

**Appendix 15b:
Hull v2 LR (Living with
water)**



THE CITY WATER RESILIENCE FRAMEWORK

CITY OF HULL

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"The need to address water challenges is greater than ever, but so is the opportunity to rediscover the positive role of water: its potential to shape a successful, resilient and sustainable city. The City Water Resilience Framework is a fantastic opportunity not only to deepen our shared understanding of Hull's water resilience challenges and how we address these, it can also indicate how Hull City and can deliver a meaningful resilience dividend - creating impact through a range of wider outcomes to unlock opportunities for the city and region."

Water systems are the lifeblood of a city. They constitute a complex ecosystem - an interdependent web of physical and environmental assets, policy, institutions and social capital - whose health and balance are key to the resilience of cities and the communities that inhabit them.

An urban water system cannot be thought of in isolation from the hydrological context within which it sits. The competing demands presented across the catchment from industry, the environment and citizens can directly impact cities' vulnerability to water related risk. The impact of these risks is further compounded in space and time at the city scale by the rapid urbanisation within the cities themselves. Tackling such risks, for example flood, drought, water stress, rising water costs, requires taking a holistic approach that pushes the system boundary out beyond the administrative boundary of the city to that of the catchment(s) upon which it depends.

It requires us to break down silos and understand the interdependencies that exist within and across the water system. The City Water Resilience Framework (CWRF) will look to provide a common understanding of what the characteristics of a resilient urban water system are - a global standard for water resilience assessment cities within their catchment to act as a convening, catalytic force - The approach seeks to leverage the influence of cities within their catchment to act as a convening force - bringing stakeholders together from across the catchment to make more resilient decisions and deliver better outcomes.

The ambition is that, once established, the CWRF can be used by cities not only to diagnose resilience vulnerabilities but to support cities in making more robust decisions based on that understanding.

Arup has been working on resilience with the Rockefeller Foundation and 100 Resilient Cities for many years and was responsible for developing the City Resilience Index - the foundation of the 100 Resilient Cities Resilience Strategy process. This project represents an evolution of this thinking, applying the knowledge and lessons learnt from this work to tackle the intricacies of what resilience means for water - a critical system whose resilience is fundamentally necessary to ensuring broader urban resilience.



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CITY ENGAGEMENT

Through an open competition, we have selected five pioneer cities who have demonstrated their commitment to taking a strategic approach to tackling the major challenges they face. These cities will work develop with us to co-develop a framework that will be applicable to any global city. Engagement with our five partner cities is a vital component of our work in developing the CWRF. It is fundamentally important to us that the framework is grounded in the practical experiences of cities and its stakeholders. We are not only interested in hearing the perspectives of water managers and specialists, but from a diverse set of stakeholders; of citizens, business, environmental groups, etc. Of interest to us is exploring how the water system impacts on, and is impacted by other systems including energy, agriculture, industry, transport, digital communications, etc.

The fieldwork stage includes missions with our partner cities to gather input from stakeholders through workshops, focus group discussions and a series of interviews. The aim of the fieldwork is to understand:

The extent of the urban water system and who has influence and interest over different elements of that system. How do interdependencies play out in the systems particular to each city?

What does water resilience mean to city stakeholders? What helped and what hindered you when coping with a shock or stress?

How would the CWRF fit into your city's decision making process – in setting strategies and making investment decisions? How can the CWRF best be structured to make it a useful and practical approach that delivers value?

“Of the more than 1,000 applications to the 100 Resilient Cities Network, more than 60% indicated challenges with water – too much or too little – as critical resilience risks. There is tremendous opportunity for the cities in this cohort to provide lessons and expertise to the many cities around the world grappling with water challenges.”

Andrew Salkin, Senior Vice President of City Solutions at 100 Resilient Cities

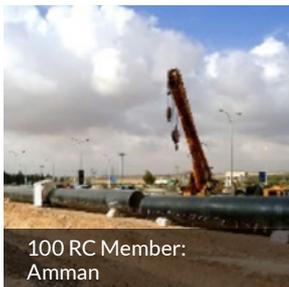


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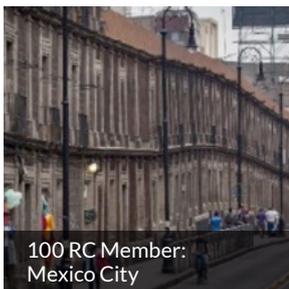
PARTNER CITIES

After an open competition, five cities were selected to partner with Arup on the development of the CWRF having demonstrated their commitment to taking a strategic approach to water resilience. The group presents a diversity of locations and water challenges.



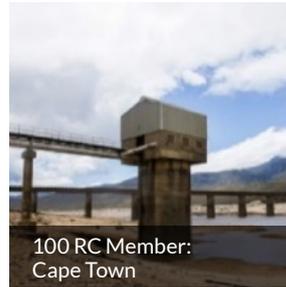
100 RC Member:
Amman

Amman, the capital city of Jordan with a population of 4 million, is not located near sources of water and regularly experiences drought. The city also experiences unusually heavy rains, leading to flooding in the lower-lying areas of the city.



100 RC Member:
Mexico City

Mexico City, the largest of the cities participating, has a population of 21.3 million. The rapidly growing city is heavily reliant on underground aquifers, and is at risk of running out of water in the future. Mexico City is also located on land that was once a lake, making it particularly prone to flooding as well as subsidence.



100 RC Member:
Cape Town

Cape Town, in South Africa with a population of 3.7 million, has experienced the worst drought in the last 100 years, due to three years of low rain fall. It is also experiencing rapid urbanisation which is adding pressure to its already strained water supply system.



100 RC Member: Greater
Miami and the Beaches

Greater Miami, and the Beaches, with a population of 5.9 million, is a coastal location with a high groundwater table and complex canal system, making it particularly vulnerable to rising sea levels. Tidal flooding events are already becoming increasingly common, causing significant disruption.



Hull, in collaboration
with the LWWP*

Hull, located in Yorkshire, United Kingdom, has a population of 323,000. With 90 per cent of the city standing below the high-tide line, it is particularly vulnerable to rising sea levels. The city has experienced extensive flooding in recent years.

*LWWP = The Living with Water Partnership, comprising Hull City Council, East Riding of Yorkshire Council, Yorkshire Water and the Environment Agency

PARTNERS

The development of the framework is being overseen by a Steering Group with representatives from The Rockefeller Foundation, 100 Resilient Cities, the World Bank, University of Massachusetts-Amherst, and The Resilience Shift.

For the development of the CWRF, Arup is partnered with the Alliance for Global Water Adaption and the Stockholm International Water Institute.

