NATURVATION
cities – nature – innovation

SNAPSHOT - MEXICO CITY: WATER FUND

KEY POINTS

- **Working with existing natural assets is an effective way to address large scale challenges**
- **Conservation (or restoration) of functioning ecosystems is key**
- **Varied land tenures, governance structures, and users requires engagement of many different actors**
- **When lack of trust is widespread, clear governance mechanisms and good science are essential**
- **Pricing water has faced controversial reactions, but still appears to be a good way to ensure continued water availability**

ABOUT THE PROJECT

NATure-based URban innoVATION is a 4-year project involving 14 institutions across Europe in the fields of urban development, geography, innovation studies and economics. We are creating a step-change in how we understand and use nature-based solutions for sustainable urbanisation.

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Sustainability challenges and opportunities

Water represents an existential challenge for Mexico City, which is threatened by both water scarcity and flooding. The solutions lie in its existing natural assets.

"The history of Mexico City is associated with a lake basin, but we have completely transformed that reality into one of the largest megacities – but we are still a lake."[1] Reminders of the lake come each year when heavy rains bring flooding. At other times water scarcity is a problem and subsidence due to water extraction is ongoing, damaging infrastructure including pipes where 40% of water is lost due to leakage. The metropolitan population of 20 million requires a lot of water and produces a lot of waste. 70% of the water comes from overexploited aquifers and 30% is piped in from increasing distances. In parallel, wastewater (mixed floodwater and sewage) is sent far. All of this is done at great cost and there are fears that the current approach will soon reach its limits. Fortunately, the natural dynamics of its watershed have the potential to solve Mexico City's water problems. Attention is increasingly focusing on opportunities to conserve, restore, and manage existing ecosystems in ways that ensure their capacity to absorb and filter rainwater and to recharge aquifers, thus mitigating flooding and ensuring sufficient quantity and quality of water.

Solution story and key actors

NGOs, government, and business recognised the lack of financial mechanisms to strengthen water security through protection of ecosystem features and thus established a Water Fund.

Development of the Water Fund was initiated in 2015 by The Nature Conservancy (TNC) Mexico on behalf of the Latin American Water Funds Partnership together with the Inter-American Development Bank (IDB), the Mexico City (CDMX) government, and businesses. ***"There's Modelo [brewery], FEMSA [drinks bottler], and Mexichem [pipe producer, chemical company] although its businesses aren't bottlers, even the banks because they know the viability of the city depends on water."***[2] The Water Fund is now embodied by a new non-profit *Por el Agua de la Ciudad de México* (For the Water of Mexico City). It has been integrated into the CDMX Resilience Strategy which includes as the second of its five pillars: 'Promote Water Resilience as a New Paradigm to Manage Water in the Mexico Basin.' Efforts are currently focused within CDMX's designated 'Conservation Land' (an area of 80,000 hectares representing half the land area of CDMX), beginning with a 13,000-hectare portion of it that has been identified as having particular capacity for water infiltration and aquifer recharge. The existence of the Conservation Land within CDMX provides an important opportunity, but its potential is threatened by irregular development and economic incentives that undermine its preservation.

Governance strategies

The Water Fund is governed by a partnership addressing a collective need for water security through joint investments guided by sound science.

"There is an equitable contribution from the private sector and the government, and this Water Fund undertakes projects on Conservation Land territory … where we know that there is the greatest infiltration of rainwater … So, resources are being channelled through the Water Fund for very specific conservation projects working with the landowners."[3] The CDMX Water Fund is not actually a fund but rather a mechanism to channel investment from associated organisations toward projects that meet collectively agreed priorities. Contributors maintain control of their money and direct it to the specific projects they have agreed to support. The Water Fund plays an important intermediary role as a trusted, transparent, and well-defined entity while also being highly flexible and creating a space for rethinking basic assumptions about water. Sound scientific analysis is a central tenet and TNC has been an essential technical partner in this regard. Its role in setting up other water funds has allowed it to develop effective modelling methodologies and has created confidence in its capacity to understand, cost, and manage complex water systems. The Water Fund has a scientific committee that has established and applied a formula for prioritising projects based on factors like water retention capacity and community engagement.

Business models

The Water Fund makes the costs of water more transparent so that good economic decisions can be made. It demonstrates that nature-based solutions (NBS) show returns with respect to water security.

"The idea is if you start to generate the numbers, you can do things, including negotiating the budget: How much will an engineering project cost you? How much will it cost you to protect the Conservation Land for aquifer recharge? How much does this signify in cubic metres of water? And this way the financial part of the project begins to make sense or not."[4] The Water Fund provides a new business model that traces and calculates the full costs of different pathways for water provision, thus supplying a decision-making tool and a means to properly price water. It also offers a mechanism to facilitate investment by big water users such as utilities and industries that are dependent on water, along with those threatened by the risks of flooding and other water crises. The Water Fund helps water utility managers to see their role not just as constructing pipes but also ensuring and protecting water sources. Monitoring is crucial to the Water Fund. It is central to their business case that they are able to show that specific NBS interventions are having impactful outcomes with respect to water.

Citizen engagement

In Mexico City local communities are stewards and often collective owners of natural assets and thus play a central role in implementing and protecting NBS.

"In the end you have to work with the communities; the reality here is that if the communities don't get involved, nothing happens, it won't be a success."[5]

Local communities are the implementers of NBS – and the defenders in a context where law enforcement is weak. NBS will only succeed if the communities that inhabit the land are able to secure livelihoods in ways that are compatible with its functioning as a producer of water. The Water Fund's first pilot project (in the community of Topilejo in the South of the city) is dependent on communities actively engaging in ecosystem conservation, restoration, and sustainable use through agricultural activities compatible with maintaining forest and grassland cover, which facilitate infiltration and recharge. The Water Fund also needs to reach out to the broader public to change discourses around the cost of water and who pays for it. Given a long history of low prices, high subsidies, and a widely held value concerning water as a public good that cannot be assigned a monetary value, consumers of Mexico City are ill-prepared to be faced with the real costs of one of the world's most expensive water systems. A primary tool in public engagement will be the communication of good examples of water management based on understanding the real costs of different pathways.

Innovation pathways

Water Funds are innovative conservation mechanisms to protect ecosystem features with the aim of strengthening the water security of urban areas.

They are innovative in offering a mechanism for investment in sustaining sources of water using NBS, and in creating an intermediary that can work with all of the relevant actors and provide them with an overview of the system in which they operate and recommendations for its more effective functioning. The Water Fund is a space for innovations to emerge as it brings together all of the key players and helps them frame the problems and the solutions differently. It is the first attempt in the very complex setting of Mexico City to address environmental, economic, social, and political challenges; and it is the first in Latin America to be focused on water security. "***The design of Mexico City's water fund coincided with a transition, a re-engineering of water funds in general [from] providing NBS focused on the aspect of water supply [to focusing on] water security [with its] five dimensions: household, urban, environmental and economic security, and resilience focused on water-related disasters."***[6]

[1,4,5] Staff of CDMX Resilience Agency, 2017; [2,6] Staff of TNC Mexico, 2017; [3] Staff of CDMX Secretariat of Environment, 2017; Photo credit: TNC Mexico, 2017.