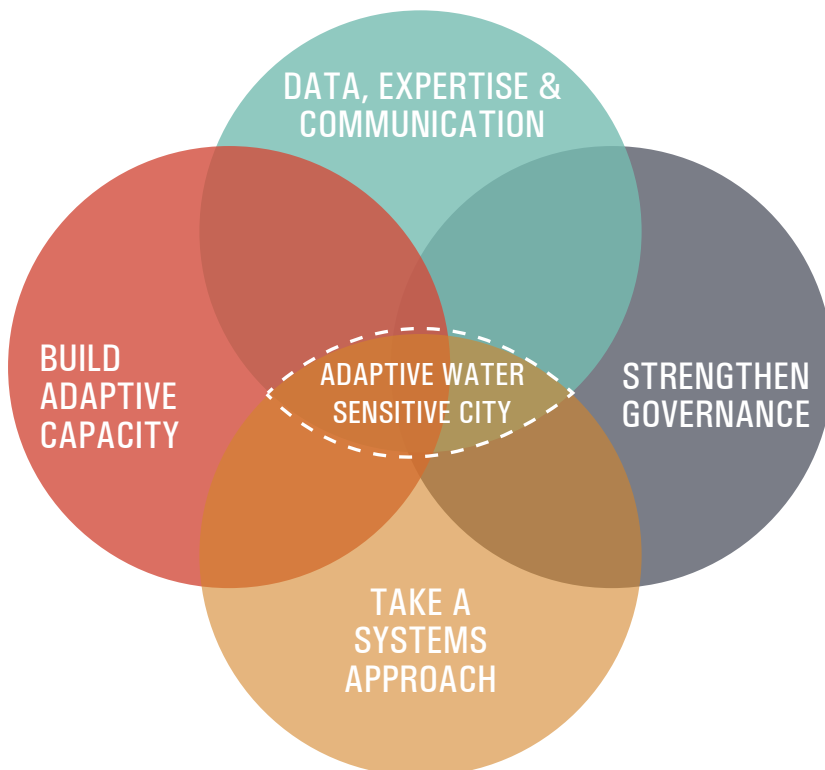


# WHAT THE CAPE TOWN DROUGHT TAUGHT US: 4 FOCUS AREAS FOR LOCAL GOVERNMENTS

CLIMATE RESILIENCE BRIEFING NOTE



The severe drought experienced by Cape Town in 2017 and 2018 and the near miss of “Day Zero” should serve as a warning for other cities as to what climate impacts might look like in future. This brief on Cape Town’s experience, through a series of interviews, offers twelve lessons to share with other cities, municipalities and those trying to strengthen capacity to cope with climate extremes and build a water-wise city. These lessons focus on strengthening the institutional and governance response but also link to other aspects of water management.

Nine of the lessons identify what needs to be put in place before a crisis hits to strengthen preparedness, while the other three lessons (indicated with \*) focus on what needs to be done during the crisis to reduce the negative impacts. The lessons are accompanied by recommendations of what actions can be taken to help build an adaptive water sensitive city. Many of these responses help to build broader resilience to cope with a range of stressors, making them wise investments now.

## AREA 1: STRENGTHEN GOVERNANCE

- Build systems and relationships of mutual accountability for effective water management between spheres of government.
- Strengthen horizontal management between municipal departments and entities
- Strengthen leadership and the capacity to enable flexible, adaptive decision-making
- Invest in partnerships beyond the City \*

### LESSON 1: BUILD SYSTEMS AND RELATIONSHIPS OF MUTUAL ACCOUNTABILITY FOR EFFECTIVE WATER MANAGEMENT BETWEEN SPHERES OF GOVERNMENT

In South Africa, municipalities are mandated to provide clean drinking water. To achieve this, requires the availability of sufficient bulk water, which is the responsibility of the National Department of Water and Sanitation. Intergovernmental coordination across the spheres of government is therefore important. Currently there are overlaps of mandate, which creates confusion and passing on of responsibility. To address this, trust-based relationships and a sharing of responsibility is needed with mutual accountability and clarity of roles. To achieve this, both technical skills as well as personal and institutional relations need to be strengthened, which requires strong leadership.

The Cape Town drought highlighted some of the weaknesses in intergovernmental coordination both from a technical and institutional perspective. When the City of Cape Town (CoCT) wanted restrictions to be supported by the national sphere, for example, they experienced delays. Management of the Western Cape Water Supply System (WCWSS), led by National Department of Water and Sanitation, with input from the CoCT and other users was under strain, in part due to neglect of the system in recent years and insufficient data to support its optimal management. Strengths also emerged. In particular, long-standing personal relations that people had across spheres, enabled important responses to be implemented, such as the transfer of water from the Eikenhof farm dam to the CoCT.

Going forward, stronger partnership models between cities and national government are needed with clear mandates and strong leadership. As part of this, processes for engagement need to be developed and information gathered to inform water services development plans that are required by law. These plans need to be updated and implemented, which is currently not adequately enforced. Importantly, development efforts should be able to expand during crises rather implementing new, reactive responses.

#### RECOMMENDATIONS

- Identify and strengthen intergovernmental coordination.

### LESSON 2: STRENGTHEN HORIZONTAL/TRANSVERSAL MANAGEMENT BETWEEN MUNICIPAL DEPARTMENTS AND ENTITIES

The Cape Town drought highlighted the importance of strengthening collaboration between departments in the City. Silo-based thinking and action hinders responses to crises and complex problems. The drought required collaboration across departments that had not been in place before. For example, the Water Demand Management department worked with Facilities Management to retrofit buildings and worked with the Information Systems and Technology, Corporate GIS and Communications Department to develop the Green Dot Map. In other instances, there were tensions between departments and a lack of clarity on roles and responsibility that created uncertainty. The drought highlighted how central water is to so many aspects of the city, emphasizing the need for a cross-sectoral approach.

Moving forward, it is important that more attention is paid to building institutions and skills that better support collaboration. In a silo system, accountabilities are clear, but in a transversal system, that expects cross-department governance, there is shared responsibilities for outcomes, which requires trust and collaboration.

Although the CoCT has a transversal management structure in place to enable collaboration between departments, lack of trust inhibited the ability to collaborate in some areas during the crisis. This points to collaboration being about more than an institutionalized mandate to collaborate. Building trust in future in the CoCT and other municipalities is going to require leadership as well as experts who can facilitate collaboration.

A central component of building trust and improving strategic decisions, relies on strengthening engagement between politicians and officials. Although there are some constructive spaces where politicians and technocrats engage, during the Cape Town drought it became clear that there were tensions around this engagement that undermined trust. Some technical experts found it hard to get their points across to politicians and some politicians found it hard to understand the technical issues holistically. Strengthening the engagement and understanding between the two groups is important for ensuring that crisis-related responses addresses citizens' concerns as well as technical, resource and institutional imperatives and constraints. Support is needed to help technical officials make more convincing arguments and understand the political dynamics better.

#### RECOMMENDATIONS

- Strengthen collaboration across departments within municipalities through strong trust-building leadership, instilling a culture of collaboration enabled through the necessary structures with associated lines of accountability.
- Institute training for officials from skilled, professional communicators in effective communication of technical information that includes how choices can be framed appropriately.



## LESSON 3: INVEST IN PARTNERSHIPS BEYOND THE CITY \*

There needs to be representation from diverse groups, with diverse expertise and constituencies, both within the municipality and from outside to respond to crises. Partnerships help to gather the range of expertise and support needed to respond to complex problems.

During the Cape Town drought, there was initial uncertainty in the business sector as to the severity of the drought as well as how to coordinate their response. As the drought progressed, collaboration between the City government, the Western Cape Government's Department of Economic Development and Tourism (DEDAT), GreenCape, Wesgro and National Business Initiative (NBI) helped to build partnerships with the business sector, addressing concerns and identifying areas for collaboration. It became clear that businesses could help to increase water efficiency and could communicate to a broad set of people. Other partnerships were less developed, such as those between government and civil society. More attention should be paid to these, as support and input from citizens is critical during a crisis.

Municipalities who, during the course of undertaking their normal business activities, have developed strong relationships with their stakeholders, will be better placed to respond effectively to a crisis because they will be able to harness the collective knowledge and contributions of stakeholders more easily. Intermediary organisations can play an important role in both situations.

## RECOMMENDATIONS

- Ensure databases of businesses, NGOs, vulnerable groups and others are up to date and mechanisms for engaging external constituents are clear.
- Municipalities should develop good relations with intermediaries, such as NPOs, NGOs and researchers, that they can work with during crises to address gaps in municipal capacities.

## AREA 2: DATA, EXPERTISE AND COMMUNICATION

- Understand the local water system
- Share information about the water situation to build public trust \*
- Actively seek external expertise and experience \*

## LESSON 4: UNDERSTAND THE LOCAL WATER SYSTEM

In order to change how water is managed it is important to have data about the current water system, its reliability and water use. During a crisis detailed planning is needed which requires comprehensive data. Knowing what data you have and what is needed makes it easier to start pulling together a model and plan of water-related responses.

In the Cape Town case, the understanding of the water resources situation in early 2017 was not comprehensive enough and more importantly the communication and understanding of the available data was limited which made it hard to understand the chance of getting through the crisis and the need for alternative plans.

## RECOMMENDATIONS

- Municipalities need to understand who their high water users are, the type of water they are using and identify ways to work with them to reduce water consumption.
- Assess the availability of data and implement plans to improve data availability and analysis (such as partnering with local universities and engaging with regional Department of Water and Sanitation offices).

## LESSON 5: SHARE INFORMATION ABOUT THE WATER SITUATION TO BUILD PUBLIC TRUST \*

During 2017 as the severity of the drought unfolded, citizens and businesses lacked a proper understanding of the scale of the problem and exactly what the City's response to it was. Communication was focussed on restrictions and what it meant to only use 87 litre per person a day, and later in 2018, 50 litres per day. There was less clarity and communication about the City's strategy and management of the situation. In early 2018 when Day Zero was said to be imminent, it led to fear, panic and several unintended consequences, including a negative impact on the tourism sector. As 2018 progressed and Day Zero was "cancelled", information became more readily available. Tools such as the dashboard showing weekly dam levels and usage data, the Water Outlooks outlining the water augmentation responses and demand management strategies as well as the Green Dot map, all helped to better inform the public and increase understanding of the situation.





overwhelming, as input can come from all corners. In order to effectively manage and navigate all the support a fair level of readiness is required.

#### RECOMMENDATIONS

- Identify and engage experts both internationally and nationally, who can help to review suggested plans and responses
- Develop a strategy to manage all the support and advice provided so that it helps to manage the crisis better rather than adding pressure.
- Consider establishing a Section 80 committee, that can be established by local government to engage external advisors on a specific topic.

### AREA 3: TAKE A SYSTEMS APPROACH

- Actively manage and integrate diverse part of the water system
- Create a robust networked system of water supply
- Recognise the limitations of the current financial model for water

From the Cape Town case it is clear that the city needs to do a proper assessment of the potential stakeholders and the factors that influence their water usage. This assessment should inform a targeted communications strategy to influence the desired behaviour changes.

#### RECOMMENDATIONS

- Share technical information in an accessible way early on to ensure transparency and build trust.
- Understand your audiences and communicate with them through targeted messages to influence behaviour.

#### LESSON 6: EXTERNAL INPUT IS IMPORTANT \*

Experts can provide a useful external perspective that can help to reflect on internal plans and practice. In the Cape Town case, international experts were mobilized quickly because of the partnership between the City of Cape Town and the Cities Support Programme in National Treasury. These experts were able to provide examples from other countries and evaluate the plans the City had. Within South Africa there are experts who have been previously involved in managing the water system who moved into consultancy or retired. Drawing on them is important as they hold institutional memory and understand the context and local challenges. There are also academics working on related issues who will have useful knowledge. This range of experts can help to provide input, serve as sounding boards and help to think through aspects of the response, to both those inside and outside of the municipality.

Although expertise and input are important, it can also be

#### LESSON 7: ACTIVELY MANAGE AND INTEGRATE DIVERSE PART OF THE WATER SYSTEM

In order to build resilience of the water system, a systems approach is needed that considers the environmental, social, economic and political aspects of the water system. This approach is likely to expand thinking from reliance on bulk surface water to diversified water sources, alongside effectively managing ecological infrastructure to support its role in water provision, managed by the City and others. Groundwater, springs, rivers, small dams among others are water sources that should be considered as part of the system. More attention needs to be paid to Sustainable Drainage Systems and ensuring porous paving, and reducing pollution loads, in order to increase retention and harvesting of storm water and other runoff.

Water demand management is critical during a crisis, as new water cannot come on stream easily in the short term. In the Cape Town case, the fact that the water demand management department was established and had many tools in place, such as pressure reduction zones and water management devices, before the drought, made it easier to scale up efforts in the height of the crisis.

The range of water users and uses also need to be considered and factored in to planning. Attention should be paid to



unequal access to water and strategies to improve this. The Cape Town drought drew attention to the many households that live with poor water access and experience the reality of queuing for water, effectively experiencing “Day Zero” daily. Improving water access and sanitation for these households should be a priority if wanting to strengthen resilience of the social-ecological system

#### RECOMMENDATIONS

- Ensure that water demand management capacity is actively developed with related leadership and funding
- Update water plans to ensure a diversity of sources are available, including sustainable urban drainage, along with plans for implementation and funding
- Increase prioritisation of access to water and sanitation for poor households

#### LESSON 8: CREATE A ROBUST NETWORKED SYSTEM OF WATER SUPPLY

A reliable water supply system depends on infrastructure (ecological and physical), that is properly maintained, and the technology to manage it. Infrastructure, including dams, pipes, treatment works and sustainable urban drainage, is often a hidden asset, which makes it hard to get support for investment. Long-term funding, supported by long-term imperatives, is required to support water infrastructure, as during a crisis the quality of this infrastructure is critical to the performance of the system.

In the Cape Town case, insufficient investment in infrastructure and management of the whole Western Cape Water Supply System (WCWSS) significantly exposed the water supply system to risk. In addition, the drought showed how vulnerable the City was in relying almost solely on surface water. In response, the City has invested in re-use, groundwater and is exploring permanent desalinisation.

Although “micro”-sources of alternative water are important during a crisis, they cannot replace the city-wide system. These local sources are hard for municipalities to support because of regulation concerns (about health impacts or technical specifications). This requires guidelines on implementation. In many municipalities, an increase in the number of micro-sources, including water reuse, groundwater and rainwater harvesting, reduces the amount of water sold by the municipality and so reduces their revenue, which needs to be carefully considered.

#### RECOMMENDATIONS

- Invest in upgrading infrastructure so that it is not put under significant strain that is likely to lead to leaks and poor supply during a crisis
- Carefully consider how to support local water sources and develop guidelines for implementation

#### LESSON 9: RECOGNISE THE LIMITATIONS OF THE CURRENT FINANCIAL MODEL FOR WATER

Municipalities are required to be financially sustainable, which requires that water tariffs can cover the full long-term cost of delivering the service, excluding capital and operating subsidies for free basic services. Cost recovery on a volumetric basis (in accordance with the amount consumed) thus not only needs to account for the long-term costs of providing infrastructure but is also vulnerable to fluctuations in usage. During a drought, as less water is used, less is paid for water. Although restrictions were accompanied by increased tariffs, the lower water use resulted in less revenue for the City of Cape Town. However, the city faced not only the fixed costs of service delivery associated with existing infrastructure and staff, but also a rising expenditure requirement to introduce demand management measures (metering) and augment water supply (such as boreholes). This created an immediate stress on the water department as a trading service and required the city to re-prioritise its overall expenditures to provide additional support. This impact on revenue can make certain actors within cities concerned about implementing water conservation approaches too early or too aggressively. A drought strategy that considers financial impacts can help in this regard to outline restrictions, with associated tariffs, before the drought and identify trigger points, such as dam levels, as to when restriction levels should change.

To support the strain of funding water services, long-term funding is required to build and maintain robust water infrastructure, as current investment is often insufficient. Different financing options to support water augmentation and infrastructure need to be explored as part of the city’s long-term financing plan. These could include tariff restructuring to explicitly fund fixed costs of the water system, although care is required to prevent this being a regressive “tax” on poorer consumers. Long-term financing arrangements to strengthen water resilience through demand management interventions that are potentially self-financing (the benefits outweigh the costs of time) and tailored borrowing instruments such as Green Bonds, should be considered.

#### RECOMMENDATIONS

- Municipalities should put in place restrictions (and associated tariffs) to cater for droughts.
- Tariffs should incorporate a fixed charge that is not dependent on the volume of water sold to recover the large share of fixed costs in the business (cost of managing the pipe distribution network), taking due care to assess the incidence of the fixed charge on various categories of consumer and income groups.
- Tariffs need to be set at levels that fully recover costs, with the equitable share grant used to pay for free or subsidized water for basic consumption for poor people.
- Commercial loans should be used more to finance water infrastructure, with scarce grant money used in a targeted way (see above).

## AREA 4: BUILD ADAPTIVE CAPACITY

- Strengthen leadership and the capacity to enable flexible, adaptive decision-making
- Develop a water sensitive city vision
- Integrate climate change into water planning

### LESSON 10: STRENGTHEN LEADERSHIP AND THE CAPACITY TO ENABLE FLEXIBLE, ADAPTIVE DECISION-MAKING

Leadership is critical to ensuring an effective response to a potential crisis. Delays in garnering support can undermine the response. Senior leadership is needed to mobilise support quickly build confidence and develop an integrated response, which can be challenging in municipalities if there is not political support. Building the capacity needed to make robust, quick, mandated decisions based on new realities at multiple points is important to cultivate. This requires adaptive leadership skills.

Portfolio and project management capacity was another important capacity the City of Cape Town utilized when needing to implement projects quickly. If this capacity is in place before a crisis it is easier for projects to go from conception to implementation relatively quickly. If this capacity is not in place it is hard to implement new projects, and to make decisions between which projects to implement.

Capacity to learn and reflect is necessary both during and emerging from a crisis. It can be hard to institutionalize space for learning amid a crisis, so it is important that mechanisms are set up before a crisis to embed learning as part of the organizational culture. This can help a city to be more adaptive to a range of emerging stressors and shocks.

#### RECOMMENDATIONS

- Assess leadership and adaptive capacity within the municipality before a crisis hits, so that resources can be mobilized quickly to address the gaps.

### LESSON 11: INTEGRATE CLIMATE CHANGE INTO WATER PLANNING

Climate change means that climate patterns, including rainfall amounts and timing, are shifting which impacts on water resource planning. The Cape Town drought was made three times more likely because of anthropogenic climate change. In future, higher chances of extreme climate impacts are becoming more probable. Better monitoring of the historical climate variability and current trends can prompt a more flexible response to managing water in line with how the climate is changing.

The uncertainty associated with climate change scenarios makes it hard to integrate them into planning for future water resources. Given that cities have not done their own

water resource planning in the past, finding ways to integrate climate information at the city scale needs to be explored. More support is needed across spheres of government to increase awareness and get buy-in from municipalities around the importance and options for integrating climate change in planning. Support for developing training and guidance material on how to integrate climate change scenarios in decision making would be useful in this regard.

#### RECOMMENDATIONS

- Explicitly incorporate climate change into water demand and supply forecasts.
- Implement scenario-based planning for water resources and evaluate the current capacity to deal with this change in order to identify priorities for adaptation.

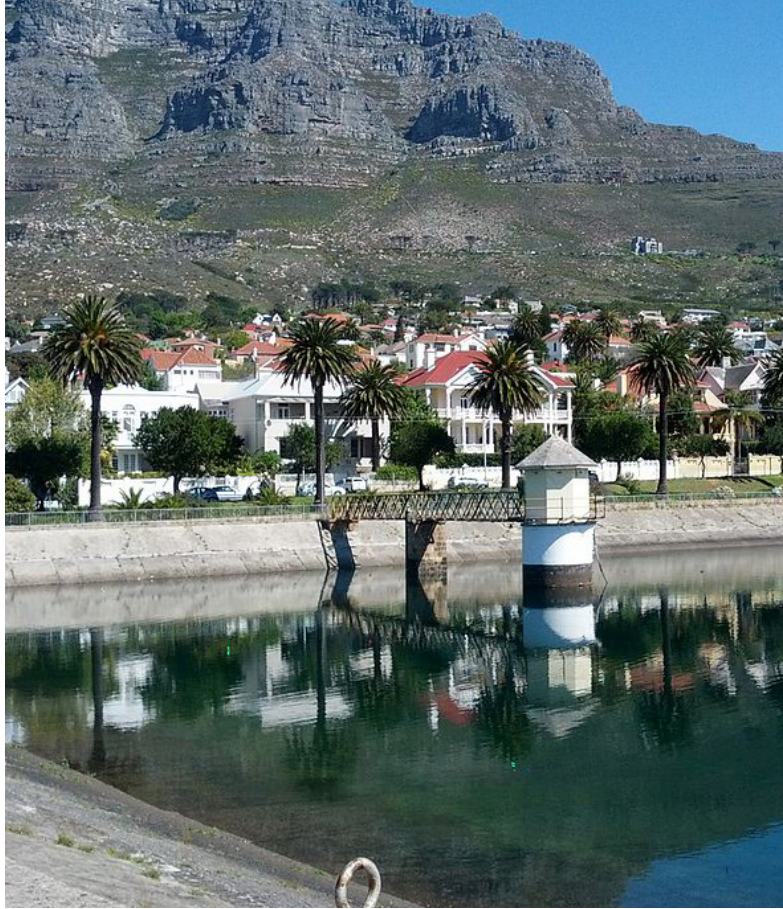
### LESSON 12: DEVELOP A WATER SENSITIVE CITY VISION

Increasingly attention is being placed internationally on building water sensitive cities that are resilient, liveable, productive, and sustainable. This involves making them water-wise through increasing the efficient use of water, protecting waterways and wetlands, implementing sustainable drainage and long-term planning that recognises diverse needs and planning for uncertainty. This means different things in different places. It is important that each city develop a vision of what they might look like as a water sensitive city, given the city's priorities and local context.

Across South Africa, guidance could be shared on how to develop a water sensitive approach. It would be helpful to think about what makes sense in coastal cities for example. All South African municipalities should have water demand management strategies, but these are not always in place. Providing templates or material on how to develop these might speed up this process. Included in this could be a discussion on the role of privatization and what is acceptable in the South African context.

#### RECOMMENDATIONS

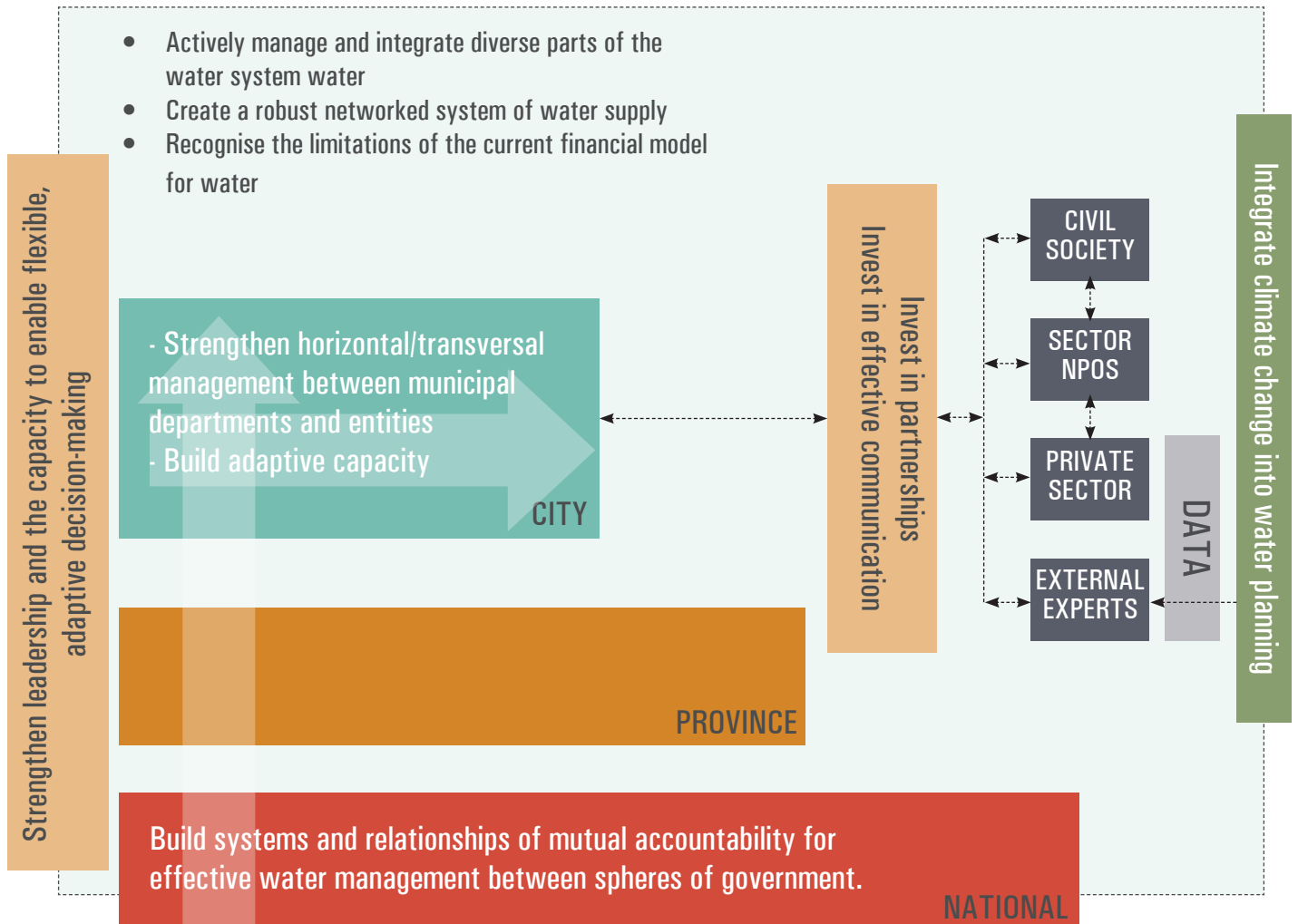
- Develop a vision and long-term strategy for what a water sensitive city might look in your specific context, along with associated resources.



## CONCLUSION

Building an adaptive water-sensitive urban system needs to be geared towards recognising and working with change. Central to this is the need to engage with the various parts of the water system, including social, ecological and physical, while remaining agile and adaptive. Efforts to increase equity and access are particularly important in the context of South African cities. It is clear that no single actor can tackle this scale of complex challenge alone, which is why partnerships and leadership are essential.

## ADAPTIVE WATER SENSITIVE CITY





## ABOUT THIS BRIEFING NOTE

This briefing note was prepared by Assoc Prof Gina Ziervogel on behalf of the African Centre for Cities as part of a package of work commissioned by the Cities Support Programme. This briefing note is a condensed version of a full paper entitled *Unpacking the Cape Town drought: lessons learned* which is available from [www.africancentreforcities.net](http://www.africancentreforcities.net)

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