding and translating the basin status and involving them in the decision-making process will create an enabling environment for changing people's behaviour, while shedding light on economic opportunities.



## IMPLEMENTATION

### Application of economic and financing mechanisms

including, water markets, payment for watershed services, investment approaches, such as public-private partnerships, and financial instruments to manage weather related risk, such as derivative contracts and insurance products.

**Integration of nature-based solutions** to improve catchments, reduce nutrient leaching and erosion/sediment runoff. Linking these to climate forecasting and economic modelling can drive management changes at farm and landscape level. It is important to have monitoring mechanisms in place to continually assess and validate the benefits of these solutions.

### Building partnerships from catchment to tap across

sectors and scales can catalyse action in sustaining and improving water quality and flows to and from cities. The circular economy is built on partnerships, common understanding and extends between basins and their cities. For example, agriculture can reuse water and waste products from cities. To build partnerships it is essential to ensure that a clear engagement mechanism is in place, including defined roles and responsibilities across institutions that link the urban areas with their basins.

**Using digital technologies** to support availability and access of information (e.g. real time data and forecasting) across the water sector from upstream water management to consumers. Digital tools create opportunities for increased awareness and engagement through approach such as crowd sourcing of information from citizens to develop a more complete picture of their water systems.

**Customisation of solutions** is important since there is no one size fits all solution. Planners and basin managers need to learn from best practices across different basins. Approaches for connecting cities with their basins need to be customised for not only physical characteristics, but also socio-political and cultural issues.

# Foundations for Action

The building blocks of the Principles for Water-Wise Cities are the foundations for the pathways to action to deliver sustainable urban water management – including vision, governance, knowledge and capacity, planning tools, and implementation tools. These have been adjusted to reflect connecting cities with their basins. It is recognised that cities and their stakeholders will be at different stages and not all of these building blocks will be applicable. Some cities might need to focus on development of a vision, some might want to improve on what they are doing and others showcase how they are implementing these approaches.



## VISION

**A vision commonly shared with stakeholders provides an overall framework defining long-term ambitions, values and aspirations.** It motivates stakeholders to define a common set of objectives for the greater benefit of both city and the basin. A shared vision can be the stepping stone to ensure implementation of policies and strategies. A resilient city vision which includes the connection to the surrounding basin enables people to work together at different scales and across disciplines. It supports the political will needed to invest in long-term measures. It provides consistency beyond political cycles.



## GOVERNANCE

**Governance and institutions provide the framework for stakeholders to work together from catchment to tap to achieve a joint vision.** Policies can frame how water is managed and provide incentives for urban stakeholders to invest and be active water stewards in their catchment. Effective integration of multiple needs and interests at the basin level requires appropriate institutional setup and stakeholder engagement, for example through multistakeholder platforms.



## KNOWLEDGE AND CAPACITIES

**Building process starts with understanding what are the current competencies and capacities for urban stakeholders to effectively contribute to basin management.** This can be through knowledge exchange and learning from other cities and basins about solutions to common challenges such as low river flows due to water scarcity, flooding, sea level rise, tidal events, waste management, and water quality. Approaches include learning to work differently with new tools, pooling resources, and being open to other sectors approaches and methods.



## PLANNING TOOLS

**Inclusion of planning tools such as decision support systems, integrated water resource management plans, as well as risk-based and rights-based approaches that can support the alignment of urban development with basin management.** These tools, developed and used by cross-sectoral teams from catchment to consumer, allow for assessing and monitoring of risks, identifying benefits and co-benefits of projects, defining levels of service and ownership by stakeholders.



## IMPLEMENTATION TOOLS

**Moving from concept to reality to put planning into action, which improves water quantity and quality, as well as food and energy security. Tools for implementation include:**

- **Regulations which create incentives** that can drive improved water management by urban stakeholders.
- **Financial tools** (which can manage investments) **and financing mechanisms** (which can help source funds), that value adaptive approaches and build resilience to changes and extreme events.
- **Use of innovative technologies** that can enable urban stakeholders to actively improve their contribution to watershed management (e.g. clean technology for resource recovery and improved water efficiency).
- **Approaches for integrated management** of resources in the form of the water-energy-food nexus, which provides a framework for determining trade-offs and co-benefits between sectors, while increasing urban resilience and resource efficiency, without compromising safeguards for environmental protection.

## Target audience

The Action Agenda targets multiple stakeholders with different roles in taking action in improving their water sources and watersheds including water and wastewater utilities, city governments, industry, policy makers and regulators. These primary stakeholders work with basin organisations, water resources agencies, civil society and environmental groups to ensure equitable and effective water management. The secondary audience includes stakeholders that use water in basins which cities rely on for their water security such as agriculture, energy, natural resource extraction and other business interests. All parties need to actively work together to ensure water across sectors from catchment to consumer.

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<sup>1</sup> Sustainable Development Goals – <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

<sup>2</sup> IWA Principles for Water Wise Cities – <http://www.iwa-network.org/projects/water-wise-cities/>

<sup>3</sup> Source: Carbon Disclosure Project (CDP) – <https://data.cdp.net/Cities/2017-Cities-Water-Risks/qaye-zhaz/data>



inspiring change

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