



CONCEPT NOTE

URBAN RESILIENCE AND WATER DISASTERS: A FUTURE ROLE FOR THE WORLD WATER COUNCIL

As per its current triannual strategy, the World Water Council (hereafter, the Council) stands before a critical opportunity to engage in urban resilience and water disasters. A rapidly growing number of global development actors, national governments and municipalities are adopting and implementing risk reduction measures and resilience policies. Considering the complex set of hydrological hazards faced by cities, the Council, unlike any other global player, is uniquely positioned to make positive, measurable and durable impacts in urban resilience. In turn, greater engagement by the Council can produce equally positive results to its civil society partners, states and corporate entities. It comes as no surprise that every Council member, as well as every expert and organization, interviewed for this Note recognized the importance of engaging urban resilience at the Council's earliest convenience.

The purpose of this Concept Note is to identify which current trends, policy areas and projects or initiatives best correspond to the Council's strengths and capacities, so as to maximize benefit and take advantage of variegated windows of time. The Concept Note consists of the following structural elements:

- I. **Urban Resilience and Water Disasters: The Current State**
- II. **Is The World in 2017 More Resilient?**
- III. **Core Challenges and New Trends**
- IV. **Policy Recommendations: Timelines and Strategies**
- V. **Annex - List of Interviewees, Methodology and Summary of Responses**

We now turn to an understanding of recent developments and new trends in practice, research and collaboration, providing clearer guideposts on engagement and support that correspond to the Council's technical characteristics and comparative advantages.



I. URBAN RESILIENCE AND WATER DISASTERS: THE CURRENT STATE

Urban resilience stresses the ability of municipalities to adapt, develop and enhance capacities of prevention and preparedness that strengthen a system’s flexibility and evolutive capacity.¹ Governmental, private sector and civil society stakeholders employ various definitions of urban resilience.² However, there is broad agreement that the challenges surrounding the topic of water, either too much or too little of it, pose the greatest risk to countries and their rapidly expanding urban centers. The challenge of achieving urban resilience is growing due in large part to the inequities of mismanaged urbanization, weak governance, knowledge gaps, and the effects of climate change, environmental degradation and rising sea levels. The linkages between urban resilience, water-related disasters and their capacity to generate tremendous human and economic loss require immediate action. The World Water Council’s unique understanding of the challenges, dangers and benefits of water position it in such a way that it can become a recognized leader and active contributor to making the world’s cities more sustainable and more resilient.

For this Concept Note, we define urban resilience as “the capacity of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration or improvement of its essential basic structures and function.”³ Because the most common stressors on urban systems are hydrological, we excluded definitions that focus on non-climate related factors (social cohesion, seismicity, volcanology, terrorism, forced migration, crime and public safety).⁴

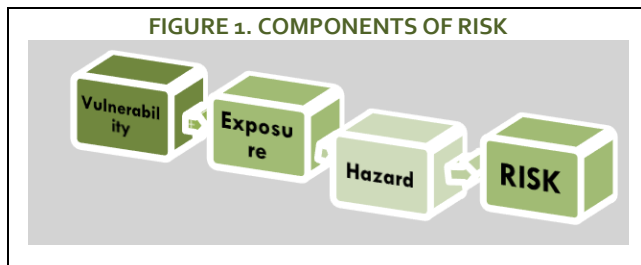


Figure 1 demonstrates the causal links that generate risk. Compared to rural risk or risk of Small Islands Developing States, urban risk is a unique threat arising from a complex web of factors: rapid and unregulated urbanization;⁵

¹ Intergovernmental Panel on Climate Change (IPCC), “Managing the risks of extreme events and disasters to advance climate change adaptation.” Special report of the Intergovernmental Panel on Climate Change. Field, C; Barros, V; Stocker, T, eds. New York, NY: Cambridge University Press (2012).

² Caroline Wenger, “Technical Paper: Translating Resilience Theories into Disaster Management Policies,” (Australian Government/Bushfires and Natural Hazards CRC: Sydney, 2017): 4.

³ Arra-ur Rahman, Rajib Shaw, et. al., “Urban Disasters and Approaches to Resilience,” in Urban Disasters and Resilience in Asia. Ed. Arra-ur Rahman, Rajib Shaw, et. al. (Elsevier Publishing: Oxford, 2016): 5.

⁴ For example, the Rockefeller Foundation’s 100 Resilient Cities program identifies such factors as terrorism and social and public safety as phenomena that can stress and disrupt a city’s ability to function. This is a slight departure away from most other definitions of urban resilience, which based their approach on responses to extreme weather events, the effect of climate change and climate adaptation. Also, interview with Lolita Jackson, Mayor’s Office of Resilience and Recovery of the City of New York, May 2017.

⁵ According to multiple United Nations and World Bank reports, approximately seven of every ten urban dwellers will live in urban centers by 2050.

poverty; income inequalities; and, aging infrastructure. Hence, the Council's decision for greater engagement aligns well with the current focus on urban centers.

URBAN RESILIENCE AND THE SUSTAINABILITY LINK

While individually recognized among the 17 Sustainable Development Goals (SDGs), resilience and risk reduction are directly and indirectly reflected in more than half of the SDGs: 1 (poverty), 6 (clean water and sanitation), 9 (industry, innovation, infrastructure), 11 (sustainable cities) and 13 (climate action), to name a few.

However, it is water's relationship to disasters that makes resilience a cross cutting issue. According to the World Bank's Global Facility for Disaster Risk Reduction (GFDRR), water disasters caused disproportionate economic losses (2.4 USD trillion from 1970 to 2012) compared to other disasters (tsunamis, earthquakes, forest fires), but also disproportionately affect poor countries.⁶ As a result, water-disasters and the lack of resilience impact the success of sustainability projects since disasters drive and deepen poverty, cause increased losses to critical infrastructure (schools, hospitals, transport) and have secondary impacts on labor markets, public health and industrial output. When risk is left unaddressed, this cycle produces more poverty, less equality and human loss. Hence, hydrometeorological disasters strengthen the necessity for action supporting risk reduction and resilience policies.

Global data further emphasizes the need for greater engagement. For four consecutive years, 2016 saw the costliest overall loss from floods at 62 billion USD - the most significant flood losses were registered in the Yangtze River basin (28 billion USD) and in Louisiana (10-15 billion USD).⁷ However, while extreme climate events and their resulting costs intensify, measurable achievements have been made in reduction and mitigation. For example, Typhoon Haiyan devastated Tacloban, Philippines, in 2013, claiming over 7000 lives and causing extensive damage. In 2014, Typhoon Hagupit struck Tacloban with near identical intensity, but with less economic loss and only 21 deaths.⁸

What caused this change in outcome? After Haiyan, the national and municipal governments redesigned their risk reduction strategy by improving Early Warning Systems, replacing costly rescue strategies with efficient evacuation plans, and "rebuilding better" with stronger materials that Filipino and international DRR agencies sourced locally to help restart the economy. Effectively, Tacloban was more resilient and better prepared and its institutions efficiently capacitated for when Hagupit made landfall.

In 2015, the 2030 Agenda for Sustainable Development took its first measures of outlining future goals and targets by recognize disaster risk reduction (DRR) as its first core strategy. With broad support from 187 member states, the Sendai Framework for Disaster Risk Reduction (SFA) targets substantial reductions in global disaster mortality, human and

⁶ Global Facility for Disaster Risk Reduction, "Hydromet: Improving monitoring and prediction of the impact of extreme meteorological and hydrological hazards." The World Bank, 2015.

⁷ AON Benfiled, "Flood most damaging peril of 2016, causing nearly one-third of \$210bn global economic losses." 17 January 2017. <http://aon.mediaroom.com/2017-01-17-Flood-most-damaging-peril-of-2016-causing-nearly-one-third-of-210bn-global-economic-losses-according-to-Aon-catastrophe-report>

⁸ Saira Asher, "Typhoon Hagupit: What did the Philippines do differently?" British Broadcasting Service. 8 Decembe 2014. <http://www.bbc.com/news/world-asia-30375007>.

economic loss, and damage to critical infrastructure, while encouraging states to adopt national and local DRR policy platforms. An important development for urban resilience, SFA specifies greater inclusion of subnational actors, like municipal and local governments, for shared responsibility, while shifting the debate from *managing risk* to *reducing risk* through four priorities for actions:

Priority 1: Understanding Disaster Risk

Priority 2: Strengthening disaster risk governance to manage disaster risk

Priority 3: Investing in disaster risk reduction for resilience

Priority 4: Enhancing disaster preparedness for effective response and to
"Build Back Better" in recovery, rehabilitation and reconstruction.

Although widely recognized as an important guiding framework, SFA has two policy weaknesses, in which the Council could use its specialized knowledge to strengthen global resilience efforts. Firstly, implementation at the national and local level remains weak and uneven and lacks standardization. As of 2013, only approximately one-third of countries use a national platform for risk reduction and resilience.⁹ Secondly, SFA has very limited specific focus on water and water-related disasters, mentioning it only in its fourth Priority for Action on improving preparedness for effective response and to "build back better." More precisely, SFA refers to water for "promoting resilience [at the national and local levels] of new and existing critical infrastructure" and, for global and regional stakeholders, "the improvement of understanding water-related disaster risks and their impact on society." The Council can offer ways to fill in the knowledge and policy gaps on how water infrastructure links to urban resilience and hydrometeorological disasters.

Beyond the Sendai Framework, the concept of reducing risk has been undergoing another critical shift from a reliance on civil protection actors to a more holistic, 'urban systems approach.' Civil protection and emergency management agencies often report about their limitations in handling the intensification, increased frequency and complexity of water-related disasters at the catastrophic and more regular, costlier sub-catastrophic levels. Civil defense actors are increasingly making demands for greater capacity development and risk reducing strategies at the municipal and national level to alleviate the stress placed on humanitarian response actors.

Hence, efforts to support urban resilience and risk reduction measures in more holistic and inclusive ways can have durable and measurably positive impacts on meeting the sustainability challenges of today and tomorrow. The Council's decision to do so comes at a crucial point in time, as actors with such expert knowledge, technical expertise and experience in the complexities of the of the water cycle are few and far between. The Council can expect a welcoming environment with many opportunities for successful engagement.

⁹ UNISDR, "Countries & National Platforms." UNISDR, 2013. <http://www.unisdr.org/partners/countries>



II.

IS THE WORLD IN 2017 MORE RESILIENT?

While some achievements have been made, especially in preparedness and the reduction of disaster-related mortality,¹⁰ when it comes to urban resilience, the short answer is no. The world clearly requires much more assistance, in particular, from actors with specialized technical knowledge and experience, like the World Water Council.

Despite greater global engagement over the last 10-15 years, developing states, and increasingly countries in more developed global regions, are confronted with an ever-changing, highly complex and diverse set of hydrometeorological risk 'layers.' We categorize these layers in two primary groups: *intensive risk* and *extensive risk*. With each showing more and more signs of alarming intensification and greater complexity, the arguments for more action become clearer.

Intensive Risk

Characterized by high intensity, low- to mid-frequency hazards, *intensive risk* scenarios are defined by their exposure to large concentrations of people, formal and informal human settlements, critical infrastructure and economic assets and activity that can lead to catastrophic loss. Intensive risk typically arises from events such as tsunamis, earthquakes, hurricanes, and volcanic activity.¹¹ Human losses from intensive risk events have been measurably reduced due largely to improved early warning systems, mobile technology and better training for civil protection and humanitarian responses units. However, the challenges still remain as cities continue to expand in population size and geographic footprint.

Extensive Risk

Extensive risk scenarios tend to be defined by low- or lower-intensity, but higher-frequency weather-related events, like storm water from heavy rainfall, flash floods, drought, forest fires and land- and mudslides.¹² Often more local in scope, extensive risk events tend to expose other underlying risk drivers, like poverty, inequality, poor infrastructure and socio-economic

¹⁰ UNISDR, "Partial success in reducing mortality associated with intensive risks, 1990-2013." UNISDR, 2017. <http://www.preventionweb.net/risk>

¹¹ UNISDR, "Global Assessment Report 2015." <http://www.preventionweb.net/risk/intensive-extensive-risk>

¹² Ibid.

marginalization.¹³ Unlike intense risk, extensive risk scenarios, especially in low- and middle-income states, cause disproportionately higher negative impacts on the local formal and informal economies, housing and settlements, women, children and the disabled and schools and hospitals, comprising 42% or more of total economic losses.¹⁴ Another contrast to intensive is the upward trends in morbidity rates for extensive risk events.

As a type of hydrological event, drought, for example, represents one of the more socially constructed extensive risk models. While climate-related factors like changes in wind patterns, increased heat, and less aggregate moisture levels in air and land effect periods of drought, man-made factors, like poor land use management and degradation, inefficient crop patterns, overgrazing, and the redistribution of water resources to growing urban centers make the extensive impacts even more severe in mostly developing, agrarian countries.¹⁵

How does this current lack of resilience and the necessity for action play in basic economic terms? The figures are indeed staggering: economic losses from disasters such as tsunamis, cyclones and floods are now reaching an average of 250-300 billion USD per annum, while expected annual losses in the near future are estimated at 314 billion USD just in the built environment.¹⁶ According to the United Nation's Global Assessment Report 2015, extensive risk events are responsible for most disaster morbidity and forced human displacement and threaten to erode hard-fought development gains with losses between 2005-2015.¹⁷ These losses represent opportunity costs, those investments that could have been made in critical infrastructure or public health and education, but were diverted to address response, recovery and reconstruction. In short, sustainable development cannot be achieved unless societies, especially urban centers, become more resilient and disaster risk is reduced.

¹³ UNISDR, "Extensive risk in Urban Centers in Kenya and Tanzania," Global Assessment Report, 2013. <http://www.preventionweb.net/risk/intensive-extensive-risk>

¹⁴ UNISDR, "Extensive risk in Urban Centers."

¹⁵ UNISDR, GAR: 83.

¹⁶ UNISDR, GAR: lv.

¹⁷ UNISDR, GAR: lv.



II. CORE CHALLENGES AND NEW TRENDS

The word ‘resilience’ has its roots in modern psychology. It connotes one’s emotional qualities and physical capacity (literally translated from its Latin root, *resilio*) to bounce back from challenges, to cope with difficulty and adapt to changing environments. Logically, urban planners and social scientists began to understand cities as a complex and interconnected “system of systems” that have the flexibility to defend itself from threats and evolve under new conditions. Hence, resilience became ‘urbanized.’

Human’s understanding of water has undergone several dynamic transitions. For most of history, water was synonymous with food security, mobility and defense from outside attack. From the 15th to 19th centuries, Europeans built their empires on naval prowess and commerce between strategic cities. During the Industrialization Revolution, urban centers benefitted from water as an economic resource: factories were constructed and powered by water; waterways moved goods, ideas, communication and technology; and, human capital and workforces migrated *en masse* on water. Since the late 20th and 21st centuries, the relationship between water and urban centers has taken on a new quality. After the Indian Ocean tsunami (2004), Hurricanes Katrina (2005), Sandy (2012) and Matthew (2016), the Fukushima tsunami (2011), we must now “defensively perceive water as a threat to urban life and economic activity.”¹⁸ It is this paradigm shift that calls the Council and the rest of the world to action to engage cities in urban resilience.

While historians may not have used the term, the historical record of resilience in some countries indicates its robust practice. Beginning in the 13th century as a protective measure for agricultural output, the Netherlands initiated a system of earthen dams and stone- and clay-secured dykes to address the threat of storms, floods and tides. Over the centuries, the Low Countries expanded its territory seaward, securing land and defending its population from the dangers of an invasive sea. It comes as no surprise that in the 21st century the Dutch government and its many flood management companies and experts are considered among the most knowledgeable in understanding resilience and water. The country is *the* very result of resilience.

¹⁸ Kai-Uwe Bergmann, “New York City’s Big U-Project.” Water Resilient Urban and Regional Development: Transforming City Regions and the Urban Research Network Conference. New York City, 16-18 February 2017.

It was, however, in the 20th century that observers and practitioners linked concepts of humanitarian response, preparedness, prevention and preparation to resilience. One of the seminal moments was the 1985 Mexico City earthquake, which killed thousands, destroyed whole sections of the megacity and rendered hundreds of thousands homeless, jobless and in need of aid. The Mexican economy grinded to a near halt while months-long efforts attempted to move the country forward. Civil society groups rapidly emerged, demanding better governance, more municipal transparency, improved safety and construction standards and public services. According to some social scientists, it was the drive for resilience that in fact ushered in Mexico's democratization.

New Trends in Urban Resilience

What are some of the recent trends in urban resilience? Firstly, development actors and banks, civil society organizations and foundations recognize that donor-based or bilateral approaches must include *private sector participation* (PSP). This is key to SFA, but was a part of the 2015 Financing for Development Conference. The necessity of engaging in PSP's technical capacity, funding, and corporate social responsibility (CSR) structures is further supported by the actions and decisions of the World Bank, civil society and NGOs, which apply for project support from PSP sources. Unlike any other global player, the Council has a unique comparative advantage in PSP engagement.

Since 2015, a second prominent trend centers on *science and technology* for resilience. The majorities of urban centers are located on or near water and are faced with an increasingly complex, multi-hazard, hydrometeorological risk profile. Science and technology for resilience and DRR have taken on an important role in risk evaluations and identifying unseen vulnerabilities using GIS, drone-based and geospatial mapping to better understand the behavior of floods. As per SFA Priority for Action 4, the inclusion of science and technology in resilience spans the whole cycle from mitigation and preparedness to recovery and reconstruction. Again, the Council's includes amongst its members many private-sector utility entities whose work uses cutting-edge scientific and technological methods. This generates promising alignment between the Council and current trends.

A third development is the confirmation that urban resilience is best achieved through *community-based measures*. When engaging local communities, evaluators receive critical, granular information of the effects of disasters on the economy, labor markets, infrastructure, public health and transportation. This data is central to designing any urban resilience project.¹⁹ Community-based disaster risk reduction (CBDRR) serves an additional function: local data and information can be easily shared upward to municipal decision-makers and legislators, which brings both entities closer together and fosters trust between government and community. We refer to this as *risk-based or risk-informed governance*, whereby decisions on reducing risk are not taken in top-down fashion, but rather flow upward through community inclusion and engagement.

¹⁹ See, Rajib Shaw, Hari Srinivas and Anshu Sharma, *Urban Risk Reduction: An Asian Perspective*. (Emerald Group Publishing: Bingley, 2012). Jaimie Hicks Masteron, et. al., *Planning for Community Resilience: A Handbook for Reducing Vulnerability to Disasters*. (Island Press: London, 2014); and, Geoff A Wilson, *Community Resilience and Environmental Transitions*. (Routledge Press: New York, 2012).

Core Challenges to Reducing Urban Risk for Water Disasters

There are several long-standing conditions that continue to hamper risk reduction efforts, especially in less developed states. For one, the question of *urban land use* and *informal settlements* in places lacking in modern, core infrastructures poses a long-standing risk throughout most of sub-Saharan Africa and Asia. In light of recent data, this is particularly problematic, as these regions are projected to experience the greatest urban growth in coming years. For example, the mayor of Accra, Adjei Soweh, described to the authors of this Concept Note the challenges of informal human settlements, which sprout up in areas exposed to floods and storm water. Under such conditions, the problem reflects a set of compounded dysfunctions stemming from housing infrastructure, basic sanitation, drainage, and land management. When not properly addressed, unregulated, informal settlement in urban centers quickly turns into *risk-generating, risk-accumulating* behavior.

Another core principle in urban resilience is the quality of *urban governance* or, more specifically, *risk-based governance*. The cities of Medellin and Bogota, Colombia, once faced similar conditions with their informal settlements, as Accra does. However, through innovative partnerships between local governments, civil society and communities, urban governance and good urban planning were able to improve transport, reduce environmental degradation, and delivery better public services (water sanitation, schools and health clinics) to risk-prone hillside settlements.²⁰

In light of the above, the Council can view these challenges as potential opportunities and areas for engagement, impact and contribution. The Council may consider the following (in greater elaboration in the next section):

- Leveraging its experience and connections in the private sector for greater PSP
- Offer its extensive scientific and technological knowledge base to governments, development agencies and civil society actors in need of information on water
- Support community-based risk reduction approaches
- Share critical knowledge and best practices models on investments in water infrastructure with cities in less developed regions, like sub-Saharan Africa and Southeast/South Asia
- Help development actors already active in urban governance and risk-based governance to disseminate their data and best practices models

²⁰ UNISDR, GAR: 226.



III. POLICY RECOMMENDATIONS TIMELINES AND STRATEGIES

Based on the results of our extensive interviews, research and the Council's triennial schedule, we have designed the following set of policy recommendations and organized them in three chronological groups, each with specific targets and goals. The purpose of our recommendations to visibly, thematically and durably align the Council to global urban resilience work.

1. *Short-Term Strategies*
 - a. These policies are designed for partnerships and impacts therefrom to be visible within three to six months of rollout
 - b. Some of these suggestions have the possibility of extending into the mid-term
2. *Mid-Term Strategies*
 - a. These recommendations are based on rollout and measurable results between six to eighteen months of initial engagement
 - b. Two crucial junctures to match with these strategies are integrated: the 8th World Water Forum in March 2018 and the World Water Council's General Assembly in fall 2018
 - c. While rollout would presumably take place with the six to eighteen months range, successful projects could evolve into longer term and more complex engagements
3. *Long-Term Vision*
 - a. These strategies are based on a schedule of 18 to 36 months and beyond, with additional consideration of the 9th World Water Forum scheduled for 2021 in Dakar, Senegal

SHORT-TERM RECOMMENDATIONS, STRATEGIES AND PARTNERSHIPS

Supporting Implementation of the Sendai Framework

We recommend that the Council align with and advocate for the Sendai Framework as the primary framework for resilience with greatest number of UN members states behind it and a recognized pillar for the SDGs. It lays the foundation for urban resilience, recognizing the necessity of engaging sub-national actors, specifically cities. Considering the Council's parallel

commitment to support sustainability policies, it cannot feasibly or effectively do so without supporting SFA implementation.

This recommendation received unequivocal support from interviewed Council members and Governors and external experts. It seems to make sense. To date, several important Council member states have been particularly visible in their alignment with SFA as their risk reduction framework. For example, Turkey,²¹ Mexico,²² South Korea²³ and Brazil²⁴ have integrated SFA in their national platforms and actively work toward them at the municipal-level.

The advantages of aligning with Sendai are multi-fold. Firstly, Council support would build awareness among its governmental, civil society and private sector members, which would in turn lead to greater commitment and action on the SDGs. Secondly, UNISDR has developed an open and embracing strategy for international actors that support SFA.²⁵ With its recognized role as water experts, the Council would be warmly received by UNISDR. Finally, UNISDR would promote a Council decision in its documents and media, thereby securing it valuable visibility and quick-turnaround positioning in urban resilience for the next triennial strategy.

In an advocacy role, the Council can support its board members, governments and civil society partners on the advantages of implementing the Sendai Framework at the national and local levels.

Supporting the UNISDR “Making Cities Resilient Campaign”

Several urban resilience platforms exist. The 100 Resilient Cities platform, funded by the Rockefeller Foundation, supports a competitively selected set of member municipalities. Similarly, C40 connects megacities in its network. Both feature prominently in global urban resilience programs as they relate to water-based challenges.

In terms of partnerships or support, the Council should at one point consider approaching 100RC or C40. However, engagement with both would likely require a longer-term strategy. For example, the C40 platform focuses on megacities of 10-15 million or greater. Hence, finding common areas of support would require more effort and time, since the Council’s composition, in particular its strategic links to Latin America, West Africa and the Asian region, is in better alignment with medium-sized city urban growth. It is our recommendation to consider opening avenues of communication with 100RC and C40. However, for quicker turnaround on visible results, we propose that the Council support the United Nations Making Cities Resilient (MCR) campaign.

The Council could reap short-term benefits from supporting MCR. The campaign was launched in 2010 to raise awareness and facilitate exchange among the 3500 municipalities. Interestingly, there is a clear relationship between member cities on the campaign and key member states of

²¹ Jonathan Fowler, “Turkey takes the helm of Europe’s disaster risk body.” UNISDR. 5 October 2016. <https://www.unisdr.org/archive/50498>

²² UNISDR “Mexico’s big switch to Sendai.” 6 May 2016. <https://www.unisdr.org/archive/48765>

²³ Ana Cristina Thorlund, “Korean children switch on to Sendai Framework.” UNISDR. 1 April 2015. <https://www.unisdr.org/archive/48440>

²⁴ Government of Brazil, “Brazil: Sendai Framework Data Readiness Review Report.” 2017. http://www.preventionweb.net/files/53129_brazilbra.pdf

²⁵ United Nations Office for Disaster Risk Reduction. www.unisdr.org/we/campaign

the Council: Brazil, for example, leads the campaign with the highest number of municipalities signed on, while India and South Korea are home to hundreds of others MCR signatory cities.

The MCR campaign presents two further advantages. Firstly, as part of UNISDR's general strategy on PSP, signatory cities often contact the chief program officer for MCR for connecting cities with experts from the private sector.²⁶ Here, the Council has an important role to play. Secondly, as recognized experts in water, the Council would be supporting multiple SDGs. Finally, the Council can benefit from MCR by positive reception from UNISDR officials, who demonstrated an interest in engaging with the Council. This could generate quick short-term benefits in terms of signaling to members, private sector entities and other partners that the Council is actively about becoming a player in the field of water and urban resilience.

Council support could come in the form of an annual or bi-annual report on how the MCR cities from governments linked to the Council are reducing risk. Alternatively, the Council could publish a joint conference report with UNISDR resulting from a workshop or panel discussion on city-to-city platforms at the 9th World Water Forum.

UNESCO WINDs Initiative

UNESCO, already a long-standing partner of the World Water Council, demonstrated an interest in inviting the Council to support their open-access, open-source WINDs initiative. This platform, launched on 31 January 2017, consists of three pillars:

- GIS database
- Knowledge and experiential exchange space
- Networking space for various types of DRR and resilience actors, stakeholders and governments

WINDs seeks to share data and knowledge on resilience and best practices and lessons learned from UNESCO member states. While there are several different types of DRR and resilience data platforms, many require membership or charge fees. The WINDs initiative appears to be a unique platform on a landscape where information exchanges are growing. With water posing the greatest risk, much of the shared data should reflect the of hydromet issues.

Partnering with this UNESCO initiative can generate clear short-, but potentially mid-term benefit. Most importantly, Blanca Jimenez-Cisneros and Alexandros Makarigakis emphasized their commitment to include a page of the WINDs tool recognizing the Council. In addition, UNESCO would guarantee visibility that would be shared to the agency's 196 member states. Furthermore, the WINDs' networking space was described as an exchange portal, where various entities can communicate with stakeholders undertaking DRR implementation.

²⁶ Interview with Abilash Panda, UNISDR Making Cities Resilient Campaign focal point. UN Global Platform for DRR, Cancun. 23 May 2017.

Engaging the High-Level Experts and Leaders Panel on Water and Disasters (HELP) on Urban Resilience

As a member of the HELP, the World Water Council could capitalize on its planned short-term successes to highlight urban resilience as an approach to dealing with water and disasters. The Council could be in a position to position the topic in the short-term would have the opportunity to make positive impacts in two key policy areas. Firstly, beyond raising awareness, the Council could play a key role in sharing its experience on financing for water-related disasters through its collaborations on financing and water with the OECD. Secondly, the Council can use urban resilience and its links to climate change adaptation (CCA) to work with HELP on their action strategies on mainstreaming CCA for water-related disasters. While short-term benefits are certainly possible, especially if the Council can include HELP at the 8th World Water Forum, greater engagement and mobilization for these themes by the Council would likely require medium- to longer-term attention.

MID-TERM RECOMMENDATIONS AND STRATEGIES

Since many of the thematic sessions for the 8th World Water Forum have already been chosen, this Concept Note can offer few modifications that could realistically be included at this time. Therefore, the following mid- and long-term recommendations use the 9th World Water Forum as an important point of orientation.

Participating and Positioning Urban Resilience for the 9th World Water Forum

The Council should consider attending and participating in conferences and events related to urban resilience. There is a wide-range of actors that organize and sponsor such events, where the Council's expertise on water would surely be well received. Here are some organizations and their events where the Council can publicly demonstrate its engagement:

- The New Cities Initiative, based in Montreal, holds roundtables, panel discussions and its annual New Cities Summit. In November 2017, it will host its New Mobility event in Los Angeles. The Council could investigate the options of participating in the New Cities Summit 2018.
- Metropolis – World Association of Major Metropolises is a global network of major cities and metropolitan areas with nearly 140 members. It serves as a hub and platform for cities to connect and share experiences. It will hold its 8th World Congress in 2018.
- 100 Resilient Cities holds its annual Resilience Conference in the summer. The 2018 schedule has yet to be decided, but a Council presence at 100RC's conference should be considered.
- The World Academy of Science, Engineering and Technology will hold its 20th International Conference on Urban Resilience and Adaptation in June 2018 in Dubai, UAE.
- C40 has chosen Edmonton to host the 2018 Cities and Climate Change Science Conference in March
- RES/CON, an urban resilience organization based in New Orleans, will hold its Global Resilience Summit from 5-7 December 2018.

Within the United Nations system, two major events focusing on urban resilience are slated for 2018:

- UN-HABITAT is organizing the World Urban Forum in Kuala Lumpur in November, 2018
- UNISDR will hold its 6th Regional Platform for Disaster Risk Reduction for the Americas in 2018 (TBD - Q1 or Q2) in Cartagena, Colombia.

By participating in some of the above-mentioned events, the Council can solidify its position as an engaged policy driver and active stakeholder in urban resilience and water. Moreover, attending these events has an additional incentive: Council representatives can identify other potential urban resilience partners outside of the standard development spectrum and invite them to the 9th World Water Forum in Senegal. By doing so, the Council can also identify which experts and organizations can make specific contributions to discussions and debate at the 9th Forum. The Council could consider offering expert roundtables on the following topics:

- capacity development for urban resilience
- risk reduction and the built environment
- enhancing resilience for Delta cities
- engaging non-traditional stakeholders for resilience
- integrated water resource management (IWRM) for urban resilience

For any one of these, a document, report or blog post could be published, summarizing the results of the discussions.

Similarly, UNDP's DRR and Resilience unit has been engaging in external outreach and public awareness specifically on urban resilience. In November 2017, UNDP is planning an evening of music and public awareness about urban resilience in New York City. Focusing specifically on urban resilience, climate change, sea-level rise and the SDGs, UNDP is inviting a list of distinguished guests and performers from music, culture and the private sector for an evening at Radio City Music Hall. Since the intended plan is to include speeches from stakeholders, we recommend that the Council consider supporting this effort to publicly demonstrate its new position on urban resilience. This would be an example of advocacy through active participation.

Highlighting Relevant and New Potential Partners at the 9th World Water Forum

As a mid-term strategy resulting from the suggestion of greater Council presence at urban resilience events, the 9th World Water Forum offers the opportunity to invite and engage with other relevant resilience partners. A diverse set of participants from across the spectrum of resilience organization would improve the quality of the Forum's outputs. Next to presentations and panels on the MCR campaign and the Council's commitment to SFA, representatives from RES/CON, the New Cities Initiative, 100 Resilient Cities, Metropolis and C40 would diversify inputs of debates on urban resilience and bring in their unique approaches and experiences in implementing urban resilience for water disasters from their various member cities.

Similarly, the Council could invite the above-named organization, as well as UNISDR, to become a Council member. Alliances with a diverse set of leading global stakeholders would be reciprocally beneficial for the Council.

Non-traditional Actors and Stakeholders for Urban Resilience

As described at the outset, the Council is uniquely positioned to make measurable and durable contribution to private sector participation, especially in engaging 'non-traditional actors and stakeholders.' Whether talking with Board members or non-Council contacts, all the interviews highlighted the Council's unique ability of its water operators and utility companies to engage with those actors who have yet to become active contributors to debates on urban resilience. Property developers, land use planners, urban planners, architects, construction companies and real estate agencies, arguably those groups whose work increases risk or whose business is affected by risk, have not yet entered the fray.

It is suggested that the Council takes advantage of this opportunity and considers contacting and inviting some of the following non-traditional actors and stakeholders:

- International Society of City and Regional Planners (Holland)
- The American Planning Association (USA)
- International Urban Development Association (France)
- Urban Planning Society of China (China)
- The American Association of Architectural Students (USA)
- The International Construction Project Management Association (Switzerland)
- FIABCI – the International Real Estate Federation (France)
- International Real Estate Association (USA)
- Commercial Real Estate Development Association (USA)
- Association of International Property Professionals (UK)

For example, in the preparation of this Concept Note, interactions with CEMEX²⁷ representatives at the 2017 Global Platform in Cancun revealed that private sector construction companies have a serious role to play in how urban resilience gets integrated into the build environment. However, the CEMEX representatives felt they had little guidance in positioning themselves in urban resilience. One of the Council's members, such as Mexican CONAGUA or the CAF-Latin American Development Bank, would be perfectly placed to reach out to CEMEX.

Unlike any other global player, the Council's unique composition empowers it to invite these non-traditional actors to make first steps to engaging in urban resilience. A special panel with non-traditional entities would be received with great interest and appreciation from the more traditional development actors.

For this recommendation, the Council would receive considerable visibility and exposure from other resilience and DRR stakeholders and practitioners by publishing a report on the value added of 'non-traditional' stakeholders in reducing risk and meeting sustainable development targets.

²⁷ CEMEX is a Mexican enterprise which one of the largest construction materials companies in Latin America with a growing global profile.

LONG-TERM VISION: THE 9TH WORLD WATER FORUM AND BEYOND

Using the 9th World Water Forum as a target, there are two primary future strategies that the Council could develop to solidify its role as an active stakeholder in urban resilience and water disasters.

Building a Monitoring and Evaluation Framework for Urban Resilience

In practical terms, the Council should begin to establish a mechanism of monitoring, evaluation and reporting for those initiatives, policies and projects that it intends to adopt or support in the short- and medium-terms. For example, the Council could produce M&E and progress reports on its support of UNESCO's WINDs initiative. The 8th World Water Council would serve as an official starting point of how WINDs progresses over the three-year cycle. With the Council's new engagement, new partnerships resulting from the network space and data contributions to the knowledge-sharing space could be easily monitored and reported on at the 9th Forum in Dakar, Senegal. Similarly, an M&E framework could be employed to evaluate the successes and challenges of the Council's support for implementing SFA for the 2018-2021 cycle.

By adopting a M&E framework, the Council can achieve greater understanding of its strengths and weaknesses of its engagement in urban resilience. Specifically, it can pinpoint which initiatives and partnerships generated the more visibility for the Council, as well as which ones reached their targets with Council support.

Continued Role as Primary Organizer of Non-Traditional Stakeholders for Urban Resilience and Water Disaster

The Council not only has the opportunity to carve out a unique identity within the growing world of DRR and resilience as an organizer of non-traditional stakeholders. It is recommended that, should the Council be successful in participating and communicating with some of the organizations suggested above, then it should strongly consider regular engagement over the triennial period leading up to the 9th Forum in Senegal. Since this is such a new and untapped area of urban resilience, the Council could define and undertake activities according to its institutional capacities.

Specifically, the Council can begin to set the agenda for non-traditional stakeholders in urban resilience for the 9th World Water Forum with short reports, blog posts or pre-9th Forum preparatory events about the necessity for engaging these groups. After the 9th Forum, the Council should consider publishing the proceedings of a panel discussion, moderated working group or roundtable. By doing so, the Council can solidify its role as the central global actor that successfully included 'non-traditional stakeholders' in resilience and risk reduction.

ANNEX - LIST OF INTERVIEW PARTNERS

1	Jacobson	Dale	WWC Governor
2	Jimenez-Cisneros	Blanca	WWC Governor - UNESCO - IHP
3	Chanda	Osward	WWC Governor - African Development Bank
4	Vlaanderen	Niels	Dutch Ministry of Infrastructure
5	Dalton	James	WWC Governor - Army Corps of Engineers
6	Moore	Sheri	Army Corps of Engineers
7	Manous	Joe	WWC Alternate Governor - Army Corp of Engineers
8	Leflaive	Xavier	OECD
9	Baubion	Charles	OECD
10	Makarigakis	Alexandros	UNESCO –Water for Human Settlements
11	Torres	Jair	UNESCO – DRR – Earth Sciences and Geohazard
12	Fanchiotti	Margherita	UNESCO
13	Yasukawa	Soichiro	UNESCO
14	Ovink	Henk	Special Envoy for International Water Affairs
15	Dolcemascolo	Glenn	UNISDR
16	Mena	Ricardo	UNISDR
17	Mercer	Carl	UNDP – DRR and Resilience
18	Matus Kramer	Arnoldo	100 Resilient Cities/Rockefeller Foundation
19	Alonso	Luis	MIT
20	Armenta	Olivia	100 Resilient Cities /Rockefeller Foundation
21	Leitman	Josef	GFDRR at World Bank
22	Panda	Abilash	UNISDR- Making Cities Resilient coordinator
23	Scheuer	Jo	UNDP – DRR and Resilience
24	Peralta	Henry	Soluciones Resilientes/Calí, Colombia
25	Lizett	Erika	CEMEX
26	Trujillo	Elisa	CEMEX
27	Kauschke	Verena	GIZ
28	Camaro	Sandra	GIZ
29	Tol	Susanna	Wetlands International
30	Papdopoulos	Aris	Specialist, Private Sector Participation for DRR
31	Hutchinson	Nathalie	Canadian Ministry of Foreign Affairs - Development
32	Brem	Stefan	Government of Switzerland – Civil Protection Policy
33	Mentlik	Bryan	Hazard Mitigation – New York City OEM
34	Umberger	Melissa	Community Resilience – New York City OEM
35	Mendoza Diaz	Melisa	City of Cozumel, Environmental Affairs
36	Flores	Mirza	Member of Federal Congress of Mexico
37	Jackson	Lolita	New York City Mayors Office of Resilience and Recovery
38	Soweh	Adjei	Mayor of Accra, Ghana
39	Šakić-Trgolić	Robert	Hydro Nation Scholar at Heriot-Watt University

INTERVIEW METHODOLOGY

For this project, we adopted the following methodological approach to data and information collection from primary-level sources. While some quantitative data was deemed useful, we structured our inquiry along more qualitative, textual and experiential lines, specifically drawing from *semi-structured, open-ended, expert* interviews with two separate groups: *Council members*; and, *external contacts*, defined as those recognized researchers and policy practitioners in urban resilience and water disasters. A total of 38 interviews and discussions were conducted over the course of four weeks – 15 individuals with direct links to the board or identified as particularly close to the Council, 22 non-Council interviews and informal talks from our extensive network of recognized experts in resilience. Our final policy recommendations are the combined result of members’ institutional knowledge, suggestions and input about future paths for the Council in relationship relate to the opportunities and feasibilities identified by expert practitioners from leading institutions.

Firstly, the World Water Council’s Secretariat provided a list of Council members and helped to facilitate initial communication. The nature of this target group necessitated a particular approach to gathering information to the Council’s prior successes in crafting and adopting policy, how a successful programming would be defined and suggestions on which type of engagement the Council could support. Our interviews focused on the following six questions:

1. What is your relationship with the World Water Council?
2. Which projects of the Council do you think were most successful and what lessons can be identified?
3. How would you describe the Council’s efforts thus far in supporting on urban resilience and water disaster?
4. What characteristics of the Council do you consider best fitting for producing lasting and durable impacts on urban resilience and water disaster?
5. In your opinion, in what ways could you envision the Council supporting pre-existing resilience frameworks or stakeholder programming?
6. How could one track and measure the Council’s progress, should it commit to support urban resilience and reducing risk from water disasters?

The second set of interviewees from our network of contacts. The following questions served as the basis for our interviews:

1. How does your organization engage in urban resilience and water disasters?
2. What characteristics do you consider to have been most important in impacting program success?
3. Does your organization engage in partnerships (technical, political)? If so, how has your organization benefitted from such partnerships?
4. Where do you see the role of private sector participation in enhancing urban resilience for water disasters?

SUMMARY OF RESPONSES

This summary captures some of the responses and comments made by those interviewed for this Concept Note. The purpose here is to demonstrate that the above recommendations are based on the concerns and sentiments of members and governors on the Council's board.

A respondent on engaging non-traditional stakeholders for risk reduction:

"The real estate sector is essential, no question that it is beneficial, but for the real estate market, investing extra costs upfront and later real estate market prices are not the same. We need to find the right instruments to put in place that investment in resilience is valued in this market."

"A gap [in practice] needs to be identified. The World Water Council take this [non-traditional stakeholders] in the right direction."

A respondent on private sector participation:

"Utilities, urban resilience and business continuity need to be fostered to reduce the effect of floods and help recovery operations to be faster. Water sector and private sector are the ones more aware of the risk of flood, since they have developed unique capacities to be prepared for floods and continuity of water service. They can provide a solution to the broader issues of communication and critical infrastructure to reduce flood impacts."

Common responses about the Sendai Framework for Disaster Risk Reduction 2015-2030:

"Because there are limited resources and many Council members have other responsibilities, we believe that the Council can be valued by reaching out to and supporting a pre-existing framework, like the Sendai Framework. The Council should support this initiative."

"The Council needs a goal-oriented framework, something to guide and work toward. Support the Sendai Framework for those board members that don't know enough about it. But the Council could contribute outside of SFA"

Common responses about engaging in urban resilience and the SDGs:

"The Council has an added value in supporting the SDGs, since urban resilience and water-disasters are cross-cutting issues. The Council can be a space for expanding these ideas in support for SDG 6 and SDG 11, helping to focus more on water-related disasters."

Comments on the World Water Forum:

"Including urban resilience at the World Water Forum is a great idea. The more we can identify the topic, the more we can set the agenda and see who moves together, so as to create a powerful knowledge base."

"The World Water Forum can invite important actors, like ministers, private sector and others and capture it all in a document, which could be the beginning of an overarching, goal-oriented framework."

"World Water Council can identify best practices and lessons learned about disasters and what we would recommend to help improve resilience for members."