Innovative Initiatives 1
9 December 2020

City Water Resilience Approach: A five-step methodology to build water resilience at an urban scale

Panchali Saikia (Presenter)

Co-authors: George Beane, Louise Ellis, Ricard Giné, Robin Ward, Pilar Avello, Sophie Fisher, James Leten, Iñigo Ruiz-Apilánez, Martin Shouler, and Alejandro Jiménez
City Water Resilience Approach (CWRA): A Collaborative Approach

Supported by:

THE ROCKEFELLER FOUNDATION

THE RESILIENCE SHIFT

Project Partners:

ARUP  SIWI  100 RESILIENT CITIES  AGWA  OECD

Steering Group:

THE WORLD BANK  UMASS  ARUP  THE RESILIENCE SHIFT  100 RESILIENT CITIES  THE ROCKEFELLER FOUNDATION
Summary

1. Conceptual Background: City Water Resilience Approach (CWRA)
2. Methodology to develop CWRA
3. Introduction to CWRA five step methodology & related tools
   3.1. Understanding the Urban Water System (Step 1 & the OurWater digital tool)
   3.2. Assessing City Water Resilience capacity (Step 2 & the City Water Resilience Framework)
   3.3. From Water Resilience Assessment to Actions (Step 3)
   3.4. Action Plan implementation and Evaluation (Step 4-5)
4. Application of CWRA tools in City of Cape Town and Miami
1. Conceptual Background: CWRA

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusive and transparent</td>
<td>Brings together different perspectives from water and city stakeholders and encourages collective action</td>
</tr>
<tr>
<td>Systems-based</td>
<td>Takes account of inter-dependencies with other systems</td>
</tr>
<tr>
<td>Holistic</td>
<td>Includes leadership and strategy, planning and finance, infrastructure and ecosystems and personal, household and community resilience</td>
</tr>
<tr>
<td>Action-oriented</td>
<td>Encourages the ownership, development and progression of actions to improve water resilience</td>
</tr>
<tr>
<td>Scalable and global</td>
<td>Scalable from towns through to mega cities and applicable to a global context</td>
</tr>
</tbody>
</table>

‘Water resilience’ could be conceptualized as “the capacity of cities to function in the face of water-related stresses, so that those living and working within the city can survive and thrive.”
2. CWRA Methodology

**Co-created with eight cities with direct engagement of more than 700 people**

**Desktop Research**
Review of existing resilience and water related tools and approaches, governance and water resilience, best practices on resilience indicators, methodologies on action planning.

**Engaging with Eight Cities**
Amman, Cape Town, Greater Miami & the Beaches (GM&B), Kingston upon Hull, Mexico City, Manchester, Thessaloniki, and Rotterdam.

**Data Analysis**
Data collected from deskwork and field visits were processed and analyzed, using a joint emergent and a priori coding technique of analysis.

**Expert consultation, Validation and Piloting**
Global Knowledge Exchange (GKE) validation workshop with cities and global experts, consultation with digital experts (We are Telescopio), CWRA team regular consultations, and piloting of the tools in Cape Town and Miami.

*Photo sources: CWRA, and iStock images*
3. Introduction to CWRA Five-steps and related tools

City Water Resilience Framework (CWRF)

**PRE-CONFERENCE “WATER, MEGACITIES AND GLOBAL CHANGE”**
3.1. Understanding the Urban Water System (CWRA Step 1)

- Establish a **city ‘resilience champion’**
- Characterisation of **shocks and stresses**
- **Defining the basin(s) upon which the city depends**
- Engaging with the **individuals and organisations** that have jurisdiction over different elements of the water cycle in these basins

**OurWater digital tool** has been designed specifically with the first step of the process.
3.2. Assessing Urban Water Resilience (CWRA Step 2)

City Water Resilience Framework (CWRF)

**CWRF Dimensions**

- **Leadership & Strategy**
- **Planning & Finance**
- **Infrastructure & Ecosystems**
- **Health & Wellbeing**
3.3. Multi-stakeholder workshops to Assess, Develop Action Plans (CWRA Step 2-3)

Assessment using CWRF Indicators

- Population has sustainable access to safe drinking water.

CWRF Assessment to Action Planning

- Limited nature-based infrastructure
- Limited awareness
- Limited space available
- Not enough funding
- Identify new funding sources
- Promote corporate sponsorship
- Impose new tariffs
- Resilience community engagement
3.4. Action Plan implementation and Evaluation (Step 4-5)

Step 4. Implementation: In this step, actions are developed, implemented and monitored according to best practices and international experience. In this step, the CWRA provides best practice guidance on monitoring ongoing actions to ensure objectives are met, and resources are used efficiently.

Step 5. Evaluate, learn and adapt - in which the implementation of resilience measures is evaluated to ensure that the resilience value has been achieved. Changes in context and stakeholder involvement are analysed to reassess objectives for the next period.
4. Application of CWRA tools: Cape Town and Miami
4.1. Urban Water System Mapping using OurWater (e.g. from Cape Town)
OurWater: Stakeholder links component (e.g. from Miami)
4.2. The implementation of City Water Resilience Framework (CWRF)

City of Cape Town

City of Miami
## CWRF assessment and action planning results (e.g., Miami)

### THE CHALLENGE

<table>
<thead>
<tr>
<th>Engaged water communities</th>
<th>Institutionalizing and operationalizing community engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community engagement around decision-making for water plans and programs</td>
<td>Engaging with communities through new human and financial resources dedicated to outreach and education around water resilience.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutionalizing Resilience</th>
<th>Accessible knowledge action platform - The One Water Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedding resilience principles into strategy and operations</td>
<td>Developing a platform for cross-sectoral knowledge exchange.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coordinated planning for disaster management</th>
<th>Disaster planning for the most vulnerable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing strategies for engaging and disseminating information to vulnerable, disenfranchised groups in GM&amp;B before, during, and after disasters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence-based decision-making</th>
<th>The One Water Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water and environmental data for decision-making</td>
<td>Improving data around water quality and quantity through critical evaluation of existing systems, knowledge platforms, coordinating monitoring and new technologies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Saltwater intrusion: Acting on what we already know</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving canal management and wetlands restoration efforts in the South Dade area to help manage risk through a two-phase study.</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

... it is important to allocate sufficient resources in terms of staff time and dedicated efforts to sustain ownership at all levels and scales, to ensure successful and sustainable implementation.

Reflection: Implementing CWRA in a city

- Establishing a City Water Champion (a single organization or a team of organizations taking ownership of the process)
- Collect Background Information to Understand the system
- Multi-stakeholder Inception Workshop
- Developing City Characterization Report that outlines key shocks and stresses, stakeholders, ongoing programmes and project in the sector
- Consultation with relevant stakeholders to conduct a multi-stakeholder workshops for CWRF assessment
- Training of facilitators and rapporteurs for the workshops
- Multi-stakeholder assessment workshop, Diagnosis of the assessment results, defining action plan at the Visioning workshop and developing the Water Resilience Profile for the city
- Dissemination of the Water Resilience Profile and strategizing on the implementation plan
Thank you for your attention!

Panchali Saikia
panchali.saikia@siwi.org